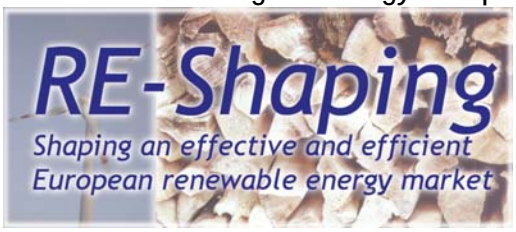
RENEWABLE ENERGY POLICY COUNTRY PROFILES

2009 version
Based on information available in October 2009

Prepared within the Intelligent Energy Europe project



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Website:	*http://www.reshaping-res-policy.eu*
Objective:	*Derivation of effective and efficient policies supporting renewable energies in a liberalised European energy market and assisting EU Member States in the implementation of the RES Directive for 2020.*
Benefits:	*A more effective promotion of RES at lower costs for consumers*
Keywords:	*RES, Policy, Legislation*
Duration:	*07/2009 – 12/2011*
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The **core objective** of the project RE-Shaping is to assist Member State (MS) governments in preparing for the implementation of Directive 2009/28/EC and to guide a European policy for RES in the mid- to long term. The past and present success of policies for renewable energies will be evaluated and recommendations derived to improve future RES support schemes.

The effectiveness and the efficiency of current and future RES support schemes is analysed. Current best practices are identified, and (future) costs of RES and the corresponding support necessary to initiate stable growth are assessed. Better integration of RES policies with climate and innovation policy as well as liberalised energy markets will be analysed and promoted. Options for flexibility between Member States will be analysed. The future deployment of RES in each MS will be calculated based on the Green-X model to assist MS in implementing national action plans and to support a long term vision of the European RES policy. The latter will be based on an in-depth analysis of the long term RES potentials and costs. The impact of policies on risks for RES financing will be analysed and improved policies and financing instruments will be proposed.

TABLE OF CONTENTS

EXPLANATION GRAPHS AND TABLES SHOWN ON FIRST PAGE OF EACH MEMBER STATE SECTION

Below the figures and tables shown on the first page of each Member State section are explained.

- All values are final energy as defined by the Renewables Directive.

First box: Graph – production and potential of RES-E, RES-H & RES-T
Allows visually comparing the relevance of the different sectors to each other, to the 2020 national RES target and to total final consumption

- The three dark-colored boxes represent the 2007 production of RES-E (left box), RES-T (middle box) and RES-H (right box):
    - The width of the box on the x-axis corresponds to the share of that sector's final energy consumption (incl. non-RES consumption) in total final consumption (value given in table).
    - The height of the box on the y-axis corresponds to the share of RES in the respective sector's final energy consumption (value given in table).
    - Therefore the area of each box corresponds to the final energy produced by that RES sector (value given in table). This allows visually comparing the relevance of the different RES-sectors to each other.
- The 2020 target is represented by the dotted line.
- The three light-colored boxes represent the realizable potential in 2020 of RES-E (left box), RES-T (middle box) and RES-H (right box). Note that the realizable potential is shown as share of 2007 consumption in the respective sector, and is therefore not corrected for change in respective consumption until 2020 (otherwise sector shares / box width in the graph would differ for 2007 production and 2020 potential).
- The total area of the graph (= the full quadrant between x- and y-axis) corresponds to total final energy consumption in that Member State. This allows visually comparing the relevance of the different RES-sectors to total final consumption.
- For definition and source of values see box below.

First box: Table – production and potential of RES-E, RES-H & RES-T and in total
This table presents the data used in the first graph plus average annual growth rates

- Row 1: E.g. RES-E production in 2007 divided by electricity consumption in 2007
- Row 2: E.g. electricity consumption in 2007 divided by total national final energy consumption in 2007
- Row 3-7: Production and growth of production from RES in the respective sector
- Row 8: Potential for renewable energy production in the respective sector in 2020: The realisable potential from the Green-X database shown here represents the achievable potential in 2020 assuming that all existing barriers can be overcome and

all driving forces are active. The realisable potential is limited by assumed maximum market growth rates and planning constraints. Assumptions on maximum market growth rates and planning constraints are based on historic experience – i.e. at technology level a “best practice” evolution is preconditioned as observed in lead markets. Consequently, the realisable potential should not be misinterpreted as an absolute maximum: If policies, markets or technologies develop extraordinarily fast, the realisable potential given here can be exceeded. The realisable potential has to refer to a certain year – it becomes substantially higher the further one looks into the future.

- Row 9: Average annual growth of total RES production needed between 2007 and 2020 in that Member State in order to achieve the national 2020 RES target. Assumptions for this calculation: (a) No physical import or export of RES or statistical transfer; (b) 2020 energy consumption is taken from the PRIMES efficiency scenario (2008 version).

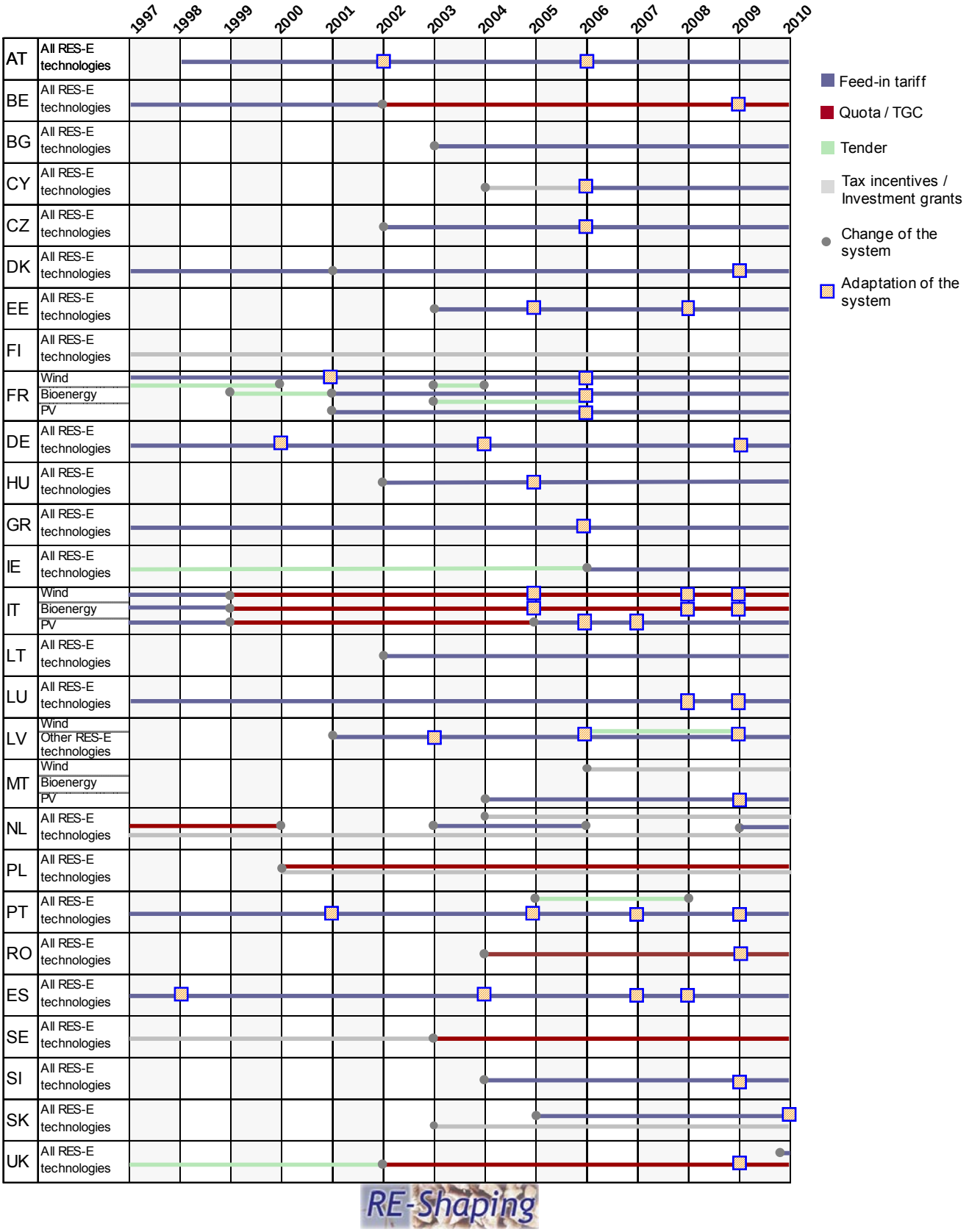
Second box: Graph – production and potential per RES technology
Allows visually comparing the relevance of the different RES technologies to each other – also across sectors

- Per technology the production in 2007 is shown (blue bar) and the realizable potential in 2020 (red bar). See box above for definition of realizable potential.
- All technologies in all three sectors are shown in the same scale in order to be able to compare across sectors. Certain biomass resources can be used in various technologies and sectors. In order to be able to present technology-specific potentials, the total biomass resource potential available domestically has been allocated to specific technologies. As the biomass potentials can also be allocated in a different way, the potentials of the technologies shown in the dotted box are to be seen as indicative.

Second box: Table – production and potential per RES technology
This table presents the data used in the second graph plus average annual growth rates

- The same kind of data as shown in rows 3-8 of the table in the first box is here shown per technology. See explanation of that table above.

OVERVIEW EVOLUTION OF RES-E SUPPORT INSTRUMENTS



RE-Shaping

NATIONAL INDICATIVE 2010 RES-E TARGETS

Table 1: National indicative RES-E targets 2010 for Member States[1]

EU Member State	RES-E % in 1997/2000	RES-E % 2010
Austria	70	78.1
Belgium	1.1	6
Denmark	8.7	29
Finland	24.7	31.5
France	15	21
Germany	4.5	12.5
Greece	8.6	20.1
Ireland	3.6	13.2
Italy	16	25
Luxembourg	2.1	5.7
Netherlands	3.5	9
Portugal	38.5	39
Spain	19.9	29.4
Sweden	49.1	60
United Kingdom	1.7	10
Cyprus	0.05	6.0
Czech Republic	3.8	8.0
Estonia	0.2	5.1
Hungary	0.7	3.6
Latvia	42.4	49.3
Lithuania	3.3	7.0
Malta	0.0	5.0
Poland	1.6	7.5
Slovakia	17.9	31.0
Slovenia	29.9	33.6
EU 25	**12.9**	**21.0**

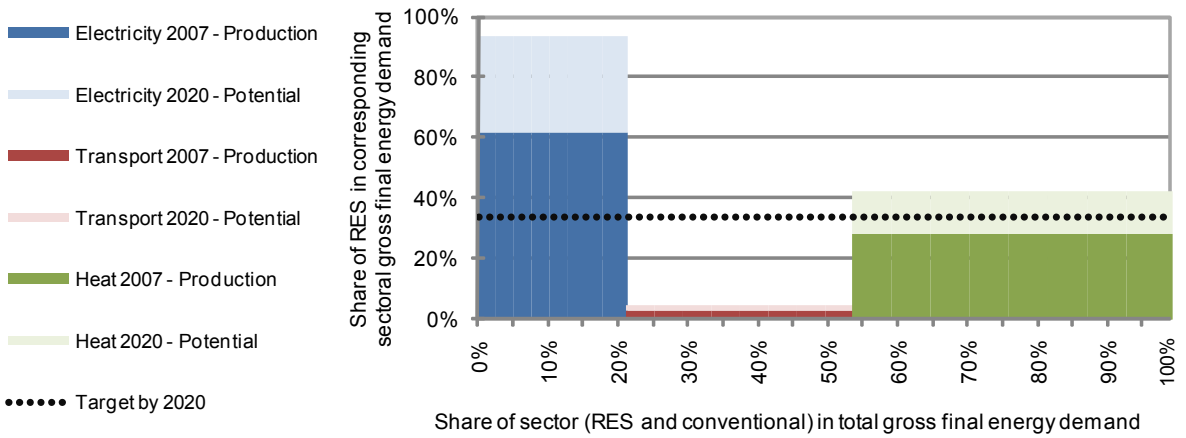
1 The percentage contributions of RES-E are based on the national production of RES-E divided by the gross national electricity consumption. For the EU15, the reference year is 1997. For the EU10 (Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia), the reference year is based on 1999-2000 data.

NATIONAL BINDING 2020 RES TARGETS

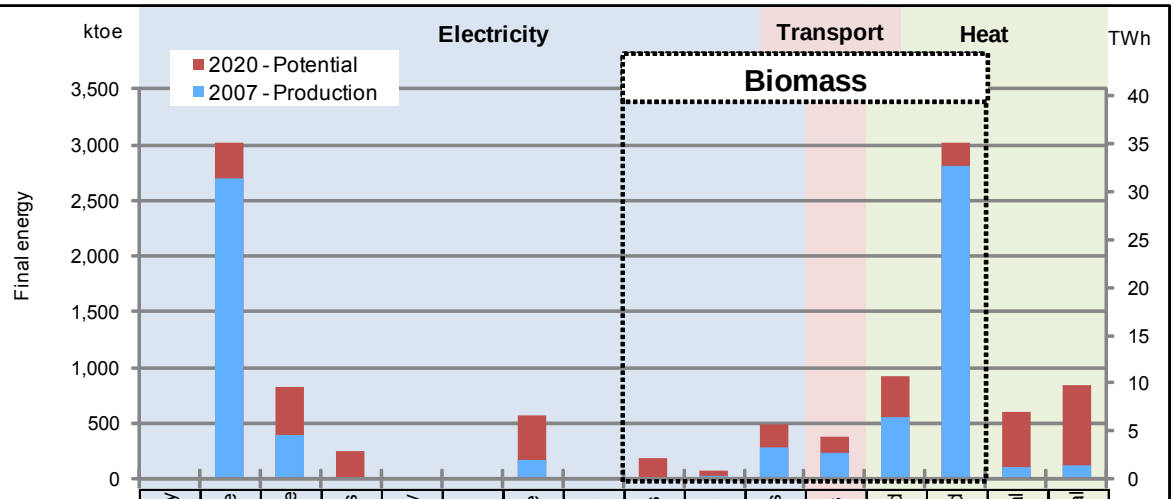
Table 2: National binding 2020 RES targets

EU Member State	RES in 2005	2020 RES Target	% increase required
Austria	23.3%	34%	10.7%
Belgium	2.2%	13%	10.8%
Bulgaria	9.4%	16%	6.6%
Cyprus	2.9%	13%	10.1%
Czech Republic	6.1%	13%	6.9%
Denmark	17.0%	30%	13.0%
Estonia	18.0%	25%	7.0%
Finland	28.5%	38%	9.5%
France	10.3%	23%	12.7%
Germany	5.8%	18%	12.2%
Greece	6.9%	18%	11.1%
Hungary	4.3%	13%	8.7%
Ireland	3.1%	16%	12.9%
Italy	5.2%	17%	11.8%
Latvia	32.6%	40%	7.4%
Lithuania	15.0%	23%	8.0%
Luxembourg	0.9%	11%	10.1%
Malta	0.0%	10%	10.0%
Netherlands	2.4%	14%	11.6%
Poland	7.2%	15%	7.8%
Portugal	20.5%	31%	10.5%
Romania	17.8%	24%	6.2%
Slovak Republic	6.7%	14%	7.3%
Slovenia	16.0%	25%	9.0%
Spain	8.7%	20%	11.3%
Sweden	39.8%	49%	9.2%
United Kingdom	1.3%	15%	13.7%
EU 27	**8.5%**	**20%**	**11.5%**

AUSTRIA – Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	62%	3%	28%	27%
Share of total sector consumption in total final energy consumption	21%	32%	47%	100%
Production 2007 [ktoe]	3,583	229	3,580	7,392
Production 2005 [ktoe]	3,416	67	3,355	6,838
Production 1997 [ktoe]	3,260	13	2,413	5,686
Average growth 2005-2007 [%/a]	2%	85%	3%	4%
Average growth 1997-2007 [%/a]	1%	33%	4%	3%
Potential 2020 [ktoe]	5,437	385	5,368	11,190
Annual growth of RES needed to achieve target	-	-	-	2%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	2,705	391	1	0	0	173	0	7	20	285	229	552	2,802	106	120
Production 2005 [ktoe]	0	2,776	344	1	0	0	114	0	6	9	166	67	404	2,762	91	98
Production 1997 [ktoe]	0	2,742	353	0	0	0	2	0	9	3	152	0	150	2,210	48	5
Ø annual production growth 2005-2007	22%	-1%	7%	6%	-	-	23%	-	13%	54%	31%	85%	17%	1%	8%	11%
Ø annual production growth 1997-2007	-	0%	1%	24%	-	-	59%	-	-2%	23%	6%	-	14%	2%	8%	37%
Total realisable potential by 2020 [ktoe]	6	3,013	829	255	0	0	572	0	191	81	488	385	922	3,016	596	835

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1. Summary: RES Support Policy

RES-E

The key policy instrument at the national level to support RES-E is the Austrian Green Electricity Act (Ökostromgesetz). After its adoption in 2002, finely tuned feed-in tariffs caused a particularly strong deployment of wind energy, biomass and biogas. After a decline of support levels and further modifications (i.e. budget restrictions and reduced guaranteed duration of support) in recent years, the development of new RES-E projects in Austria has almost stopped. As a consequence, on September 23rd, 2009, the federal parliament passed a extensive amendment that still has to be confirmed by the federal council to become effective. The goal was to increase the security of investment for RES-E project developers. Additionally, the amendment contains the introduction of new (potentially higher) feed-in tariffs that better reflect current generation costs of the various RES-E technologies, in order to stimulate deployment in accordance with the new 2020 RES commitments.

RES-H&C

In Austria, national support policy for RES-H&C projects is provided by the Environmental Support Act (Umwelförderungsgesetz), which promotes RES mainly in the form of investment grants. It has recently been revised and a new extended support structure is effective since October 1st, 2009. This national regulation addresses commercial entities, non-profit organizations, public institutions and utilities. Private households receive investment grants for RES-H&C projects at the provincial level. From a financial point of view and also with regard to the observed effectiveness, these programs clearly represent the main promotion scheme for RES-H in Austria.

RES-T

In Austria, RES in the transport sector are mainly supported in the form of biofuels. The support strategy is twofold. On one hand, minimum blending obligations guarantee market access for biogenic products and, on the other hand, tax incentives provide financial support for biofuel production.

2. Details RES-Electricity Support Policy

The federal support policy for electricity from RES is regulated by the Austrian Green Electricity Act (Ökostromgesetz), which was implemented in 2002 and has been amended several times since. The current legal situation is based on the Austrian Green Electricity Act from 2002 in addition to a large amendment from 2006 and two smaller amendments from 2007 and the beginning of 2008 (1st amendment 2008). Recently (September 23rd, 2009), the federal parliament passed another large amendment that still needs to be formally confirmed by the federal council to become effective. It can be expected that this, together with new improved feed-in tariffs, will significantly improve the support conditions for RES-E. Noticeably, these key changes of RES-E support conditions were already part of the 2nd amendment as of 2008, which never became effective in full detail, as some clauses were not considered to conform to European law.[2] Therefore, the current legal situation and the recent changes (arising from the adopted parts of the second amendment 2008) are pointed out first, and future changes arising from the almost completely adopted amendment 2009 are subsequently discussed.

Feed-in tariff: The Current Situation

The main promotional instrument to support electricity from RES in Austria is a feed-in tariff system offering technology-specific incentives with purchase obligation. The purchase and selling of green electricity is administered by the settlement centre, OeMAG (www.oem-ag.at). The electricity fed into the grid is remunerated by OeMAG, whereby the height of the tariffs is predetermined (i.e. depending on the tariffs effective at the time when the supporting agreement is signed) and guaranteed for the whole supporting period (E-Control, 2009). The resulting support expenditures are paid through two sources: (i) The electricity is allocated to the power traders, according to their market share and they have to pay a yearly defined settlement price for it. Two price categories were defined in this respect. For small-scale hydropower, the settlement price amounts to 6.41 €cent/kWh, and for all other RES-E 10.51 €cent/kWh are paid. (ii) The residual (minor) part of support expenditures is directly transferred to the final consumers who pay a yearly flat charge for the electricity meters (§ 22a Ökostromgesetz). The fee depends on the grid level to which the consumer is connected, but is independent from his actual consumption. The fee in the period 2007 to 2009 ranges between 15 €/year/meter for grid level 7 (i.e. the household level) to 15.000 €/year/meter for grid levels 1 to 4.

The annual budget regarding net support expenditures for yearly new RES-E installations was limited to € 17 million per year in the years 2006 to 2008. Moreover, this budget was split ex-ante among all RES-E technologies. The part of the regulations of the 2nd amendment (2008) of the Green Electricity Act which have already become effective, led to two important changes in this respect. From 2009, the total annual budget was increased from € 17 to € 21 million so that every year new financial support agreements of about € 270 million (cumulative net support expenditures) for new RES-E installations can be expected. Additionally, no further pre-allocation of this to individual

2 The legal evaluation process from the European Commission rejected especially the remuneration procedure of support expenditures which would have shifted a significant part of the corresponding burden from the industry to the other sectors.

RES-E categories will be undertaken, with the exception of photovoltaic installations, where the reserved annual budget is set to 10% (€ 2.1 million).

Based on the 2006 amendment, the OeMAG is required to publish each day the amount of feed-in tariff budget still available for the each RES technology category for the according year. The guaranteed duration of the feed-in tariff is currently 10 years plus two additional years with declining support. After the feed-in tariff has expired, almost all installations will benefit from a purchase obligation at market prices minus balancing costs for another 12 years. The legal act to determine the tariffs for each technology is the "Ökostromverordnung".Table 3 below gives an overview on the currently effective tariffs as defined in the "Ökostromverordnung 2009".

Feed-in tariff: Future Changes

Next, an overview is given on the future changes with respect to RES-E support in Austria arising from the new amendment as of 2009 to the Austrian Green Electricity Act. As stated above, this amendment, which has just passed the federal parliament but needs to be confirmed by the federal council, provides for the possibility to set new feed in tariffs to adapt to the current generation costs. Furthermore, this amendment includes several other important changes:

- A new goal for the delivery of new RES-E to the public grid of 15% will be set for 2015 (not technology specific).
- The guaranteed period for the feed-in tariff has been extended to 15 years for feedstock dependent installations (biomass, biogas) and to 13 years for all other installations.
- In contrast to the current feed in tariff scheme, only photovoltaic installations larger than 5 kW will be included in the feed-in scheme. PV installations with a capacity of 5 kW or smaller are then supported through the Austrian Climate and Energy Fond (http://www.klimafonds.gv.at) via investment incentives. The precondition to receive funding is that the installations are new and for use in private households. They are required to be state-of-the-art for the applied technology and are to be installed by professionals. Only private persons can ask for funding that is paid as investment incentives. The conditions are € 2.500/kW for free standing or rooftop installations and € 3.200 for building integrated systems. Applications can only be done online at www.klimafonds.gv.at/photovoltaik. The responsible settlement centre for this program is the Kommunalkredit Public Consulting GmbH (www.publicconsulting.at/pv).
- The funding for small hydropower (<10 MW) will be dissolved from the feed-in tariff scheme. For small hydropower, a cumulative budget of € 75 million is available for the forthcoming years and new installations can receive between 10% and 30 % of the total investment costs depending on project size.
- In contrast to the present situation, electricity generation from black liquor will also be supported in the future. This will be done via investment incentives of up to 30% of the total investment costs.

Summing up, it can be expected that the improved feed-in tariff system will, after some years of stagnation, again become the key driver for the future deployment of RES-E in Austria, but investment grants will be used as supplemental tool to support the deployment of special RES-E options.

Table 3: Feed in tariffs for electricity from RES in Austria

RES	capacity/product	Tariff (€cent/kWh); 10 + 2 (reduced) years	
Wind power		7,53	
Solid Biomass[d)]	≤ 2 MW	15,63	
	> 2 ≤ 5 MW	14,93	
	> 5 ≤ 10 MW	13,28	
	> 10 MW	11,08	
Waste with a high biogenic fraction[d)]	c)	minus 25%	
	c)	minus 40%	
	c)	4,88	
	mixed combustion	pro rata	
Co-firing of biomass	solid biomass	6,28	
	c)	minus 25%	
	c)	minus 40%	
	c)	minus 50%	
	mixed combustion	pro rata	
Liquid Biomass[d)]	veg. Oil; ≤ 300 kW	12,48	
	veg. Oil; > 300 kW	9,48	
	other fluid biomass	5,98	
Biogas (agricultural digestion)[d)]	≤ 100 kW	16,93	
	> 100 ≤ 250 kW	15,13	
	> 250 ≤ 500 kW	13,98	
	> 500 ≤ 1000 kW	12,38	
	> 1000 kW	11,28	
	Cofermentation of waste	minus 30%	
Biogas (waste)[d)]	sewage gas	5,93	
	landfill gas	4,03	
Geothermal		7,28	
Photovoltaic	≤ 5 kW_p	45,98	
	> 5 kW_p ≤ 10 kW_p	39,98	
	> 10 kW_p	29,98	
Small Hydro	constructed past 2007/ contract signed 2009 (15 years)		
		a)	b)
	first 1.000 MWh	5,94	6,23
	next 4.000 MWh	4,56	4,99
	next 1.0000 MWh	3,79	4,15
	next 10.000 MWh	3,42	3,92
	above 25.000 MWh	3,29	3,76

a) at least 15% increase in power production

b) at least 50% increase in power production or new construction

c) see § 5 Abs.1 Z1 ÖSG

d) These RES can only receive the feed in tariff if they are used in CHP as the minimum required conversion efficiency is 60%

3 Details RES-Heating and Cooling Support Policy

The support market for RES-H in Austria is manifold. This concerns the distinction between federal and provincial support schemes between a set of support instruments. In the following it will be distinguished between investment subsidies, tax incentives, feed-in tariffs and promotional activities. The most substantial form of support is available on the provincial level through investment subsidies for solar thermal, heat pumps and biomass heating systems (Kranzl et al., 2009). A recent amendment to the Environmental Support Act (Umwelförderungsgesetz) has also extended the support available on the federal level. Next, support schemes for RES-H at the federal level are illustrated before measures at the provincial level are discussed.

Feed-in Tariff for Biomass Electricity Exclusively for CHP

This mechanism has already been explained in the section on RES-E above. For power plants run with solid biomass, liquid biomass, waste with a high biogenic fraction, or biogas as well as mixed combustion, it is only possible to receive a feed-in support for the electricity in the case of combined heat and power production (CHP) as otherwise requested total conversion efficiency standards (> 60%) cannot be met (§2 Ökostrom-verordnung 2009).

Financial Grants

Financial grants at the federal level are awarded on the basis of the Environmental Support Act. The corresponding support program is called “Environmental Support in the Inland” and is managed by the Kommunalkredit Public Consulting GmbH (www.public-consulting.at). Target groups for this support are all private and legal persons, but the application needs to be connected with the exercise of some commercial activity, a confessional or non-profit institution, a public entity or a utility. From the installations that receive financial support, district heating, biomass plants, solar thermal and heat pumps are those that are relevant for heating and cooling support policies. Table 4 gives an overview of the level of support that these technologies can receive under the Environmental Support Act. In most cases the support is granted “de-minimis” which means it may not exceed € 300.000 in three fiscal years.

Tax Incentives

Three categories of taxes incentivize the use of RES for heating & cooling. First the value added tax for agricultural and forestry products is reduced to 10%, whereas the value added tax on fossil fuels is 20%. Moreover, the Austrian mineral oil tax poses additional tax costs on fossil fuels. This further increases the cost of heating oils by € 60 per 1.000 kg. Thirdly, since 1979, the Austrian income tax act defines energy saving measures as special expenses for which tax allowances can be reclaimed. These measures also include expenses for heat pumps, solar thermal and bioenergy systems. These expenses can be deducted from the taxable income. In this context it is important to note that there is no restriction regarding the combination of tax allowance schemes and investment grants, thus a combination of these schemes is possible.

Table 4 Tariffs under the „Umweltförderung im Inland“ support schme

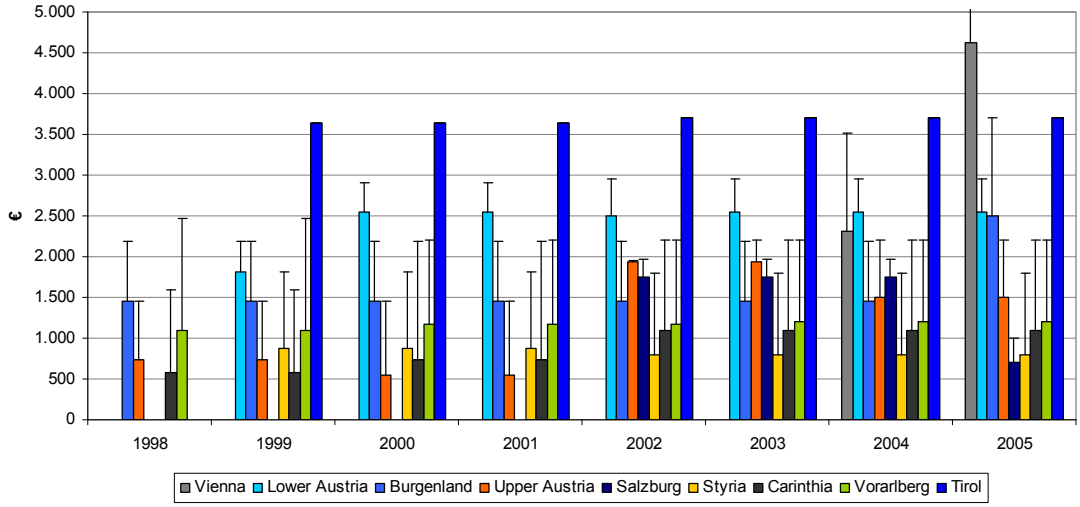
RES	capacity	subject to receive support	level of support
connected to district heating	≤ 400 kW	investments that are made inside the property of the receiver, are owned by him and are required to connect to the grid	•€ 56/kW for 0 to 100 kW, then € 32/kW for every additional kW up to 400 kW •When connected to a fossil district heating grid the allowance is only the half •For external energy consultancy services (at least 8 h) an allowance of € 300 is granted •The support is granted "de-minimis" and is limited to 30% of the environmentally relevant costs at the max
	> 400 kW	investments that are made inside the property of the receiver, are owned by him and are required to connect to the grid	•De-minimis: all environmental relevant investment costs; above de-minimis: env. rel. additional inv. Costs (are determined by Public Consult) •20% for RES and 10% for non-RES of env. relevant inv. costs •above de-minimis: 40% of the additional env. relevant investment costs
biomass plants	≤ 400 kW	biomass firing plants as central supply unit at operational level	•120 €/kW for 0 to 50 kW; € 60/kW for every additional kW up to 400 kW •Boiler plants that fulfill "Umweltschutzrichtlinie Nr.37" are granted another € 10/kW •For external energy consultancy services (at least 8 h) an allowance of € 300 is granted •The support is granted "de-minimis" and is limited to 30% of the environmentally relevant costs at the max
	> 400 kW	biomass firing plants as central supply unit at operational level	•De-minimis: all env. relevant inv. Costs; above de-minimis: env. rel. additional inv. •20% of env. rel. Costs; bonus of 5% is possible if 80% woodchips (timber) are used •above de-minimis: 40% of the additional env.relevant inv.costs (max) •For flue gas cleaning a bonus of 5% or max € 20.000 is possible for installations with a capacity between 400 and 1.000 kW
		biomass microgrid & biomass local heat	•De-minimis: all env. Relevant inv. Costs; above de-minimis: env. rel. additional inv. Costs (are determined by Public Consult) •25% of env. rel. Costs; bonus of 5% is possible if 80% woodchips (timber) are used •above de-minimis: 40% of the additional env.relevant inv.costs (max) •For flue gas cleaning a bonus of 5% or max € 20.000 is possible for installations with a capacity between 400 and 1.000 kW
solar thermal	≤ 100 m2	Solar heating systems to supply warm water or space heating	• € 100/m2 for standard collectors, € 150/m2 for vacuum collectors •For external energy consultancy services (at least 8 h) an allowance of € 300 is granted •The support is granted "de-minimis"and is limited to 30% of the environmentally relevant costs at the max
	> 100 m2	Solar heating systems (>100 m2) to supply warm water or space heating & installations for the thermal drive of cooling systems	•De-minimis: all env. Relevant inv. Costs; above de-minimis: env. Rel. Additional inv. Costs (are determined by Public Consult) •De-minimis: 20%, above up to 40%
heat pumps	≤ 400 kW	Heat pump systems for warm water and heating supply	•De-minimis, max 30% of env. relevant investment costs •Water heat pumps: 0-80 kW: € 85 kW, every other kW € 45 up to 400 kW •Air heat pumps: 0-80 kW: € 70 kW, every other kW € 35 up to 400 kW •For external energy consultancy services (at least 8 h) an allowance of € 300 is granted
	> 400 kW	Heat pump systems for warm water and heating supply	•De-minimis: all env. Relevant inv. Costs; above de-minimis: env. rel. additional inv. Costs (are determined by Public Consult) •De-minimis: 15%, above up to 40%

Provincial Support Schemes

Financially speaking, investment grants for RES-H systems and for residential building construction on the provincial level clearly represent the main promotion scheme for RES-H in Austria (Kranzl et al., 2009). Since these programs belong to the authority of the province governments as many as nine different schemes exist.

With respect to biomass heating systems, investment incentives are granted in every province, but each amounts and set of conditions is different. In Carinthia and Vorarlberg, fixed amounts are paid, whereas in other provinces such as Burgenland or Styria the investment incentives account for certain proportions of the total investment costs. In some provinces there are also additional requirements and restrictions and thus a comparison between the different support schemes is not straightforward. Austria has been successful in recent years in developing sustainable energy technologies like biomass heating systems or water heating. Figure 1 illustrates the dynamic development of the average investment aids for domestic biomass heating systems with typical capacities of 15 to 25 kW in the Austrian provinces in the last years. The impact of these measures was the accelerated substitution of old and inefficient single stoves and boilers with modern low emission systems.

Figure 1 Development of investment incentives for domestic biomass heating systems



Source: Haas, Havlickova, Kalt, Knapek, Kranzl, Weger 2005

Investment grants for solar thermal systems in the provinces started during the 1980´s and were developed more strongly during the 1990´s. The level of support varies for solar thermal systems between 20% and 40% of the investment costs depending on the size of the installation, the type of collector and the type of systems. This results in grants of € 600 to € 1.700 for water heaters and € 1.100 to € 3.500 for combined solar systems.

For heat pumps, investment incentives are in the range 10% to 30% of the investment costs, depending on the type of heat source, coefficient of performance, etc. For heat pumps some utilities provide additional incentives like investment aids or reduced electricity tariffs.

To complement the above mentioned promotional measures offering financial support, a number of awareness campaigns and training programs have been carried out by regional energy agencies as well as by the federal government.

Support schemes for RES-Cooling exist in Austria and similarly for RES-Heat both at the provincial and at the federal level. In Lower Austria, air conditioning systems, that are

powered by photovoltaic systems can receive financial support of 30% of the investment costs (up to € 1.500) and in Vienna, grants up to 30% of the investment costs for solar cooling systems are possible. At the federal level commercial entities, non-profit organizations, public institutions and utilities can claim support for up to 30% of the investment cost under the program, "Umweltförderung im Inland" that has been mentioned above for RES-H support, managed by Kommunalkredit Public Consulting GmbH.

4 Details RES-Transport Support Policy

In Austria RES, the transport sector is primarily supported in the form of biofuels, whereas recently support is also offered for the introduction of electrical cars in demo regions through the Austrian Climate and Energy Fond (http://www.klimafonds.gv.at).

The support strategy for biofuel products is twofold. Minimum blending obligations guarantee their market access and, also, tax incentives provide financial support.

The substitution requirement is regulated in the Biofuel Directive that came into force on November 4th in 2004. It requires the obligated parties to increase the share of biofuels or other renewable fuels on their total fuel sales stepwise from year to year.

- As of October 1st, 2005: 2.5% for petrol and diesel;
- As of October 1st, 2007: 4.3% for petrol and diesel;
- As of October 1st, 2008: 5.75% for petrol and diesel

In 2007, the total biodiesel on the Austrian market accounted for 370.000 Mt and the total bioethanol for 406.000 Mt, which averaged a share of 4.7 % on the total diesel supply and the total petrol supply respectively.

Further tax incentives have been introduced through changes to the Austrian Mineral Duty Act. The precondition to receive the funding is that the fuels contain at least 44 litres of biofuels per 1,000 litres. Given these preconditions as of October 2007, the mineral oil duty for petrol per 1,000 litres is € 442 instead of €475 and as of July 2007 the mineral oil duty for diesel per 1,000 litres is € 347 instead of € 375. Pure biofuels are exempt from mineral oil duty. For fuels with a high share of bioethanol, the blending of bioethanol is regulated in the "Bioethanolgemischverordnung". As of October 1st, 2007, fuels that are produced between October 1st and March 31st and contain between 65% and 75% bioethanol or fules that are produced between April 1st and September 30th and contain between 75% and 85% bioethanol are reimbursed 0.442 € per litre bioethanol from their mineral oil tax.

5 RES-E Grid Integration

The topic of grid integration in Austria is discussed regarding grid access, balancing responsibility and associated costs for RES-E projects.

The first question that has to be answered is whether RES-E projects have priority in grid connection compared to conventional generators. In Austria this issue is dealt within the Electricity Economy and Organizational Act (EIWOG) and §23 states that all plant

operators have the same right to the grid connection of their plants, irrespective of the type of energy source they use. While RES-E installations are not given priority regarding grid access, the question of priority in dispatch is handled differently. The priority of RES-E projects in case of grid congestions is based on §19 (EIWOG), which states that the transmission of renewable energy sources is to be given priority over transmission of electricity from non-renewable energy sources if the capacity is not sufficient to meet all demands for grid usage. Apart from that, the grid operator may deny grid usage to electricity from traditional energy sources after having taken into account the present market prices, if this prevents the crowding out of electricity generated by RES (§ 20, par 1 EIWOG).

Another important aspect is the financing of grid extensions. In accordance with the general provisions of energy law, the costs of a grid expansion are borne by the receiver. The receiver is either the final consumer or the grid operator that receiving electricity from the grid (§ 7 EIWOG). This interpretation would suggest a “shallow” charging on RES-E project side. Practically it has shown that the cost charging on the RES-E project side is rather “deep” in Austria. The reason for this is that costs for the grid extensions are based on bilateral contracts with the grid operator who in many cases is in a stronger bargaining position. The method to determine the cost of upstream grid reinforcement is not uniform. In some cases, RES-E project developers pay a lump sum fee and in other cases the calculation is done project specific. For example, in Burgenland and Lower Austria, the provinces with the highest share of wind power, the cost charging is based on a technical evaluation that has been developed for wind projects and is now applied proportionally to new developments.

Balancing responsibility for RES-E generation within the Austrian support scheme lies with the single buyer (OeMAG) and costs resulting from settlement of balancing energy are born by customers (Weissensteiner et al., 2008). For RES electricity that is not supported under the Green Electricity Act, the RES producers negotiate the bearing of balancing costs with the respective balancing responsible party they are associated with. According to the Green Electricity Report 2009, the costs for balancing energy are 0.765 €cent/kWh for wind power and 0.091 €cent/kWh for all other RES.

6 RES Production, Potential and Market Development

RES-E

The production of electricity from RES demonstrated a moderate growth during the second half of the 1990s followed by a slight decline starting in 2001. The limited growth in relative figures has to be seen in context to the high overall production and share of RES-E dominated by large hydropower. The development of small hydro lags far behind the potentials that are seen for this source in Austria, due to lack of financial support but also the societal constraints at a regional level.

A major share of the biomass electricity is attributed to industrial wastes, especially in the paper industry. In contrast to the European definition, the biomass plants based on industrial waste are not considered in light of the expressed targets in the Austrian Green Electricity Act. Only those RES-E technologies such as PV and wind energy where the use started basically from scratch could reach significantly higher growth rates. In the case of wind energy, a very strong growth could be observed in the period

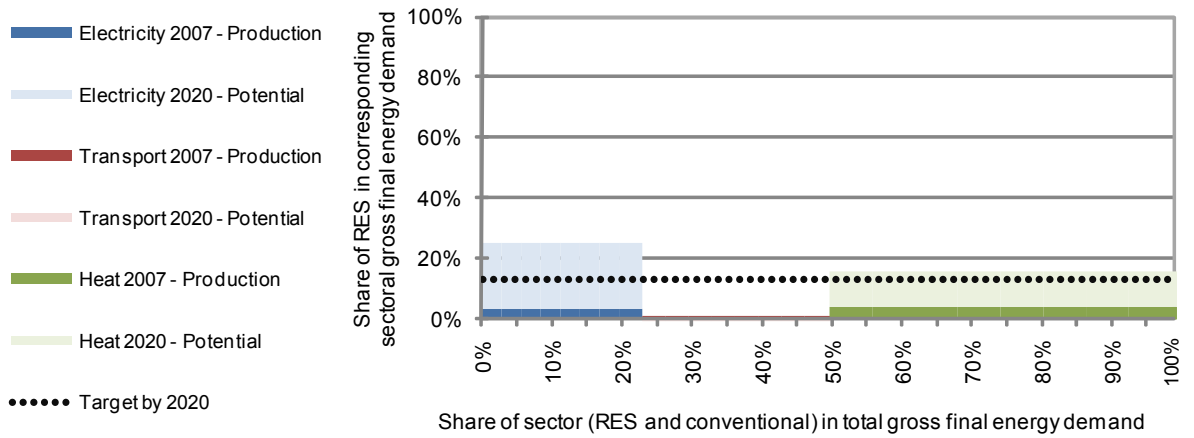
2003 to 2005, an effect of the strong feed-in tariffs effective for new installations during these years.

Since the phase out of the favorable support conditions (effective for RES-E producers which received permission in the period 2003 to 2004) a stagnation could be observed in recent years where almost no new RES-E projects were realized.

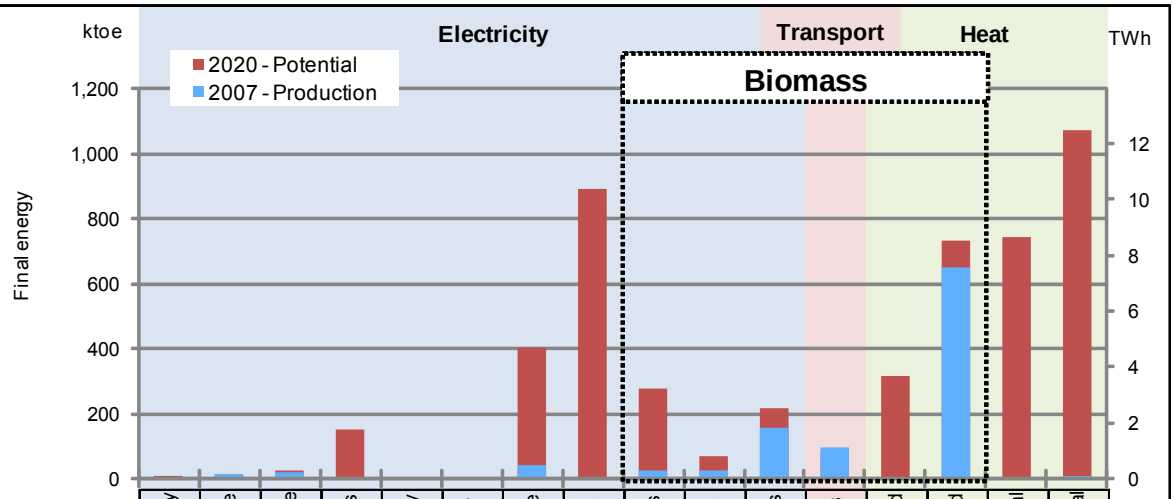
RES-H&C

The use of biomass is by far the most important source for RES-heat. The strong position is related to the continued and widespread use of traditional biomass-based heating. While the growth rate for biomass is low, the heat production from solar thermal heat and from geothermal heat including heat pumps increased. Even higher growth rates were reached for geothermal heat.

BELGIUM - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	3%	1%	4%	3%
Share of total sector consumption in total final energy consumption	23%	27%	50%	100%
Production 2007 [ktoe]	283	97	668	1,048
Production 2005 [ktoe]	180	1	689	870
Production 1997 [ktoe]	51	0	342	393
Average growth 2005-2007 [%/a]	25%	885%	-1%	10%
Average growth 1997-2007 [%/a]	19%	-	7%	10%
Potential 2020 [ktoe]	2,060	83	2,866	5,009
Annual growth of RES needed to achieve target	-	-	-	12%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	14	19	1	0	0	42	0	25	26	156	97	4	648	5	11
Production 2005 [ktoe]	0	10	14	0	0	0	20	0	26	28	83	1	34	641	3	11
Production 1997 [ktoe]	0	11	15	0	0	0	1	0	3	16	5	0	4	335	1	2
Ø annual production growth 2005-2007	-	20%	17%	145%	-	-	47%	-	-2%	-5%	38%	885%	-66%	1%	29%	3%
Ø annual production growth 1997-2007	-	2%	3%	-	-	-	51%	-	25%	5%	41%	-	0%	7%	17%	20%
Total realisable potential by 2020 [ktoe]	7	15	26	150	0	3	404	891	277	72	215	83	317	732	745	1,072

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The green certificate system with a quota obligation is the main instrument to increase the share of renewable electricity generation in Belgium. The system is applied in all three regions, but the minimum prices and fines (for suppliers that do not meet the monthly obligation) differ per region. System operators are obliged to purchase certificates from producers for the established minimum price.

There are no important changes expected. A potential change is the separation of guaranties of origin, from green certificates in Flanders. Additional regulation and policy is also expected to stimulate the integration of decentralised power generation in the electricity network.

Apart from the green certificate system, implemented on a regional level, there are several small incentives in the form of tax deduction, subsidies of tenders; however, the impact of these schemes is probably small compared to the green certificate system.

RES-H&C

There is no large scale policy on federal level for RES-H&C. For households, tax reductions are in place for the installation of RES-H production units.

In Flanders, the main instrument is the quota obligation for high quality CHP (not necessarily renewable), combined with CHP certificates.

There are no important changes expected.

RES-T

The main instrument to promote RES-T is tax exemptions for the production of biodiesel and bioethanol. The exemption is only valid for a quoted production.

No important policy changes are expected at the national level and there are at the regional/local level, no important additional instruments to stimulate RES-T.

2 Details RES-Electricity Support Policy

The main promotion scheme for RES-E in Belgium is a quota obligation on electricity suppliers to supply an increasing proportion of their electricity from renewable sources.

At federal level, it is possible to receive a tax deduction of 20.5% on the investment costs for a new environmentally friendly project in research and development.

Federal Instrument: Quota Obligation with Green Certificates

The following technologies are covered by the scheme:

- Co-firing of biomass in coal plants
- Biogas production from bio degradable waste and sewage treatment
- Burning of waste
- Solid of liquid biomass
- Biomass waste
- Unspecified biogas
- Hydropower
- Tidal-and wavepower
- Geothermal heat
- Wind onshore
- Other technologies

The quota obligation system is implemented in three regions with different minimum prices. The regulators (CREG (national), VREG (Flanders), CWaPE (Walloon) and Brugel (Brussels)) issue certificates, except for Brussels, where IBGE/BIM (the Brussels department of environment) issues them. Installations producing RES-E receive certificates for 10 years. In Flanders, exceptions are solar PV and offshore wind, which receives certificates for 20 years.

Green certificates can be traded between suppliers and producers (OTC) and suppliers have a monthly obligation to surrender certificates (virtually) to the regulators. Producers can also trade certificates with DSO's for the regional minimum prices and with the TSO (Elia) for the national established minimum prices.

Information is available on the websites of VREG, CWaPE, CREG and Brugel:

http://www.vreg.be/ (Vlaamse Reguleringsinstantie voor de Electriciteit- en Gasmarkt)

http://www.cwape.be/ (Commission Wallone pour l'Energie)

http://www.brugel.be/ (Reguleringscommissie voor Energie in het Brussels hoofdstedelijk gewest)

http://www.creg.be (Commissie voor de Regulering van de Elektriciteit en het Gas)

The instrument is not regularly revised, but the certificates system is linked to the RES-E goals in Belgium and its regions.

The green certificates system was first mentioned in a royal decree of 29 April 1999 regarding the organisation of the electricity market. The federal renewable electricity scheme was further established in a royal decree (national) of 16 July 2002 regarding the promotion of renewable electricity. Regional legislation was developed, based on this decree and European legislation.

In Flanders, the first certificates were traded in 2002 and in Walloon in 2003. The certificates system was further established in Flanders in a decision of the Flemish government of 5 March 2004, regarding the promotion of renewable electricity. In March 2009 the Flemish Government approved a draft amendment of the Flemish Electricity Decree. The system in the Walloon region was established by decree of the Walloon Government adopted on 12 April 2001.

In Flanders, minimum prices are applicable until 2020 and in Walloon until 2012. However, no end dates are set on national laws and regulations.

There is no cap on the annually available budget. The prices are paid by the electricity suppliers and traders and, in case of the “fall back” minimum prices, by the TSO and DSO’s. However, the quota obligation determines the size of the green certificates market. Investment premiums and tax reductions can be combined with this scheme.

The regulation does not make support conditional to the use of certified equipment and/or certified installers.

Minimum prices for new projects are presented in the table below.

Table 1: Minimum prices for RES-E projects and targets.

			Flanders	Walloon	Brussels	Federal
Target	%		2002-2010: 0.8 - 6%	2003-2012: 3%-12% (RES-E and CHP)	2004-2012: 2%-3.25%	
Duration	years		10	10		10
Min price* (fixed)	(€/MWh)	Wind offshore	n.a.	n.a.	n.a.	90** (20 years)
	(€/MWh)	Wind onshore	80	65 all RES-E		50
	(€/MWh)	Solar (before 2006/from 2006)	150/450 (up to 20 years)			150
	(€/MWh)	Biomass and other	80			20
	(€/MWh)	Hydro, tidal, wave	95			50
Penalty	(€/MWh)		€125 (2005-10)	€100 (2005-07)	€100 (2007-2010)	

New minimum prices in Flanders as of 2010, defined in the amendment in 2009:

co-firing of biomass in coal plants			60€/MWh for 10years
Biogas production from bio degradable waste and sewage treatment			
Burning of waste			
other technologies			
Solid of liquid biomass			90€/MWh for 10years
Biomass waste			
Unspecified biogas			
Hydropower			
Tidal-and wavepower			
Geothermal heat			
Wind onshore			
Solar Power	2010	350€/MWh	for 20 years
	2011	330€/MWh	
	2012	310€/MWh	
	2013	290€/MWh	for 15 years
	2014	250€/MWh	
	2015	210€/MWh	
	2016	170€/MWh	
	2017	130€/MWh	
	2018	90€/MWh	
	2019	50€/MWh	
	2020	10€/MWh	

The target in the Walloon region is 7-12% of the gross electricity consumption in 2007-2012 for renewable electricity and CHP. In Flanders, the target increases from 0.8% in 2002 towards 6% in 2010, afterwards the quota increases to 13 % in 2020. In Brussels, the target is 2.5 % in 2009 to 3.25 % in 2012.

Furthermore, there is a penalty for non-fulfilment. The penalty is 125 €/MWh in Flanders and 100 €/MWh in Brussels and Walloon. The two tables below present the price for green certificates during the last years in Flanders and Walloon:

Table 2. Prices for green certificates in Flanders

(Source: VREG[3])

	Without GoO		With GoO	
	Number of GC's	Average price (€)	Number of GC's	Average price (€)
1 Jan 2002 - 31 Mar 2003	94,645	73.85	0	0
1 Apr 2003 - 31 Mar 2004	158,713	91.57	0	0
1 Apr 2004 - 31 Mar 2005	226,505	109.01	0	0
1 Apr 2005 - 31 Mar 2006	535,448	110.30	42,944	111.58
1 Apr 2006 - 31 Mar 2007	274,352	109.19	500,646	109.17
1 Apr 2007 - 31 Mar 2008	395,522	109.06	602,375	108.81
1 Apr 2008 - 31 Mar 2009	585,447	109.36	540,954	106.72
1 Apr 2009 - 31 Mar 2010	118,320	107.90	393,150	108.25

3 http://www.vreg.be/nl/06_sector/04_groenestroomproducenten/08_Statistieken.asp

Table 3 Prices for green certificates in Walloon

(Source: CWape[4])

	Number of GC's	Average price (€)
2004	254,446	90.48
2005	294,613	92.10
2006	483,465	91.56
2007	537,982	89.84
2008	919,828	88.22

Federal Instrument: Tax Deduction

Tax deduction of 40 % of the investment from income tax for PV solar panels managed by the federal tax agency. The instrument is periodically revised, see: http://www.energiesparen.be/node/1238

The deduction is regulated by Royal decree regarding investment- and tax-deductions for energy saving measures of 1 September 2006.[5]

The scheme started in 2003 and there is no end date specified. The maximum budget per installation is capped at €3600. The tax deduction can be combined with an investment premium and green certificates. Technogies are to be installed by a registered installer. The following technical standards apply:

- For crystalline PV: IEC 61215 standard and minimum efficiency of 12 %.
- Thin film PV: IEC 61646 standard and minimum efficiency of 7 %.
- Invertors: Efficiency for grid connected systems must be higher than 91 %.

Flanders: Ecologiepremie

Ecologiepremie is an investment premium (capital grant), via tenders, managed by the Agency of Enterprises (Agentschap Ondernemen). More information is available at: www.vlaanderen.be/ecologiepremie

Every year there are new calls, however there is no established adjustment mechanism.

The last adjustment was adopted on 3 April 2009.[6]

The total legal framework can be found here:

http://ewbl-publicatie.vlaanderen.be/servlet/ContentServer?c=Page&pagename=Ondernemen%2FPage%2FMVG_CMS4_VT_Special_Subnav&cid=1196737282158

4 http://www.cwape.be/xml/themes.xml?IDC=1559

5 http://reflex.raadvst-consetat.be/reflex/pdf/Mbbs/2006/09/08/100189.pdf

6 http://ewbl-publicatie.vlaanderen.be/Uploads/20090403%20BVR%20versoepelingen.pdf

There is no set end date.

There is no maximum plant size, but the premium is only paid out to enterprises.

The budget for 2009 was 120 million Euros, but this budget is for investments in environmental improvements, not just for RES-E. The maximum budget per project is 1,750,000 Euros and 20% of the investment for large enterprises and up to 40% for small enterprises. The same project can be supported by more than one support measure, for example with the green certificates system. The regulation does not make support conditional to the use of certified equipment and/or certified installers.

Flemish enterprises, in which national/regional authorities have less than 50% of the capital or voting shares, are allowed to tender. If the enterprise is in an energy intensive sector, it is eligible only in case it commited itself to a benchmarking agreement.

There are three tender rounds per year; the dates are announced by the agency.The scheme is not limited to certain project volumes.

Flanders: Permit Exemption

In agricultural areas, permits can be granted immediately to wind farms, without adjusting zoning schemes. The instrument is implemented by the Government of Flanders, but monitored and executed by regional and local authorities.

More information here: http://www.energiesparen.be/book/export/html/718

The decree regarding the adjustment of the spatial planning, permit and enforcement policy enacted on 27 March 2009 ("Decreet tot aanpassing en aanvulling van het ruimtelijke plannings-, vergunningen- en handhavingsbeleid").7 This instrument is operational and there is no set end date.

Flanders: Exemption Planning Permit

Solar: Placing of solar PV and solar thermal on rooftops are exempted from a planning permit.[8]

Brussels: Energy Premiums (capital grant)

Energy premiums for households, owners of collective housings and the services and industrial sector are in place in Brussels. The instrument is managed by the Brussels instituut voor miliebeheer (BIM)/ Instititut Bruxellois pour la gestion de l'environnement (IBGE). http://www.ibgebim.be/

The budget is adjusted every year. It has been in place since 2004 and was laid down in a decision of the Brussels Government, regarding support for energy saving and RES-E production of 2 April 2009.[9] Applications are received continuously. The maximum reimbursement is 40% (industrial) – 50% (households, collective housing) of the total

7 http://reflex.raadvst-consetat.be/reflex/pdf/Mbbs/2009/05/15/112986.pdf

8 http://www.vlaanderen.be/servlet/Satellite?pagename=Infolijn%2FView&c=Solution_C&p=1186804409590&cid=1212644471770

9 http://www.envirodesk.be/node/48716 (Dutch).

eligible costs, with a maximum of 200,000 Euros. For 2009, the total budget cap was 35 million Euros. The instrument may be combined with green certificates.

The regulation makes support conditional to the use of certified equipment:

- For crystalline PV: IEC 61215 standard and a minimum efficiency of 12 %
- For thin film PV: IEC 61646 and a minimum efficiency of 7 %.

Owners of collective housing, industry and the service sector and households are eligible to receive a grant. The maximum overall amount of subsidy is €200,000 for industrial applicants and €3,000 for households.

3 Details RES-Heating and Cooling Support Policy

Flanders: Quota Obligation via CHP Certificates

The support schemes for RES-E do not encourage the use of combined heat and power (CHP) and there is no promoting scheme on the consumption of district heating and RES-H/C. However, there is a quota obligation system for CHP (not related to RES-E/H sources).

Quota obligation via CHP certificates was established in a decree of the Flemish government of 30 April 2004 regarding the establishment of the independent VREG and it was further reiterated in a decision of 7 July 2006 regarding the promotion of power production from high quality CHP installations. The CHP certificate attests that per certificate, 1,000 kWh primary energy is saved in comparison to the separate electricity production.

The quota obligation system is implemented only in the Flemish part of Belgium. The Wallonia and the Brussels region only have the green certificate scheme for RES-E in place. The regulator is VREG. Installations producing CHP-E receive certificates for 10 years.

More information:
http://www.vreg.be/
http://www.cogenvlaanderen.be

The scheme started in 2005, there is no end date set. There is no cap on the annually available budget or volume of new installations and tax deductions or investment premiums may be combined with the certificates.

The regulation does not make support conditional to the use of certified equipment and/or certified installers.

Federal: Tax Deduction

Tax reduction of 40 % of the investment from income tax for households, for:

- Solar thermal
- Heat pumps
- Wood burning stove

-

The federal tax agency manages the tax scheme.[10] The instrument is periodically revised, see: http://www.energiesparen.be/node/1238

The scheme started in 2003 and there is no end date. The current tax instrument was established by royal decree, regarding investment- and tax-deductions for energy saving measures on 1 September 2006.[11]

The maximum budget per installation is capped at €2,770 per installation. The measure can be cumulated with an investment premium.

The regulation makes support conditional to the use of certified equipment and certified installers. The following technical standards apply:

- Solar thermal: The panels are installed between east and west, facing south. The angle is between 0 and 70° with the horizon.
- Heat pumps: The heat pump has an EG-label. The coefficient of performance is higher than 3.
- Wood burning stove: The machine has to have an efficiency of 60% according to norm EN303-5 in order to get the subsidy.

Flanders: Heating and Cooling from RES in Industrial Applications

The following support schemes are in place to encourage the use of heating and cooling from RES.

Ecologiepremie (Ecology bonus): Enterprises in Flanders can get a bonus for the investment in certain technologies. These technologies have to be better than the European performance standards. Only additional investment costs are eligible. The maximum is established per technique. See section on RES-E.

Other:

- Flemish agrarian investment funds (”Vlaams Landbouwinvesteringsfonds”, VLIF): Agrarian enterprises who want to invest in energy crops will be supported. The support is up to 40% of the investment costs in form of and capital bonus, interest rate subsidy or a guarantee.
- Several DSOs have a subsidy for the installation of a heat pump, depending on the size of the system.
- Biomass: In Flanders firing of untreated wood or certified wood pellets is exempted from an environmental permit with a maximal capacity of 300 kW.[12]
- Subsidy of 20 % to public organisations for the installations of a heat pump or micro-CHP.

10 http://www.energiesparen.be/subsidies/belastingvermindering

11 http://reflex.raadvst-consetat.be/reflex/pdf/Mbbs/2006/09/08/100189.pdf

12 http://www.lne.be/themas/hinder-en-risicos/geurhinder/regelgeving-geurhinder/vlarem

4 Details RES-Transport Support Policy

There is a biofuel quota combined with a (gasoline) fuel tax exemption for recognised bio fuel producers. The tax exemption will only be applied for a specific quota. The exemptions were assigned via tenders. The instrument is managed by the Federal Public Service Economy, SMEs, Self-employed and Energy.

More information:
http://economie.fgov.be/nl/consument/Energie/hernieuwbare_energieen/Biobrandstoffen/index.jsp

This instrument is regulated by the law regarding bio-fuels, enacted on 10 June 2006.[13] The production quota and tax exemptions are established until 30 September 2013. The overall bio fuel share target is 5% in 2009 and 5.75% in 2010 with tax exemptions.

The quotas for Ethanol and Biodiesel are:

- Ethanol:
  - 250 million litres/year between 2008 and 2012
  - 187.5 million litres between 1 January 2013 and 30 September 2013
- Biodiesel:
  - 380 million litres/year between 2009 and 2012
  - 284 million litres/year between 1 January 2013 and 30 September 2013

Tax exemption is applied only for the amount produced under these quotas. There are no other supporting measures for bio fuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material (meeting the criteria of Article 21(2) of the Renewable Energy Directive.

The selection of producers was based on criteria as listed in the law of 10 June 2006. Projects outside the scope of the quota can apply for fuel tax exemption, if the biofuels are consumed for a specific project.

There is no specific support for electric vehicles that use renewable electricity.

5 RES-E Grid Integration

RES-E projects have priority in grid connection. However, the system operator is required to secure the continuity of the electricity supply, i.e. integration of renewable energy should not lead to imbalances in the system. RES-E projects also have priority in case of grid congestions (priority in dispatch).

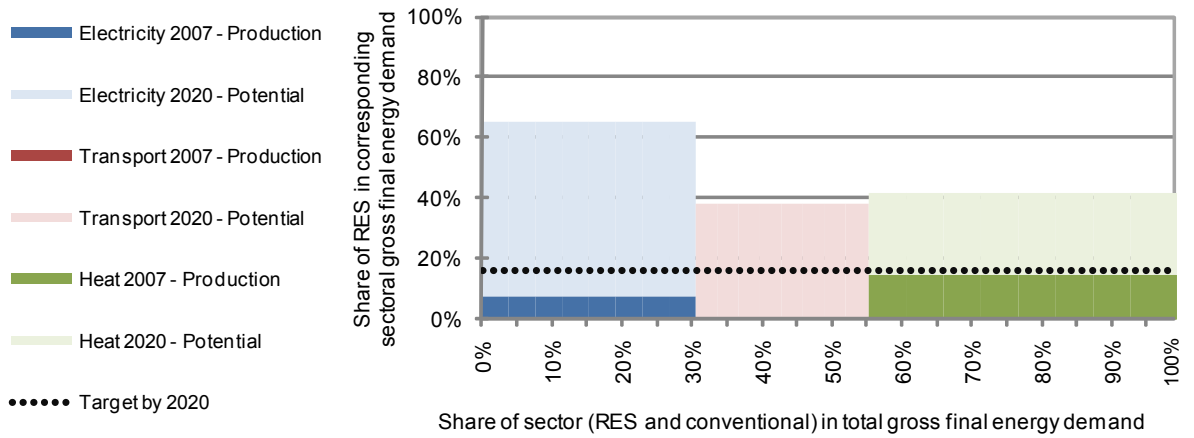
Grid extension and reinforcement in Belgium follows “shallow” grid connection charging: only the costs of the physical connection to the nearest grid connection point have to be carried by the RES-E project; upstream reinforcement costs are paid by the system operator/ split among all network users.

13 http://reflex.raadvst-consetat.be/reflex/pdf/Mbbs/2006/06/16/98575.pdf

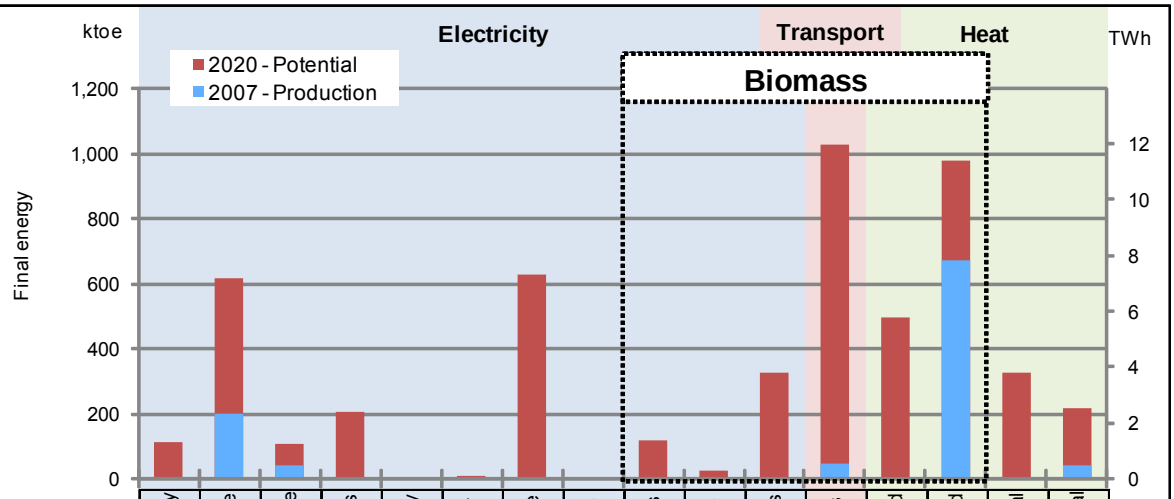
The Belgium government forces Elia to pay 1/3 of the costs of the connection of an offshore wind farm, up to 25 M€.

All technologies are balancing responsible. Only to offshore wind power a special regime applies: Within a tolerance margin of 30% (of the prediction) for offshore wind the TSO Elia has to cover the costs.

BULGARIA - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	8%	0%	15%	9%
Share of total sector consumption in total final energy consumption	30%	25%	45%	100%
Production 2007 [ktoe]	251	2	715	968
Production 2005 [ktoe]	373	0	754	1,127
Production 1997 [ktoe]	240	0	269	509
Average growth 2005-2007 [%/a]	-18%	-	-3%	-7%
Average growth 1997-2007 [%/a]	0%	-	10%	7%
Potential 2020 [ktoe]	2,157	1,030	2,023	5,210
Annual growth of RES needed to achieve target	-	-	-	6%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	204	44	0	0	0	4	0	0	0	0	48	0	675	0	40
Production 2005 [ktoe]	0	313	60	0	0	0	0	0	0	0	0	0	1	713	0	40
Production 1997 [ktoe]	0	227	13	0	0	0	0	0	0	0	0	0	0	234	0	35
Ø annual production growth 2005-2007	-	-19%	-15%	-	-	-	207%	-	-	-	-	-	-100%	-3%	-	0%
Ø annual production growth 1997-2007	-	-1%	13%	-	-	-	-	-	-	-	-	-	-	11%	-	1%
Total realisable potential by 2020 [ktoe]	112	617	110	204	0	8	631	6	117	23	329	1,030	500	978	329	217

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The primary support policy instrument at the national level is the Feed-in tariff system. The levels of the feed-in tariffs were adjusted on April 1 2009. The FIT has recently led to the first large scale wind energy project, in addition to solar PV farms. The feed-in tariffs have sparked wide interest among local and international project developers.

A revision of the national Energy Strategy and a new law on RES is said to be operational by March 2010. No clear suggestions have been made publicly on what form a new support system for RES would take, but the government seems very motivated.

Also, due to the large amount of projects requesting permission and grid connection, the government has publicly stated (December '09) that a moratorium for the approval of new RES projects can be expected. Details are yet to be revealed.

Some of the EU structural funds are designed to support RES. More recently, the deputy minister for the economy announced that about 100 million euros would be designated for RES (plus the same amount designated for energy efficiency) under the Operational Fund 'Competitiveness'.

A national investment support programme gives certified (foreign) investors several advantages (quicker permissions, easier procedures for land purchase). This programme, by the Bulgarian Investment Agency, also specifically addresses investors in RES.

RES-H&C

There is currently no specific legislative framework for RES-H&C in Bulgaria. However, this is expected to change with the announced changes in the new renewable energy law.

One Credit Line of the EBRD runs quite successfully in supporting RES-H (and RES-H&C, energy efficiency) projects, on a large, industrial scale and for households/SMEs (energy efficiency, only RES-H&C).

The EBRD has a second Credit Line for households and SMEs that supports small scale RES-H&C combining 'incentive grants' from the KIDSF (Kozloduy Decommissioning Fund, to cushion the loss of production capacity after switching off the oldest reactors of the nuclear power station in Kozloduy as condition for EU entry).

RES-T

On October 21 2009, the Bulgarian Council of Ministers passed a decision (to be confirmed by parliament) which would require the petrol sector to blend 2% of biodiesel with mineral diesel for the whole transport sector by March 2010, increasing to 3% a year later. On November 18, 2009, a proposal to blend a minimum of 2% bio-ethanol component from March 1, 2011, passed the parliamentary economic committee, to be enforceable from March 1, 2011.

Definitive legislation will probably be welcomed by local biodiesel producers, as the previous biofuel directive was not effectively implemented in Bulgaria.

2 Details RES-Electricity Support Policy

The main support instruments for RES-E are:

- Feed-in tariff
- The first EBRD Credit Line (BEERECL)
- The Class A Certificate
- Some other support programme (in short)

Some other support instruments do also apply for RES-E, but these are discussed under RES-H&C. These are the Structural Funds and the Rural Development Programme.

The following important policy changes at national level are to be expected:

- New Energy Strategy (announced to be available before the end of 2009)
- A new law on RES, announced to be ready before March 2010, and passed parliament before 31 December 2010.
- New supporting documents on the estimation of the potential and a strategy to utilise this potential are announced as well, but the deadlines are not known yet.
- Currently, a large number of RES projects, totalling 7,000 MW, mainly solar PV and wind energy, have applied for grid connections, rezoning, and environmental permitting. Even though grid access for RES projects is prioritized, the lack of network capacity is imminent. Furthermore, the applications for RES projects put a lot of pressure on natural values (applications even in Natura 2000 locations) while often agricultural land needs to undergo rezoning, which would mean loss of production land, in a country with important agricultural activities and traditions. The government has therefore publicly stated (December '09) that a moratorium for the approval of new RES project can be expected. Details are yet to be revealed.

Project owners and investors, partially associated under the Bulgarian Association of Alternative Energy Producers14 and the recently established Bulgarian Photovoltaic Association, lobby intensively, particularly with the intent of getting as high as possible FiTs for their RES-E projects. There is also discussion about the procedures for Environmental Impact Assessment, where there is so far, not a common procedure among the regional environmental inspectorates, how to assess solar PV activities, where hydro power plants and wind power plants are regarded as industrial installations, while nothing is mentioned about solar PV projects[15].

There are no additional instruments at regional/local level relevant contributing substantially to the growth of RES-E.

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14 Website: http://www.apeebg.org/index_en.php

15 Source: http://www.energetika.net/eu/novice/interviews/bulgarian-ministry-of-environment-and-water-prepares-a-repor

Feed-in Tariff

The key support policy instrument in Bulgaria at the national level is the feed-in tariff system. The levels of the feed-in tariffs have been adjusted as of April 1, 2009. The Bulgarian FiT framework has been functioning for a few years and has recently led, after many single turbines and smaller wind farms in the early years, to the first large scale wind energy project (156 MW), as well as a surge in the connection of solar PV farms (>100 kW). The number of biomass projects producing RES-E is limited, compared to the potential of the country.

The seemingly interesting feed-in tariffs have sparked wide interest among local and international project developers and investors leading to hundreds of (wind, solar PV) projects that have applied for (preliminary) grid connection with regional and national grid operators. It is, for different reasons, not likely that all these applications will prove successful.

The feed-in tariff in Bulgaria is a fixed feed-in tariff (i.e. support is paid for both the physical electricity and the green value together).

The conditions to benefit from the tariff are to prepare an investment project according to 'usual' investment procedures (zoning, permitting, land acquisition).

There is no cap, in any form, on the total volume of electricity produced RES-wide or per technology.

The tariff per technology for installations that are connected to the grid in 2009 and 2010 (till April 1, 2010 – tariffs afterwards not yet known) are as follows:

Table 1: Feed-in tariffs in Bulgaria

Technology	Tariff as of April 1, 2009 per MWh, excl. VAT	
	Leva (BGN)	Euro
Wind		
<800 kW[16]	145	74.14
<2250 hours	189	96.63
>= 2250 hours	172	87.94
Solar PV		
<5 kW	823	420.80
>= 5 kW	755	386.03
Biomass		
Wood waste	217	110.95
Agricultural residues	166	84.88
Energy crops	187	95.61
Biogas		
<150 kW	197.90	101.19
150 kW-500 kW	181.60	92,85
500kW - 5 MW	165.30	84.52
Hydropower		
<10 MW	105	53.69

16 Mainly second-hand turbines in the past, therefore tariff lower than for larger turbines. They opened the Bulgarian market but are hardly installed anymore.

As indicated in the table, the tariffs depend on the project size (for solar PV, wind and hydro). For wind, the number of annual full load hours is also taken into account: projects which produce more than 2250 hours a year, receive a lower feed-in tariff for the additional production. For biomass, there are (now) three different tariffs for different biomass streams (wood, agricultural residues, energy crops).17

The period to get the respective feed-in tariff for projects that are brought online before 31 December 2015, is 25 years for solar PV and geothermal and 15 years for small scale hydro (max 10 MW), wind energy, biomass and other forms of RES-E.

Preferential prices for RES-E from other sources, but defined under the Renewable and Alternative Energy Sources and Biofuels Act[18] may be prepared by the regulator, when the first investment project is considered.

A big disincentive for many interested investors is that the preferential tariffs cannot be guaranteed to remain at the same level for the entire support period, making the development of the tariffs difficult to be estimated, let alone to be predicted.

The tariffs for new projects and for existing projects can be and are adjusted on an annual basis by the Bulgarian regulator (DKEVR). The regulator has the discretion to adjust the tariffs, without using a publicly available method. However, some limitations apply. The preferential tariffs are determined by two components: the Base and the Addition. The level of the Addition differs per technology.

Annually, the Base is set at 80% of an (unspecified) basket of electricity market prices of the previous year. The Addition can be adjusted, but should year-on-year be minimally 95% of the level of the Addition of the previous year. It is expected that the regulator includes inflation in setting the Addition, but this is not a requirement.

Overall, the Bulgarian FiT leads to much financial insecurity for existing and new investors in RES-E.

Financial Support for Investment: First EBRD Credit Line

The first EBRD credit line, or Bulgarian Energy Efficiency and Renewable Energy Credit Line19, is a scheme run by local banks, and with the help of experts, where (larger) RES-E, RES-H&C and industrial energy efficiency investment projects are credited. On successful completion, the applicant can keep 15-20% of the loan as incentive.

Registered companies can apply. All RES-E and RES-H&C technologies can benefit from this scheme, although most investors in solar PV farm schemes were not successful. Applications are received and granted continuously. The loans are up to Euro 2.5 million. On that basis, the incentive can be maximally Euro 500,000. The budget has been extended to be used till H2-2011 with Euro 55 million, while Euro 13 million still remains from the original budget.Project applications are limited by the maximum loan size, not the installed capacity.

17 http://www.dker.bg/prices_el.htm

18http://www.mi.government.bg/eng/gzakone/gzakone/docs.html?id=212967

19 www.beerecl.com

Structural Funds

Some of the EU structural funds are designed to support RES. Notably, the Rural Development Fund and the Structural Fund 'Competitiveness' include a substantial number of 'priority axis' for the support of RES, but most of these have not yet opened. A priority axis under the RDP that had already seen several rounds of applications, received over 100 applications for solar PV projects. In October 2009, none of the applications are yet rewarded and applicants suspect that authorities are reconsidering the funding of solar PV projects under the Rural Development Programme. Many RDP axes refer (in) directly to developing locally, small scale biomass projects by farmers and rural communities (8 out of 32 axes). More recently, the deputy minister for economy announced20 that about Euro 100 million would be made available for RES (and a same amount for energy efficiency) under the Operational Fund Competitiveness.

General Support for Investment: Class A Certificate

The Bulgarian Investment Agency runs a programme to attract FDI (Foreign Direct Investment), where investors can apply for a Class A certificate. This certificate helps them in obtain support for their investment projects. This support is not specific for RES, but the scheme is openly advertised to attract RES investors as well.

- Advantages are:
  - shorter deadlines on approvals and permits by the state administration
  - sale or restricted disposal on land or property– state or municipal owned, without a tender and on price that reflects the market levels or is under the market levels;
  - financial aid on the development of infrastructure;
  - financial aid for education and professional training of certain employees.
- Investors can benefit if their project size exceeds ca. Euro 16 million (Leva 32 million).
- Applications can be received and granted continuously.
- The budget for financial aid for infrastructure is limited (and varies per year). The Bulgarian government assumes that by attracting (foreign) investors, Bulgaria receive many benefits (labour, expertise, income tax etc).

Miscellaneous

In Bulgaria, several smaller funds, sometimes of temporal nature, and usually from foreign donors, exist:

- There has been a call from a Norwegian programme to fund climate change mitigation. The current status of the programme is unclear, although some projects were funded and got their (initial) funding.

20 Source: http://news.dnevnik.bg/?y=2009&m=11&d=11

- UNDP has been running the Small Grant programme, which also funds small scale solar energy, energy efficient buildings, usually in a wider environmental context[21].

From early 2009, existing RES project operators have been required to account for the production of their investment in terms of green certificates, following an ordinance for format, content and circumstance for issuing of certificate of origin, 200722 which was amended 6 Feb 2009[23].

3 Details RES-Heating and Cooling Support Policy

There is currently no regulatory support for RES-H&C. This is likely to change with the new RES law which has been announced for March 2010. However, details are not yet available as Bulgaria recently experienced national elections, which led to a new cabinet.

Although there is no specific legislative or regulatory support for RES-H&C in Bulgaria, such projects are financially supported, by means of:

- The first EBRD credit line BEERECL (discussed in the previous part)
- The second EBRD credit line REECL, described below.
- Structural Funds and Rural Development Fund (if already open)

Financial Support for Investment: Second EBRD Credit Line

The second EBRD credit line, the Residential Energy Efficiency Credit Line (http://www.reecl.org/indexen.php), offers households and SMEs a credit through a set of local banks, when, on successful completion, the applicant can keep 20 or 30% of the loan amount as incentive. The credits are offered at commercial tariffs. The incentives come from the KIDSF (see previous).

The following measures are supported, limiting to RES-H&C (RES-E is not supported):

- Biomass Room Heaters, Stoves and Boiler Systems with or without associated controls, space heating and hot water storage systems
- Solar Thermal Systems with or without associated space heating and hot water storage systems
- Cooling and Heating Heat Pump Systems

The beneficiaries of this credit line are basically households, but also SMEs and shop owners are granted support. Applications are being continuously received and granted through application with participating banks. Households can combine measures and may apply for a total maximum subsidy of 2000€.

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21 Website: http://sgp.undp.org/web/countries/BUL/bulgaria.html

22 Source: http://www.dker.bg/laws/ordinance_el.pdf (Bulgarian only)

23 Source: http://www.dker.bg/laws/cert_vei.pdf (Bulgarian only)

The scheme had a budget of 50 Mio €, of which almost 15 Mio € has been used for the grants and project management costs. The website claims that about 30,000 home improvements have been funded through the credit line.

Financial Support for Investment: Structural Funds and Rural Development Fund

Several structural funds are responsive to RES. The Structural Fund Competitiveness has witnessed some references to RES, but priority axes have barely been open for applications. The Rural Development Programme (RDP) includes strong references to RES, specifically biomass, and in particular the 'production' of biomass. Out of 32 priority axis, 8 (in)directly refer to biomass. If one can apply and one is successful, the RDP grants a substantial portion of investment needs (50-75%).

Beneficiaries of the SF Competitiveness are (SME) companies. Beneficiaries of the RDP can be divided into local authorities and farmers. Only applicants from areas listed to be rural municipalities (231) can apply.

Many of the priority axes have not yet been announced or have not yet opened. Some of those that did open have seen consecutive openings during the last year and particularly the current year (2009).

For some of the axis, an installation should not exceed 1 MW. Different axes have different type of activities and maximum financial sizes. No sustainability criteria for producing or using biomass are mentioned.

Euro 53 million under the Rural Development Fund, is explicitly allocated in the overall budget of RDP to biomass. Indirectly, over one billion Euro may be linked to biomass (production), when we account for afforestation activities under the RDP.

Building Obligations:

There are currently no building obligations that require the use of renewable energy.

CHP:

There is a FiT scheme for combined heat and power (CHP). However, there is no additional or higher tariff for renewable energy produced with a CHP installation. Electricity from CHP may be supported from the biomass FiT.

There is no specific support scheme in place to encourage the use of district heating (DH) and cooling using RES. However, with the EBRD Credit Line, a biomass boiler (5 MWth) delivering heat to a local, small DH network, has been approved and implemented. Further similar projects are under preparation. Dalkia has made some announcements in fuelling the DH network of Varna with heat (and electricity) from biomass on a considerable scale.

4 Details RES-Transport Support Policy

A National Long term programme for biofuel utilization in the transport sector 2008-202024 was adopted on 15 November 2007.

The program consists of information on national policy, other relevant legislative requirements, a national target for biofuel consumption in the transport sector, and current potential for biofuel production.

Upcoming Biodiesel Quota

On October 21 2009, the Bulgarian Council of Ministers passed a decision (to be confirmed by parliament) which would require the petrol sector to blend 2% of biodiesel with mineral diesel for the whole transport sector by March 2010, increasing to 3% a year later. On November 18, 2009, a proposal to blend a minimum of 2% bio-ethanol component from March 1, 2011, passed the parliamentary economic committee, to be enforceable from March 1, 2011.

From the recent announcements, it has not become clear which (compliance) instruments (like penalties) will be applied. No differentiation of the support, according to fuel types or technologies was observed in this recent cabinet decision. The decision of the council will probably be welcomed by local biodiesel producers, as the previous biofuel directive was not effectively implemented in Bulgaria.

No specific support to biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material (meeting the criteria of Article 21(2) of the Renewable Energy Directive) has been observed in the recent cabinet decision. There is no specific support for electric vehicles (with/without the use of renewable electricity).

5 RES-E Grid Integration

Grid integration is currently the most significant obstacle to connect well developed wind (and solar PV) projects to the national grid. The north-eastern area (Kavarna, Kaliakra, Dobrich) particularly suffers from this, but also, according to the national grid operator, NEK, the south-western part may have some problems, because so many solar PV projects have been applying for grid connection permits in this part of Bulgaria.

RES-E projects do have priority in grid connection by law. However, the grid operators do not prioritize in practice on getting RES capacity connected, due to lack of funding. RES-E project are therefore delayed. It is not clear whether RES-E projects have priority in case of grid congestions (priority in dispatch).

There is no generic financial mechanism at the moment for grid extensions / upstream grid reinforcements in Bulgaria. Recently, the regulator, the State Energy and Water Regulatory Commission (SEWRC) has introduced an idea that RES investors will pay a one-off fee to fund power transmission grids. This could be integrated in the new Renewable Energy Act. The fee can be relative to the project size “but the calculation

24 http://www.mee.government.bg/energy/energy_doc/Biofuels_Program_EN.pdf

mechanism is yet to be discussed"25. The current fee covers grid operators' expenses to the connection point and developers are forced to build their own cables and substations, as grid operators refuse to hook up new projects. Project owners are required to forecast their production.

Earlier, a representative of the regulator, stated that "the grid is clogged up and NEK has halted grid-connection in north-eastern Bulgaria" while "1700 MW [of] clean energy projects are in the pipeline" in this part of Bulgaria[26]. NEK has indicated[27] that they, as national grid operator, are discussing extending a transport line to the north-eastern area of Bulgaria in order to deliver the capacity for a number of wind energy projects. Negotiations take place between wind farm investors/owners and NEK to share costs and assist, for example, with the purchase of land for the poles, which is, due to the very fragmented ownership of land in Bulgaria, another barrier.

6 RES Production, Potential and Market Development

RES-E

Key technologies, in terms of potential are biomass (woody, agricultural residues), wind energy, hydropower, geothermal and solar (thermal, PV). Key technologies in terms of deployment and/or growth rates, are wind energy, solar PV and hydropower if some large schemes, that have been in preparation for many years, will be built.

Some wind farms have been developed in or close to nature reserves or IBAs (important bird areas) of which there are many, along the Black Sea coast and in the mountains. The EC has started infringement procedures towards Bulgaria by not observing such criteria. Several wind energy projects may risk closure, or compensation may need to be arranged for loss of biodiversity. Also, for the application of biomass (European) sustainability criteria are unlikely to be fully adhered to or properly adhered to in practice, given the very limited experience in Bulgaria with certification of forests, and lack of proper forestry management in the country. The market for RES-E has seen a strong interest from local and international investors and project developers, especially in wind and solar PV. A smaller number of players concentrate on medium and large scale hydropower schemes.

RES-H&C

There are a number of bio-energy initiatives (heat only, CHP), but, so far, only few have materialized. The supply side for biomass is ill developed. Geothermal resources are underdeveloped (only some smaller projects realized).

RES-T

The potential for biofuel (biodiesel and bio ethanol) is certainly not fully developed. Some out-of-date initiatives and production capacity may have been stimulated by the recent

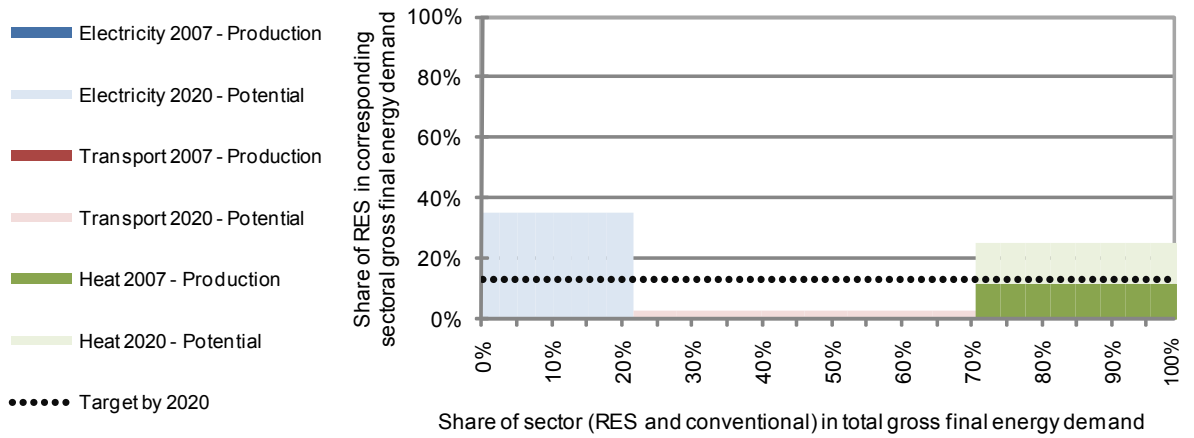
25 http://news.dnevnik.bg/?y=2009&m=11&d=19

26 http://news.dnevnik.bg/?y=2009&m=11&d=11

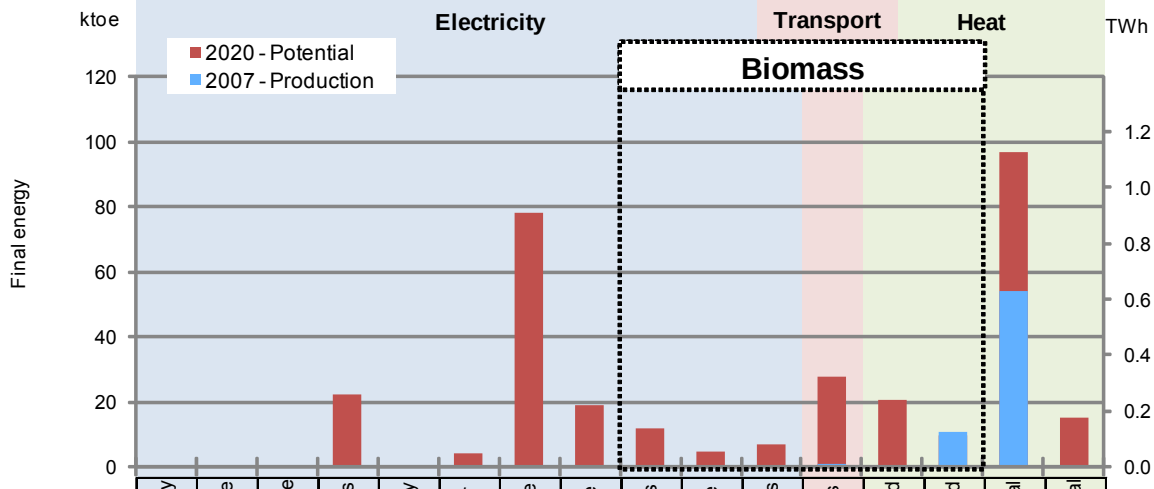
27 Interview with Mr Todorov, head of transmission Assets Division, October 21, 2009

cabinet announcement for blending 2-4% biodiesel and 2% bio-ethanol in the coming years.

CYPRUS - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	0%	0%	11%	3%
Share of total sector consumption in total final energy consumption	22%	49%	29%	100%
Production 2007 [ktoe]	0	1	65	66
Production 2005 [ktoe]	0	0	48	48
Production 1997 [ktoe]	0	0	42	42
Average growth 2005-2007 [%/a]	41%	-	16%	17%
Average growth 1997-2007 [%/a]	-	-	4%	5%
Potential 2020 [ktoe]	148	28	142	318
Annual growth of RES needed to achieve target	-	-	-	10%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	0	0	0	0	0	0	0	0	0	0	1	0	11	54	0
Production 2005 [ktoe]	0	0	0	0	0	0	0	0	0	0	0	0	0	7	41	0
Production 1997 [ktoe]	0	0	0	0	0	0	0	0	0	0	0	0	0	9	33	0
Ø annual production growth 2005-2007	-	-	-	41%	-	-	-	-	-	-	-	-	-	25%	15%	-
Ø annual production growth 1997-2007	-	-	-	-	-	-	-	-	-	-	-	-	-	2%	5%	-
Total realisable potential by 2020 [ktoe]	0	0	0	22	0	4	78	19	12	5	7	28	21	10	97	15

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The key support instruments at national level are feed-in tariffs for large projects guaranteed for a 20 year period and direct subsidies for small scale projects. The framework was introduced in 2008/2009. No problems have been reported on its operation so far.

There are currently some plans to introduce a tendering process for the construction of 100MW wind capacity additional to the 165MW foreseen within the feed-in tariff. In the instance that this plan is approved, it will be announced in 2010. In the case of small-scale projects, one option is regional subsidies. This option applies to all regions of the country.

RES-H&C

The key support instruments are direct subsidies. The current framework was introduced in 2008/2009 and no problems have been reported on its operation so far.

No important policy changes are expected, since the current framework was only recently introduced. Regional subsidies apply. This option applies to all regions of the country.

RES-T

The key support instruments are direct subsidies for the purchase of energy efficient vehicles or for installation for the production of biofuels. The current framework was introduced in 2008/2009 and no problems are reported on its operation so far. No important policy changes are expected, since the current framework was only recently introduced. Regional subsidies apply. This option applies to all regions of the country.

2 Details RES-Electricity Support Policy

In Cyprus, the policy framework for RES has been recently revised and approved. Three frameworks are defined based on the size of the project and the type of implementing enterprise:

1. *Framework for large commercial wind, solar (thermal or PV) or biomass systems:* a feed-in tariff system is defined, without any additional subsidy support [28].
2. *Framework for public authorities or private companies that exercise financial activities:* different subsidy schemes up to 55% of the project budget are considered combined to specific feed-in tariffs in some cases [29]. The framework includes measures on energy efficiency (including mobility), RES-E and combined heat (cold) and power technologies. Three types of subsidies are considered:
   a) Regional subsidies: according to the map of regional support (Act N814/2006 [30]) and the EU definition of Small/Medium Enterprises [31].
   b) Subsidy *de minimis*: according to this support scheme, subsidies from different public authorities should not exceed €200,000 for a period of 3 years according to the EC Act 1998/2006 [32].
   c) Agricultural subsidy: this support scheme defines the subsidies for small and medium enterprises (SME) that are active in the primary production of agricultural products based on the EC Act 1857/2006 [33]. Beneficiaries of this subsidy are SME that use the majority of the energy produced by RES (above 50%) for the energy needs of their own installations. In case they sell the majority of the renewable energy to a third party they are not eligible for this but for regional or de minimis subsidy.
3. *Framework for public authorities or private companies/persons that do not exercise financial activities:* direct subsidies schemes are considered combined to specific feed-in tariffs [34]. The framework includes measures on energy efficiency (including mobility), RES-E and combined heat (cold) and power technologies.

For RES-E, the latter two frameworks refer mainly to smaller scale projects (wind

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28 http://www.cie.org.cy/APE/Sxedio%20paroxis%20Xorigion%20gia%20nomika%20proswpa%20APE_v9.pdf

29 http://www.cie.org.cy/PDF/sxedionomika2009-2013.pdf

30 http://ec.europa.eu/community_law/state_aids/comp-2006/n814-06.pdf

31 http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/index_en.htm

32 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1998:en:NOT

33 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:358:0003:0021:EN:PDF

34 http://www.cie.org.cy/pdf/sxediOfisika2009-2013a.pdf

generators up to 30kW or small PV systems up to 30kW). Regional subsidies are defined in Framework 2, according to the map of regional support (Act N814/2006 [35]).

For large-scale RES-E, the main support instrument is a feed-in tariff system, which differs, based on the type of RES technology, installed capacities and ownership of the generation facility (Framework 1). According to the Act 33(I)/2003 [36], a special "Energy Fund" for the promotion of the use of RES and energy efficiency was created by imposing an energy tax of 0.022€ct/kWh to the consumption of electricity. This fund is used for subsidizing the difference between the feed-in tariff and the current market price for electricity.

In the case of small systems (wind generators up to 30kW or small PV systems up to 30kW) subsidy schemes are available, up to 55%, based on the two frameworks presented above, depending on the ownership type and size of the enterprise.(Frameworks 2 and 3).

The instrument is managed by the Cyprus Institute of Energy [37], which supports the operation of the Energy Fund. The final approval of investments is done by the Energy Fund Management Committee comprising of six members from main public energy and industry authorities in Cyprus. For detailed information one should contact the Cyprus Institute of Energy [38]. Framework 1 is valid for the period 2009 to 2013 and was enacted in July 2009. Frameworks 2 and 3 are for the period 2008-2010 and are revised each year.

The current system was enforced by the Act 33(I)/2003 [39].

Based on the size of the commercial Wind/Solar (thermal and PV) and biomass project, one of the above mentioned frameworks applies. There are no maximum sizes of eligible plants, but there is a cap in the annual and total volume of new installations per technology.

The maximum capacities per technology are as follows:

- Wind power: total capacity of 165MW till 2013
- Large PV (21-150kW): 2MW per year
- Solar thermal: total capacity of 25MW till 2013

It is not possible for support to be cumulated with other subsidies from European or from national funding.

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35 http://ec.europa.eu/community_law/state_aids/comp-2006/n814-06.pdf

36 http://res-legal.eu/en/search-for-countries/cyprus/legal-source/land/zypern/instrument/354/ueberblick/rechtsquelle.html?bmu%5blastPid%5d=150&bmu%5blastShow%5d=1&cHash=03ea35aa0d

37 http://www.cie.org.cy/index.php

38 http://www.cie.org.cy/

39 http://res-legal.eu/en/search-for-countries/cyprus/legal-source/land/zypern/instrument/354/ueberblick/rechtsquelle.html?bmu%5blastPid%5d=150&bmu%5blastShow%5d=1&cHash=03ea35aa0d

- The instrument is a fixed feed-in tariff.
- The producer has to submit the techno-economic data for the investment. An onsite control is performed to confirm the installation and operation of the equipment. The producer needs to acquire a certificate of origin, provided by the responsible authority.

According to the Framework 1, the tariffs per technology for grid connected installations for the period 2009/2010 are presented in table 1 below. The tariffs for installations under Framework 2 and 3 are given in table 2.

Table 1: feed-in tariffs per technology for grid connected systems (2009/2010).

Framework 1		Price (€/MWh)
Wind		166
PV	**Small (<20kW)**	360
	Large (21-150kW)	340
Solar Thermal		260
Biomass		135 (117.9+17.1)
Biogas		114.5 (97.4+17.1)

For the case of biomass and biogas, the premium of 17.1€/MWh is considered only in the case of technologies such as fuel cells, cogeneration, gasification, dry fermentation, etc.

Table 2: Subsidy schemes for different technologies (following framework 2 and 3).

N.B. Where no feed-in tariff is given, the installations obtain the market price.

	Subsidy percentage over project budget			
	Framework 2			Framework 3
	Regional	de minimis	Agricultural	
Wind systems (<30kW)	15%: LE 25%: ME 35%: SE max €45,000	40% max €45,000	35% max €45,000	55% max €51,500
PV systems (<20kW) **(PPA 15 years)**		40% max €48,000 Price: €205/MWh max €200/kW/a		Choice 1: 55% max €65,000 Price: €225/MWh Choice 2: 0% Price: €383/MWh
Small hydro **(run-of-river)**	15%: LE 25%: ME 35%: SE max €105,000	40% max €105,000	35% max €105,000	

In Framework 1, for wind installations with annual energy production higher than 1750kWh/kW, only the market price is paid for the wind energy production above this limit. For large projects (Framework 1) the PPA is issued for 20 years. For small projects (when applicable) the duration is 15 years. The support is guaranteed to remain at the same level for the whole support period. The tariffs for new projects are constant for the agreed timeline. After this period they are adjusted for 5 year periods based on the market prices of that period. No option for feed-in premium exists in the current framework.

According to Framework 2 for PV systems, additionally to the subsidy de minimis (40% of the total budget with a cap of €48,000 per plant), a feed-in tariff is defined at 205€/MWh for a period of 15 years, with an annual cap of €200/kW.

According to Framework 3 for PV systems, two feed-in tariff options for a period of 15 years are offered depending on the level of subsidy:

a. With a subsidy of 55% of the total budget (cap of €65,000 per plant), a feed-in tariff is defined at 225€/MWh.

b. With no subsidy, a feed-in tariff is defined at 383€/MWh.

Financial support in terms of investment incentives is foreseen only for the cases of small RES systems (Frameworks 2 and 3). In this case, direct subsidies are given corresponding to a specific percentage of the budget, depending on the type and size of the company. Specific caps in the allowed subsidies are applied based on the type of technology and subsidy schemes. For large systems (Framework 1), no financial support is considered additional to the feed-in tariff subsidies.

Any public/private company that is not under regime of bankruptcy is eligible to benefit from these schemes. Applications are continuously received.

There are currently some plans to introduce a tendering process for the construction of 100MW wind capacity, additional to the 165 MW foreseen from Framework 1. If this plan is approved, it will be announced in 2010.

3 Details RES-Heating and Cooling Support Policy

The support instruments for RES-heating and cooling are direct subsidies based on Frameworks 2 and 3 described above and for CHP also feed-in tariffs. Due to the application of the same frameworks, all general conditions are the same as in the case of RES-E (see above).

The main technologies where the support framework applies are:

a) Solar systems for water heating or space heating/cooling.

b) Heat pumps with ground heat exchanger for space heating/cooling

c) Use of biomass for heating and cooling

d) Combined heating (cooling) and power production

The specific subsidies are presented in the table 3 below, together with the specific caps applied in each case (different subsidy percentages are identified based on the type of enterprise, large, medium or small).

Table 3: RES-H&C subsidies and caps.

		Subsidy percentage over project budget			
		Framework 2			Framework 3
		Regional	de minimis	Agricultural	
Solar Systems	**Hot water**	15%: LE 25%: ME 30%: SE max €20,000	30% max €20,000	30% max €20,000	45% max €26,000
	Space Heating/cooling	15%: LE 25%: ME 30%: SE max €85,500	40% max €85,500	30% max €85,500	55% max €120,000
Heat pump geothermal		15%: LE 25%: ME 30%: SE max €850,000	40% max €200,000	35% max €400,000 or €500,000 (based on the location of the enterprise)	55% max €20,000
Biomass (incl. CHP using biomass)		15%: LE 25%: ME 30%: SE max €680,000	40% max €200,000		55% max €19,000

No instruments exist on building obligations requiring the use of renewable energy. The support schemes for RES-E encourage the use of combined heat (cooling) and power based on the Frameworks 2 and 3. The specific subsidies for CHP are presented in the table 4.

Table 4: specific subsidies for CHP.

	Subsidy percentage over project budget			
	Framework 2			Framework 3
	Regional	de minimis	Agricultural	
CHP	15%: LE 25%: ME 30%: SE max €171,000	30% max €171,000	30% max €171,000	45% max €85,500 Price: €65.3/MWh (Day) €57.3/MWh (Night)

4 Details RES-Transport Support Policy

The support instruments for RES-transport correspond to direct subsidies according to the Frameworks 2 and 3 described above. Due to the application of the same frameworks, all general conditions are the same as in the case of RES-E (see above), but no feed-in tariffs apply.

The subsidies refer to the purchase of energy efficient vehicles and the costs for the construction of units for the production of biofuels for transportation. The vehicle types eligible for subsidy are hybrid vehicles (HV), fuel flexible vehicles, (FFV)/dual propulsion vehicle (DPV), electric vehicles (EV) and lower CO2 emission (<120g CO2/km) vehicles (LCO2V). Biofuels considered for transportation are bioethanol, biodiesel, biogas, biomethanol, biocrops, biohydrogen etc. The specific subsidies are presented in the table 5 below.

Table 5: specific subsidies for RES-T.

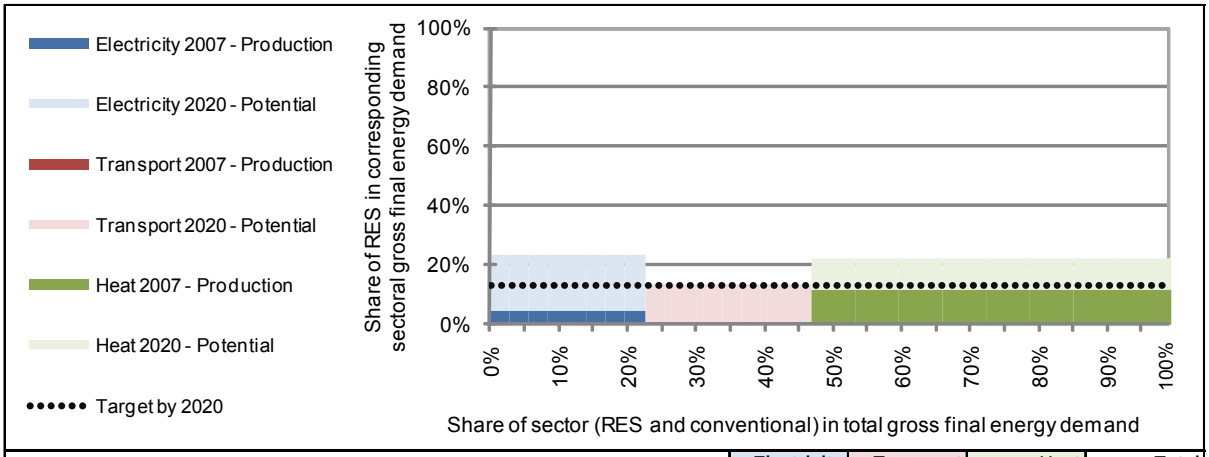
	Framework 2		Framework 3
	Regional	**de minimis**	
Purchase new HV, FFV, DPV		€1200/vehicle max €8,400	max €1,200
Purchase new EV, LCO2V		€700/vehicle max €4,900	max €700
Biofuels for transportation (cost for construction of production plant)	15%: LE 25%: ME 30%: SE max €680,000	40% max €200,000	

There are no specific targets per year and fuel technology announced.

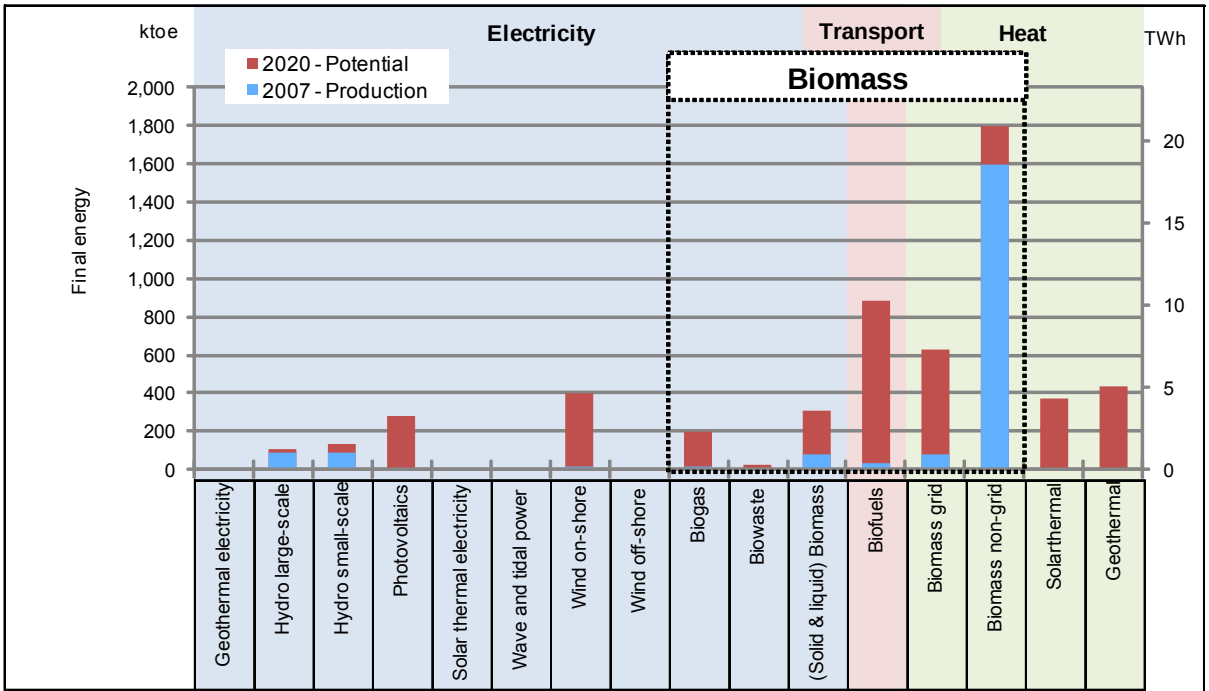
5 RES-E Grid Integration

RES-E projects have priority in grid connection and in dispatch. The costs for grid connection are shared equally (50%-50%) between the project developer and the system operator. Based on the current framework, the project is not responsible for system balancing.

CZECH REPUBLIC - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	5%	0%	12%	7%
Share of total sector consumption in total final energy consumption	23%	24%	53%	100%
Production 2007 [ktoe]	293	30	1,686	2,010
Production 2005 [ktoe]	269	3	1,436	1,709
Production 1997 [ktoe]	189	25	384	597
Average growth 2005-2007 [%/a]	4%	216%	8%	8%
Average growth 1997-2007 [%/a]	5%	2%	16%	13%
Potential 2020 [ktoe]	1,459	881	3,231	5,571
Annual growth of RES needed to achieve target	-	-	-	5%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	93	87	0	0	0	11	0	18	1	83	30	80	1,600	4	2
Production 2005 [ktoe]	0	113	92	0	0	0	2	0	14	1	48	3	92	1,340	2	2
Production 1997 [ktoe]	0	106	40	0	0	0	0	0	13	0	30	0	73	310	0	1
Ø annual production growth 2005-2007	-	-9%	-3%	-	-	-	144%	-	16%	0%	31%	216%	-7%	9%	41%	0%
Ø annual production growth 1997-2007	-	-1%	8%	-	-	-	-	-	4%	-	11%	-	1%	18%	-	11%
Total realisable potential by 2020 [ktoe]	3	106	135	277	0	0	402	0	202	27	307	881	629	1,795	371	436

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

In the Czech Republic the systematic support of RES-E started at the beginning of 2006 based on Act 180/2005. The generation of RES-E is mainly promoted through a price-regulation. System operators may choose between a guaranteed feed-in tariff and a premium paid on top of the competitive electricity price achieved on the market. Feed-in tariff and premium cannot be combined. A change from the premium to the feed-in tariffs and vice versa is possible annually.

Also, few funds are available, which can support RES-E projects. The aim of support is to increase the use of RES-E and RES-H.

RES-H&C

RES-H in the Czech Republic is supported primarily through investment grants/subsidies. The programmes promote co-generation on biogas, waste and sewage gas; biogas stations, co-generation on solid biomass, cogeneration from geothermal energy, RES-H plants, etc. Also, the support scheme for RES-E encourages the use of combined heat and power.

RES-T

There are two main RES-T support measures: quota obligations and excise tax exemptions. An aid for the cultivation of energy crops of 45 EUR per hectare is provided.

2 Details RES-Electricity Support Policy

Feed-in tariff / premium

In the Czech Republic, the generation of RES-E is promoted primarily through a price-regulation. It is managed by the Energy Regulatory Office (ERO, the Authority), website: www.eru.cz

This support instrument is regulated by the following legislation: Law on Energy No.458/2000 [1], Act on Promotion of Electricity Generation from RES and Amending Several Acts No. 180/2005 [2], Amendment of Energy Regulatory Office Decree No. 475/2005 introducing several statutory provisions on the promotion of RES No. 364/2007 [3].

The RES-E plant operator may choose between premium payments on top of market price (feed-in premium) or guaranteed payment (feed-in tariff). Operators of plants that generate RES-E for their own needs only, are entitled to the payment of the premium. Feed-in tariff and feed-in premium cannot be combined. Producers annually choose one of the two options to support the production of RES-E. A move from a premium to the feed-in tariffs and vice versa can be done once a year.

The feed-in tariffs/premium that can be obtained for RES-E from power plants put into operation in 2009 are shown in Table 1.

Table 1: Feed-in tariffs/premium level in 2009-2010 [4, 10, 11]

Power plant	Pricing decision of 2008 [4]				Pricing decision of 2009 [10, 11]							
	plants started in 2009				plants started in 2008-2009				plants started in 2010			
	Feed-in		Premium		Feed-in		Premium		Feed-in		Premium	
	CZK/ MWh	EUR/ MWh	CZK/ MWh	EUR/ MWh	CZK/ MWh	EUR/ MWh	CZK/MWh	EUR/ MWh	CZK/ MWh	EUR/ MWh	CZK/MWh	EUR/ MWh
Small hydro power plants	2700	99.6	1260	46.5	2760	101.8	1790	66.0	3000	110.6	2030	74.9
Biomass 100%												
category O1 **	4490	165.6	2950	108.8	4580	168.9	3610	133.1	4580	168.9	3610	133.1
category O2 **	3460	127.6	1920	70.8	3530	130.2	2560	94.4	3530	130.2	2560	94.4
category O3 **	2570	94.8	1030	38.0	2630	97.0	1660	61.2	2630	97.0	1660	61.2
Co-firing (biomass and fossil fuels):												
Category S1 **	-	-	1350	49.8	-	-	1370	50.5	-	-	1370	50.5
Category S2 **	-	-	690	25.4	-	-	700	25.8	-	-	700	25.8
Category S3 **	-	-	40	1.5	-	-	50	1.8	-	-	50	1.8
Parallel combustion of biomass and fossil fuels:												
Category P1 **	-	-	1620	59.7	-	-	1640	60.5	-	-	1640	60.5
Category P2 **	-	-	960	35.4	-	-	970	35.8	-	-	970	35.8
Category P3 **	-	-	310	11.4	-	-	320	11.8	-	-	320	11.8
Biogas plants category AF1	4120	151.9	2580	95.1	4120	151.9	3150	116.2	4120	151.9	3450	127.2
Biogas plants category AF2	3550	130.9	2010	74.1	3550	130.9	2580	95.1	3550	130.9	2580	95.1
Wind	2340	86.3	1630	60.1	2390	88.1	1990	73.4	2230	82.2	1830	67.5
PV <30kW	12890	475.3	11910	439.2	13150	484.9	12180	449.1	12250	451.7	11280	415.9
PV >30kW	12790	471.6	11810	435.5	13050	481.2	12080	445.4	12150	448.0	11180	412.2
Geothermal	4500	165.9	3140	115.8	4500	165.9	3530	130.2	4500	165.9	3530	130.2
Landfill gas and sewage gas	2420	89.2	880	32.4	2470	91.1	1500	55.3	2470	91.1	1500	55.3

*1EUR = 27.12 CZK

** Biomass categories are defined in the ordinance of the Ministry of Environment No. 482/2005 [12]. Based on the parameters (calorific value, average cost, benefits for sustainable development) the biomass is divided into different categories of support (category 1,2,3). AF1 - biomass from energy crops, AF2 – all other biomass.

Feed-in tariffs are guaranteed for a period of 20 years for all kind of RES-E generation excluding small hydro, where it is 30 years (put into operation after 1 January 2008).

If the plant operator wants to choose promotion through the feed-in tariff, he shall conclude a contract with the grid operator. If the plant operator wants to choose promotion through the premium, he shall prove to the grid operator that he has concluded a contract with an electricity market participant (e.g. a utility). Plant operators

that consume the total amount of RES-E they generate are not required to prove the existence of a contract.

When calculating the feed-in tariffs and premiums, the Energy Regulatory Office (ERO) takes into account the different costs of purchase, connection and operation of the specific system types and the development of different systems over time. When calculating the amount of the feed-in premiums, the ERO also considers that the sale of RES-E on the market carries a higher risk.

In principle, the price regulation applies to all technologies (small hydro up to 10 MW) used for the generation of RES-E with one exception: wind-power systems that cover an area of more than one km² and whose total capacity installed amounts to more than 20 MW cannot get the feed-in tariff.

The ERO determines the feed-in tariff for different RES-E technologies for the following calendar year. The support (in case of feed-in tariff/premium) for an existing project can be decreased or increased according to the certain rules described in the Act on promotion of RES-E [2]. The main rules are: feed-in tariffs for new and existing RES-E generation are adjusted annually according to the inflation from 2% up to 4% (this is not applied to electricity from combined fossil fuel and biomass combustion); the feed-in tariffs for the following year shall not be reduced by more than 5% compared to the tariff in force at the time of the calculation of the new tariff. The regulations do not require the use of certified equipment and/or certified installers. More information about the instrument is available on Energy Regulatory Office (ERO) website in the FAQ section (http://www.eru.cz/dias-read_article.php?articleId=683).

EFEKT 2009 - State program to promote energy saving and use of renewable energy for 2009

The national programme for the promotion of energy-saving measures and the use of RES consists of several sub-programmes, which are implemented by different ministries. The sub-programme run by the Ministry of Industry and Trade "EFEKT" promotes the generation of RES-E from CHP run with landfill gas or gas from biodegradable municipal waste. Every year, the Ministry approves a new programme framework. The deadline for submission of applications for the most recent programme has expired on 31st January 2009. By this scheme, subsidies are granted on the basis of a selective procedure. Projects are selected by expert advisory committees. Ensuing from the government resolution, No. 81 (January 21, 2004), the programme is being annually evaluated. The evaluation is submitted jointly by the Minister of Industry and Trade and the Minister of the Environment.

According to the last call, only projects of CHP units run with landfill gas and gas from biodegradable municipal waste can receive the subsidy (installing new or upgrading existing heat source in combination with a cogeneration unit). The total budget is 30 million CZK (1,15 million EUR) in 2009. The maximum subsidy amounts to 3 million CZK (115,38 thousand EUR) and shall not exceed 40% of eligible costs. Interested parties should apply by writing to the Ministry of Industry and Trade within the respective deadline.

More information about the instrument is available on website http://www.mpo-efekt.cz/cz.

In such a case it is possible for the same project to be supported by more than one support measure. Such projects can later receive the feed-in tariff or premium.

Operational Programme Environment

The Operational Programme Environment allocates investment grants from the Cohesion Fund to projects in the field of renewable energy. Based on the amount of financial resources, the Operational Programme Environment (OPE) is the second largest Czech operational programme. Between 2007 and 2013, this programme will offer almost 5 billion EUR from the Cohesion Fund and the European Regional Development Fund, and an additional 300 million EUR from the National Environmental Fund of the Czech Republic and the state budget. The Operational Programme's main goal is to protect and improve environmental quality throughout the Czech Republic. OPE areas of intervention are divided into 8 priority axes.

A total budget of almost 673 million EUR is available from the Cohesion Fund in the Operational Programme Environment (OPE) for the Sustainable Use of Energy Sources (priority axis 3). The aim of support is to increase the use of RES-E and RES-H as well as the use of heat from waste sources.

In general, all RES technologies used in the generation of RES-E are eligible. The construction of new facilities and the modernization of existing facilities are supported with the aim to increase the use of RES-E, RES-H and CHP.

The grant application can only be submitted during calls announced for a specific area. The last call to submit applications for grants of RES projects was announced in May and June 2009.

Grants up to 85% of a project's (heat generation, realization of energy savings, and use of waste heat) total cost are eligible. A project's minimum amount of eligible expenses has been set at 0.5 million CZK (19,23 thousands EUR).

Grants for RES-E generation (PV, wind, small hydro, geothermal and biomass plants) may account for 20% of the total eligible expenses, however, there is a maximum limit of 50 million CZK (1,923 million EUR). For combined generation of electricity and heat (co-generation on biogas, waste and sludge gas; biogas stations, co-generation on solid biomass, cogeneration from geothermal energy) grants may account for 40% of the total eligible expenses, however, there is a maximum limit per project of 100 million CZK (3,85 million EUR).

The duty of the Monitoring Committee is to supervise the realization of the Operational Programme Environment, and especially to guarantee an achievement of the programme's goals whilst exploiting public resources most efficiently.

The instrument is managed by the Ministry of Environment (http://www.mzp.cz). More information about the Operational Programme Environment is available on www.opzp.cz.

ECO-ENERGY programme

In general, the ECO-ENERGY programme of the Operational Programme Enterprise and Innovations, gives entrepreneurs the opportunity to apply for investment grants or low-interest loans for projects in the field of RES within calls for applications. This

programme is funded by the ERDF (European Regional Development Fund). At the moment, all calls for applications under the Operational Programme Enterprise and Innovations are closed (closed in June 2009).The webpage of the Ministry of Industry and Trade informs that intake of registration application has terminated.

According to the last call of this programme the projects are promoted through subsidies. The Ministry of Industry and Trade grants subsidies by notice. The notice includes binding conditions for the subsidy granted. A contract needs not be concluded.

The promoted RES-E technologies depend on the conditions laid down by the current call for applications. The framework for the ECO-ENERGY programme is generally eligible for all RES-E technologies. Within the framework of the last call, the supported activities were: a) the use of renewable (water, biomass) and secondary energy sources and b) increasing the efficiency of energy generation, transmission and consumption.

The minimum amount of the subsidy amounts to 0.5 million CZK (19,230 EUR), the maximum amount of the subsidy is 100 million CZK (3,85 million EUR), with a maximum amount of the subsidy as percentage of the eligible expenses as follows: RES-E (max 30%), RES CHP (max 30%), heat pumps and solar thermal collectors (max 30%), RES-H (heating plants) (max 40%).

The instrument is managed by the Ministry of Industry and Trade. More information about the programme is available on the website www.mpo.cz and www.czechinvest.org

3 Details RES -Heating and Cooling Support Policy

Grants/subsidies

RES-H in the Czech Republic is supported through grants/subsidies that also apply to RES-E and are explained in the previous chapter.

The sub-programme run by the Ministry of Industry and Trade (EFEKT) promotes CHP-H plants run with landfill gas or gas from biodegradable municipal waste.

The operational Programme Environment supports combined generation of electricity and heat (CHP based on biogas, waste and sewage gas; biogas stations, co-generation on solid biomass, cogeneration from geothermal energy).

The ECO-ENERGY programme of the Operational Programme Enterprise and Innovations supports co-generation from RES, heat pumps and solar thermal collectors, RES-H projects.

4 Details RES -Transport support policy

Quota obligation

The amendment of the Act on Air Protection No. 92/2004 includes the setting of a minimum quota for biofuels [6]. Any person bringing motor-vehicle petrol or diesel fuels into free tax circulation in the Czech Republic must ensure that they contain at least a minimum share of biofuels. The following minimum values of biofuels blended with fuel are set:

- as of 1 January 2008, 2% of the total amount of motor-vehicle petrol fuel;
- as of 1 January 2009, 3.5% of the total amount of motor-vehicle petrol fuel;
- as of 1 January 2009, 4.5% of the total amount of motor-vehicle diesel fuel.

The current quota obligation is set until 2010.

Financial support

Since 2008, an amendment to the Act on Excise Tax No.37/2008 (amending Act No. 353/2003) exempts pure biofuels from any excise tax [7]. For fuels with a high share of biofuel, the biofuel component is exempted from excise tax, as with the rapeseed oil methylester (RME) component of SMN 30[40]. Thus the excise duty on diesel containing at least 31% biodiesel from RME is 6.866 CZK per litre (0,26 EUR per litre) of blended fuel. The excise duty on common diesel (diesel containing max 5 % rapeseed methyl ester) is 9.95 CZK per litre (0,38 EUR per litre), thus resulting in a rebate of CZK 3.084 per litre (0,12 EUR per litre).

Aid is provided for the cultivation of energy crops at 45 EUR per hectare for any crop to be used for energy purposes. The conditions are governed by Governmental Order No 80/2007 laying down certain conditions for the provision of a payment for the cultivation of energy crops [8]. An uninterrupted plot of arable land with an area of at least one hectare must be used for the cultivation of energy crops. Energy crops must be grown on the land as the main crop in the corresponding year.

There is no specific support for electric vehicles that use renewable electricity.

5 RES -E Grid Integration

RES-E has preference in grid connection [1,2]. Wind-power stations that cover an area of at least one km² and whose total capacity installed amounts to more than 20 MW are not eligible to this preferential connection. However, they are contractually entitled to connection to the grid according to the principle of non-discrimination as stipulated by the general provisions of Law on Energy [1]. In case of proven capacity shortage, the grid operator is exempt from his obligation to connect a system that generates RES-E [2]. In order to be connected, the producer of RES-E shall apply for connection and comply with the conditions for the connection and transmission of electricity laid down in Law on Energy [1].

The cost of the connection of a system to the grid is borne by the plant operator.

RES-E is given priority in transmission [1].

The plant operator is contractually entitled against the grid operator to an expansion of the grid if the expansion is necessary to satisfy the connection agreement. The grid operator is obliged to expand the grid without discriminating against certain plant operators. The cost of an expansion of low-voltage lines is borne by the distribution grid

40 blended diesel fuel – engine diesel fuel that contains over 30% of vegetable oil methyl ester (VOME) volume.

operator unless the lines are more than 50m long and the expansion aims at supplying electricity to buildings other than private households. In all other cases, the cost of a grid (transmission and distribution) expansion is borne by the person that derives a benefit from the expansion. Thus, the plant operator generally bears the cost.

Balancing responsibility for RES-E generation is situated at the regional network operators and costs resulting from settlement of balancing energy are borne by customers.

6 RES Production, Potential and Market Development

RES-E

Despite the existing support schemes, the development of RES-E is still only moderate and power generation from small and large hydro power plants still play the dominant role. Besides hydro, only biomass already contributes significantly to power generation - about 28% of RES-E in the Czech Republic. However, the PV applications are currently facing a real boom in the Czech Republic (from few MW in 2007 to 80 MW in mid 2009). The boom has affected both small size installations on roofs and large scale ground installations. More than 1300 smaller projects with an installed capacity under 30 kW currently exist, but big projects of “ground” PV applications (with installed capacity from several MW up to 30-40 MW) play a dominant role in total figures. It is expected that total installed capacity at the end of the year 2009 will probably reach 200 MW (some estimations are even higher) [13].

Biogas installations (biogas stations in agriculture and sewage plants) also significantly increased their installed capacity. The development of biogas stations, particularly in the agricultural sector, is the result of (investment) support of biogas stations from EU structural funds (up to 30% of total investment costs). The construction of approximately 120 new biogas stations in the period 2009-2012 with total power generation 470 GWh is expected [13].

RES-T

Biofuel production in the Czech Republic has been mainly biodiesel, largely from rape seed oil. In 2007 biodiesel consumption was 30 ktoe.

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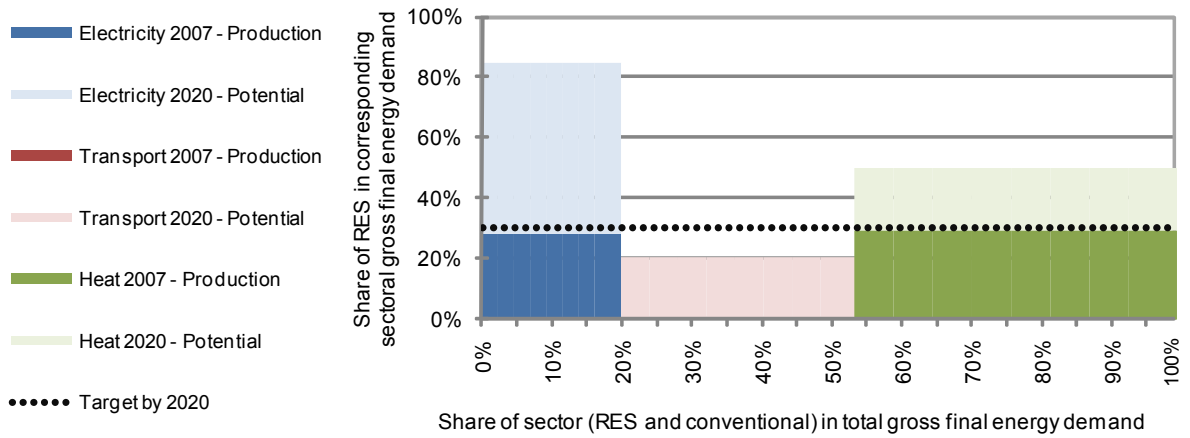
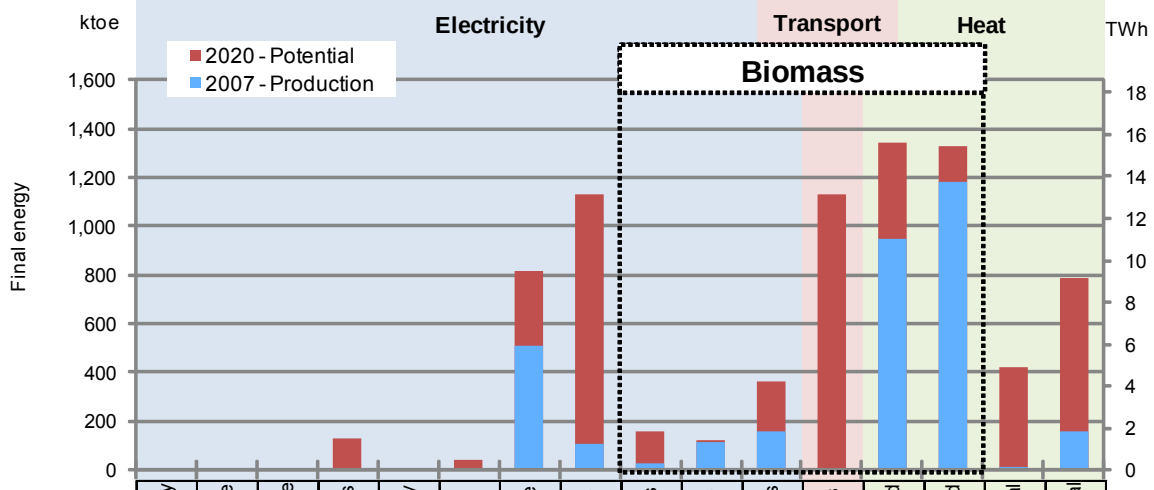
DENMARK - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	28%	0%	30%	19%
Share of total sector consumption in total final energy consumption	20%	33%	47%	100%
Production 2007 [ktoe]	918	6	2,297	3,220
Production 2005 [ktoe]	879	0	2,038	2,917
Production 1997 [ktoe]	269	0	1,196	1,465
Average growth 2005-2007 [%/a]	2%	-	6%	5%
Average growth 1997-2007 [%/a]	13%	-	7%	8%
Potential 2020 [ktoe]	2,775	1,128	3,872	7,775
Annual growth of RES needed to achieve target	-	-	-	2%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	0	2	0	0	0	507	110	23	118	157	6	949	1,182	10	156
Production 2005 [ktoe]	0	0	2	0	0	0	459	110	24	121	163	0	957	934	9	138
Production 1997 [ktoe]	0	0	2	0	0	0	164	3	14	57	30	0	581	608	6	1
Ø annual production growth 2005-2007	-	-	13%	0%	-	-	5%	0%	-2%	-1%	-2%	-	0%	12%	5%	6%
Ø annual production growth 1997-2007	-	-	3%	-	-	-	12%	46%	5%	7%	18%	-	5%	7%	5%	63%
Total realisable potential by 2020 [ktoe]	4	0	3	129	0	44	818	1,134	162	120	360	1,128	1,342	1,327	419	784

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

RES-E support instruments in Denmark were amended in 2008, but the support principles remained the same as previously. Denmark promotes RES-E through a price regulation. Producers receive a variable premium on top of the market price. The sum of the premium and the market price shall not exceed a certain statutory maximum, which depends on the date of grid connection of the system and the source of energy used. In certain cases, plant operators are granted a guaranteed bonus and are thus not subject to a statutory maximum.

Transmission grid operator Energinet.dk pays an additional subsidy to small systems for the generation of electricity, even small pilot projects are eligible.

Also, loan guarantees are provided for local wind energy system organizations and local initiative groups that want to investigate whether the erection of one or more wind energy systems is feasible.

No important policy changes regarding RES-E, RES-H&C and RES-T are expected in Denmark for the near future. During 2010 the current instruments will be evaluated and the government will decide if changes are needed.

The Danish Government appointed a Commission on Climate Change, which consists of ten scientists. The Climate Commission will present in autumn 2010 suggestions as to how Denmark can phase out fossil fuels, as is the vision of the Government of Denmark.

RES-H&C

The generation of RES-H is supported by tax exemptions. Biomass, being CO_2 neutral, is exempt from the CO_2 tax. Solar heating plants are exempt from both energy and CO_2 taxes.

RES-T

Biofuels have been exempt from the CO2 tax imposed on ordinary petrol and diesel for transport since January 2005. This is currently the main supporting measure for biofuels.

2 Details RES-Electricity Support Policy

RES-E support instruments in Denmark were amended in 2008, but the support principles remained the same as previously. There are no important policy changes foreseen for Denmark in the near future.

Feed-in premium

In Denmark the RES-E production is supported through price premiums and tenders for offshore wind power. The instruments are prepared and managed by the Danish Energy Agency (www.ens.dk).

Energinet.dk supervises all important procedural steps related to the promotion of RES-E. Furthermore, renewable energy is subject to the general statutory provisions related to the supervision of the electricity market. The electricity market is supervised by an independent commission (Energitilsynet - Danish Energy Regulatory Authority), which was established by the Ministry of Environment and Energy. The instruments are revised from time to time, according to the situation in the market. Historically the level of support has changed numerous times, but it is a general rule that the support scheme which was in place when a production unit was connected to the grid, applies for the lifetime of the production unit. As a result there is a high level of certainty about future support at the time of investment.

Support instruments are regulated by Law No. 1392/2008 on the Promotion of Renewable Energy [1], by the Act on Electricity Supply [2] and by the Act on Transmission Grid Operator Energinet.dk [3].

Instruments are eligible for plants of different sizes, except hydropower stations whose capacity must not exceed 10 MW. Small solar PV units in private installations (<6 kW) are not eligible for feed-in tariff/premium. Geothermal power generation is not promoted. There is no cap on the annually available budget or volume of new installations.

Some projects can be supported by more than one support measure. For example, in combined heat and power plants, the heat produced using biomass is exempt from energy taxes, and electricity receives feed-in tariff/premium. Wind power plants can receive a premium plus compensation for balancing costs.

Denmark promotes the generation of RES-E through a price regulation. Producers receive a variable premium on top of the wholesale electricity price. The sum of the premium and the market price shall not exceed a certain statutory maximum, which depends on the date of connection of the system and the source of energy used. In certain cases, system operators are granted a guaranteed premium and are thus not subject to a statutory maximum. The persons entitled to the payment of a premium are owners of systems for the generation of electricity from renewable sources.

Systems commissioned since 2009 are eligible for the following payments [4]:

New wind turbines onshore/offshore:

Guaranteed price premium of 25 øre/kWh (33.6 EUR/MWh) for 22,000 full load hours. Additional 2.3 øre/kWh (3.1 EUR/MWh) in the entire lifetime of the turbine to compensate for the cost of balancing etc.

Special tenders for wind parks at sea:

Maximum payment Horns Rev II wind park of 200 MW ended at a fixed feed in tariff of 51.8 øre/kWh (69.6 EUR/MWh) in 50.000 full load hours and the Rødsand II wind park of 200 MW ended at a fixed feed in tariff of 62.9 øre/kWh (84,5 EUR/MWh) for 50,000 full load hours. These tariffs are very low in European comparison. Some reasons: Turbine prices were 20-30% below current prices; project has not to pay cable and substation; planning risks are reduced due to extensive pre-planning by authorities including environmental impact assessment.

Household wind turbines:

Private wind turbines below 25 kW which are connected for consumption by the owner receive a fixed feed in tariff of 60 øre/kWh (80.6 EUR/MWh).

Re-powering:

For wind turbines connected to a grid no later than 20 February 2008, the additional price premium shall total 12 øre/kWh (16.1 EUR/MWh) for electricity production corresponding to 12,000 peak-load hours for double the installed output of the dismantled wind turbine. For wind turbines connected to a grid on 21 February 2008 or later, the price is total 80 øre/kWh (107.5 EUR/MWh) for electricity production corresponding to 12,000 peak-load hours for double the amount of the installed output of the dismantled wind turbine.

Biogas:

New units producing electricity only from biologically or thermally gasified biomass receives a fixed feed-in tariff of 74.5 øre/kWh (100,1 EUR/MWh). If the biogas is mixed with other fuels, the part of the electricity produced from biogas receives a price premium of 40.5 øre/kWh (54.4 EUR/MWh). The heat produced using biomass at CHP is exempt from energy taxes.

Biomass:

New units producing electricity by burning biomass will receive 15 øre/kWh (20.2 EUR/MWh) electricity (guaranteed premium). The heat produced using biomass at CHP is exempt from energy taxes.

Wave power, solar PV, fuel cells running on renewable fuels etc.:

These technologies receive a fixed feed-in tariff of 60 øre/kWh (80.6 EUR/MWh) for 10 years and 40 øre/kWh (53.8 EUR/MWh) for the following 10 years.

Small solar PV units in private installations:

There is no feed-in tariff or price premium for solar PV units below 6 kW, which are connected to the installation in private homes. However, these units are exempt from energy taxes, and can (in popular terms) let the electricity meter run in reverse.

The tariff/premium depends on the system installation date. The Law on the Promotion of Renewable Energy stipulates several periods and deadlines, which are applied according to the technology used and the date of commissioning of the system in

question. The period of payment is usually 10 years. The maximum period of payment is 20 years. It is set the number of full load hours for wind power plants, after that period the operators will not get a premium price for power. Producers cannot choose between a feed-in premium and a fixed feed-in tariff.

Table 1. Feed-in tariff/premium for RES-E in Denmark

Power plant	Level of suppot. ore/kWh (EUR/MWh)			Time
	Feed-in tariff	Premium	Balancing	
New wind (onshore/offshore)	-	25 (33.6)	2.3 (3.1)	22,000 full load hours
Household wind turbines - below 25 kW	60 (80.6)	-	-	
Wind parks at sea (tender):				
Horns Rev II	51.8 (69.6)	-	-	50,000 full load hours
Rødsand II	62.9 (84.5)	-	-	50,000 full load hours
RES-E from biomass		15 (20.2)		10 years
Biogas	74.5 (100.1)			
Biogas mix with other fuels		40.5 (54.4)		
Wave power. solar PV. other RES	60/40 (80.6/53.8)			0-10/11-20 years

Source: https://www.retsinformation.dk/Forms/R0710.aspx?id=122961

http://www.ens.dk/en-US/supply/Renewable-energy/WindPower/Facts-about-Wind-Power/Subsidies-for-wind-wer/Sider/Forside.aspx

Subsidies for small RES technologies

Transmission grid operator Energinet.dk pays an additional subsidy to small systems for the generation of electricity (so called ForskVE programme) [5]. Even small pilot projects are eligible. More information about this instrument is available on www.Energinet.dk.

Energinet.dk's calls for subsidies are implemented in accordance with Section 57e of the Act on Danish Electricity Supply [2], Law on the Promotion of Renewable Energy (VE-loven) [1], and Executive Order no. 1220 of 12 December 2008 on subsidies for promoting the increased use of RES-E installations.

The scheme involves funding for increasing the use of small RES technologies. Small RES technologies are photovoltaic, wave power, biomass gasification and Stirling engines. Systems are also eligible if they generate RES-E and have been classified as important for the advancement and diffusion of RES technologies according to Energinet.dk, this definition includes new and as yet unknown technologies. There are annual calls for this subsidy. Energinet.dk has its own budget for the ForskVE programme. This budget is 25 million DKK (3.4 million EUR) per year and applies to the period of 2008-2011. Energinet.dk decides on the amount of subsidy.

Loan guarantees for local initiatives involving the erection of wind-energy systems

Energinet.dk provides loan guarantees for feasibility studies of local initiative groups that want to investigate whether the erection of one or more wind energy systems is feasible. Such organisations and groups must have 10 members at least. The majority of the members shall be residents in the municipality in which the systems will be erected or shall live within 4.5 kilometres of the building site.

Energienet.dk has provided a budget of 10 million DKK (1,34 million EUR) for guarantees. Each guarantee will cover most of the loan in question. The maximum guarantee is 500,000 DKK (67,193 EUR) per project. The loan guarantee is provided on the basis of an application form, which establishes a contract between Energinet.dk and the group in question.

Tendering

Tenders are organized only for offshore wind power parks. The conditions for offshore farms are laid down in the Danish Electricity Supply Act. The Danish Energy Agency is the planning authority for electricity generating installations at sea. Thus, investors need to receive licences from the Danish Energy Agency when an offshore wind power project is to be established – in that way the Energy Agency serves as a "One-stop-shop" for the project developer in relationship to the many, often opposing, interests connected to the establishment of offshore wind power projects. According to the provisions of the Electricity Act all Danish offshore wind projects must get permission either through a call for tenders or the open-door procedure. In an open-door procedure the applicant takes the initiative to establish the wind installation by applying for a licence to carry out preliminary studies, establish installations and produce electricity. The investor of the wind installation pays the grid connection from the installation to the nearest point on shore.

In a call for tender the Danish State takes the initiative to the establishment of a wind installation at a specific location in the Danish waters. Interested parties from all over the world can then apply to develop the project.

The price per kWh has so far been given as a fixed settling price (market price + variable premium) by the State in the call for tenders. That means that the investor is ensured a stable price for the electricity produced, and will receive a premium from the State if the market price is lower than the fixed settling price.

3 Details RES-Heating and Cooling Support Policy

The generation of RES-H is supported through tax exemptions. Biomass, being CO2 neutral, is exempt from CO_2 duty. Solar heating plants are exempt from both energy and CO_2 taxes.

The obligations to use RES in new buildings are applied not on the building level, but on the energy system level. Municipalities are obliged to set up heat plans based on feasibility studies. The heat supply system for building is chosen according to the heat plan of the area. The rules concerning the feasibility study of alternative/RES systems are determined by the Act on Heat Supply. The objective of this Act is to promote the most socio-economic and environmentally friendly utilization of energy for heating buildings, supplying them with hot water and reducing the dependency of the energy system on oil.

In CHP plants, the heat produced from biomass and biogas is exempt from energy taxes. In certain areas there is an obligation for buildings to connect to a district heating system. Only new low energy buildings are dispensed from this obligation.

4 Details RES-Transport Support Policy

Biofuels have been exempt from the CO2 tax imposed on ordinary petrol and diesel for transport since January 2005. This is currently the main supporting measure for biofuels.

In an effort to reduce Denmark's dependency on fossil fuels and reduce energy consumption, the government has decided to increase the share of EU-certified biofuels consumption in the transport sector to 10 % in 2020, with an initial 5.75 % target for 2010.

Furthermore, under its energy technology and demonstration programme, the government will use 200 million DKK (26.9 million EUR) to develop second-generation bioethanol, and aim to have at least one large-scale demonstration plant for producing second-generation bioethanol by the end of 2009.

5 RES-E Grid Integration

Plants shall be connected to the electricity grid in accordance with the principle of non-discrimination. Systems for the RES-E generation are not given priority.

Priority dispatch is given to RES-E (and CHP) over fossil fuel generation when grid capacity is insufficient and the grid is not in danger. Regarding use of the grid, the priority shall be given for RES-E.

According to the Act on Electricity Supply, the grid operator is statutorily obliged to expand the grids in order to guarantee the efficient transmission of electricity. Whenever possible, the national target of increasing the competitiveness and use of RES is given special attention. The connection policy is shallow with well established and transparent rules for calculating costs. RES projects only pay the cost that would have been incurred in case of being connected to the (local/nearest) grid irrespective of whether the grid company selects another connection point. The costs for grid reinforcement are met by the DSO and TSO. In cases where the RES project wishes to connect at a higher voltage level (than 10-20kV), the additional connection costs have to be paid by the project, but the reinforcement costs do not.

In principle, producers themselves hold balance responsibility for the electricity produced by their own plants and are required to hand over the balance responsibility to a balance responsible party (BRP) if they do not wish to handle the responsibility themselves. A BRP is a player that has entered into an agreement on balance responsibility with Energinet.dk and that has thus been approved by Energinet.dk as the holder of separate balance responsibility for consumption, production or electricity trade. In practice, small-scale producers usually assign this responsibility to their "supplier" (the buyer of their production). In the case of electricity produced under a purchase obligation, Energinet.dk always acts as "supplier" as well as BRP.

Prior to the 24-hour period of operation, the player shall submit a binding notification to Energinet.dk. Parties with balance responsibility for production shall also submit power schedules to Energinet.dk. The power schedules shall be updated on a regular basis before or during the 24-hour period of operation. Adjustments to notifications must be submitted to and received by Energinet.dk not later than 45 minutes before the delivery hour.

The balancing market is divided into a regulating power market and a balancing power market. All consumption and production is measured in the grid and the difference between planned and measured generation and production is settled according to the prices established in the real time balancing. New wind turbines (onshore/offshore) receive 2.3 øre/kWh (3.1 EUR/MWh) in the entire lifetime of the turbine to compensate for the cost of balancing etc.

6 RES Production, Potential and Market Development

RES-E

The contribution of RES to the overall electricity consumption in Denmark was 8.7% in 1997 and 28.3% in 2007. The highest growth was achieved by wind power. About 7,173 GWh of electricity was produced from wind in 2007, of this 1,279 GWh by offshore wind plants.

The Danish government has a goal that, in 2025, half of the Danish electricity consumption must be covered by RES (particularly from wind power).

In the summer of 2008 the level of support was increased for electricity produced from biomass, biogas and wind turbines. The support level for production from solar PV, wave power, fuel cells running on renewable fuels etc. remains unchanged, but a special fund of 25 million DKK per year in four years has been introduced to support projects which promote these technologies. It is difficult to evaluate if the increased support level will influence the RES-E development significantly because of the short period in operation.

RES-H&C

In Denmark most urban areas, where most large buildings are being built, are provided with district heating systems. About 75% of Denmark's district heating is produced in CHP. District heating in Denmark is now based on more than 40% biomass and other RES and more than 80% CHP, because supply of electricity and district heating and incineration of waste is highly coordinated.

Stricter demands for energy performance for buildings have made RES-H systems more competitive in relation to increased heat isolation, and because RES systems has been used to a large extend in a number of low energy buildings. Low energy buildings are not obliged to be connected to existing district heating system or gas pipeline, and for which the energy performance demands are further restricted. First of all solar energy systems and heat pumps have got a larger market share in recent years.

RES-T

In 2007 bioethanol consumption in Denmark was 6 ktoe. Denmark considers the use of biomass for combined heat and power production to be more cost-effective compared to the production of biofuels (first generation), and therefore does not push first-generation biofuels intensely. Attention is paid to develop second-generation bioethanol. The funds are foreseen for the research in this field and demonstration plant.

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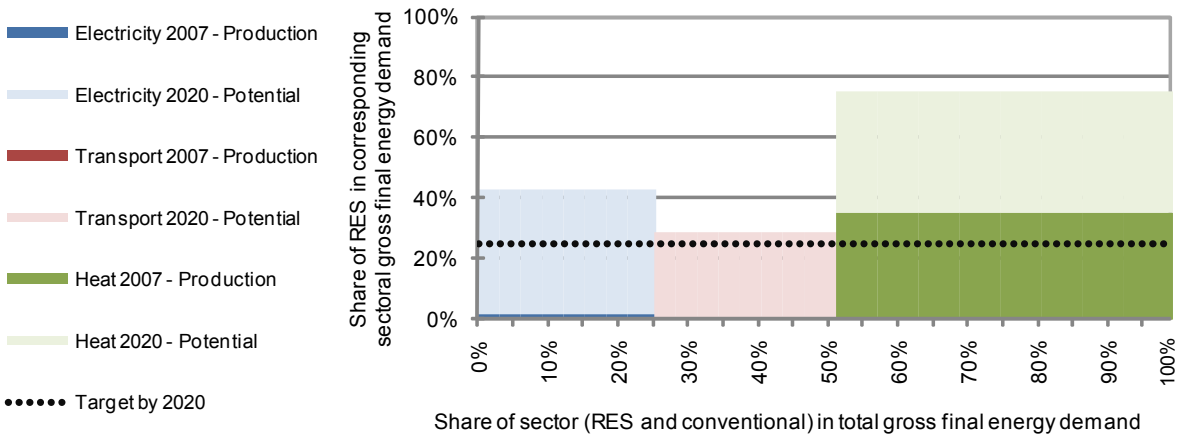
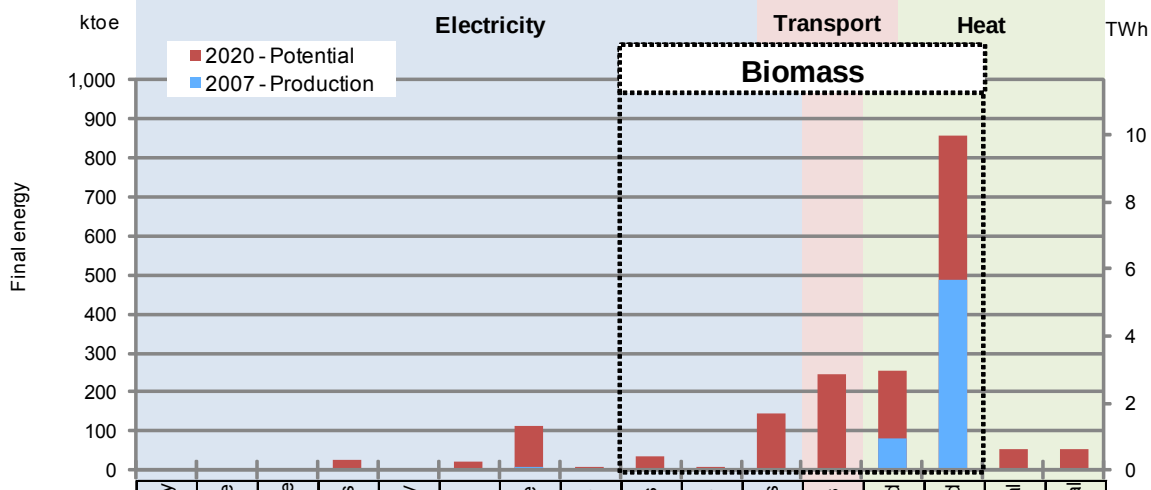
ESTONIA - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	2%	0%	35%	17%
Share of total sector consumption in total final energy consumption	25%	26%	49%	100%
Production 2007 [ktoe]	13	0	568	581
Production 2005 [ktoe]	10	0	540	550
Production 1997 [ktoe]	1	0	509	510
Average growth 2005-2007 [%/a]	16%	-	3%	3%
Average growth 1997-2007 [%/a]	34%	-	1%	1%
Potential 2020 [ktoe]	361	245	1,222	1,828
Annual growth of RES needed to achieve target	-	-	-	3%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	0	2	0	0	0	8	0	1	0	2	-	79	489	0	0
Production 2005 [ktoe]	0	0	2	0	0	0	5	0	1	0	2	-	92	448	0	0
Production 1997 [ktoe]	0	0	0	0	0	0	0	0	0	0	1	-	0	509	0	0
Ø annual production growth 2005-2007	-	-	0%	-	-	-	30%	-	-7%	-	7%	-	-7%	4%	-	-
Ø annual production growth 1997-2007	-	-	-	-	-	-	-	-	-	-	12%	-	-	0%	-	-
Total realisable potential by 2020 [ktoe]	1	0	3	26	0	21	114	8	36	6	147	245	256	858	53	55

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The key support instruments for RES-E production are feed-in tariffs and feed-in premiums. These instruments have been available since 2005 and were significantly upgraded in 2007. It is difficult to evaluate if the adapted system is working properly because of its short period of operation. However, according to Estonian wind energy producers, the present support is not sufficient to make investments in new wind projects financially interesting.

RES-H&C

There are a few measures which could be considered as support instruments for RES-H production: an environmental programme, EU funds and loans. Through these schemes capital grants, soft loans and co-financing grants are available.

RES-T

Since January 2005, biofuels, used as motor or heating fuel, are exempt from excise tax, from the issuing of a permit until the expiration of the permit. A biofuel permit is issued by the Tax and Customs Board and is valid for six years. A biofuel permit gives the right to produce biofuel, import it into Estonia and release it for consumption free of excise duty. If biofuel has been added to motor fuel or heating fuel, the proportion of biofuel contained in the motor fuel or heating fuel is exempted from excise taxes.

2 Details RES-Electricity Support Policy

Feed-in tariff

The main support instruments for RES-E production are feed-in tariffs and feed-in premiums. These instruments are managed by the Ministry of Economic Affairs and Communications. More information about the instrument is available at www.mkm.ee.

These instruments were revised and improved in 2007 and are regulated by the Electricity Market Act 2003. The text of this act can be found in the legal text database [1].

Producers can freely choose between a feed-in premium or a feed-in tariff. All RES-E technologies are eligible. The total capacity of the RES plant which is eligible is limited to 100 MW. Under this support mechanism there is only a restriction on total annual wind energy production.

Once the amount of wind energy produced in a single calendar year reaches 200 GWh, the feed-in tariff will no longer be available. Once production reaches 400 GWh in a given year, the feed-in premium tariff will also cease to apply. Apart from wind, there is no other cap on the total volume of RES-E.

All technologies receive the same feed-in tariff (115 Senti/kWh or 73.5 EUR/MWh) and the same feed-in premium (84 Senti/kWh or 53.7 EUR/MWh). The payment period of instruments is limited to a maximum of 12 years, beginning at the date a power plant is commissioned. Plants commissioned prior to 1st January 2002 cease to be eligible on 31st December 2012. The feed-in tariff and feed-in premium are constant for the whole period. Starting 1st January 2010, the producers can apply to the Energy Market Inspectorate to agree on the higher tariff. On the basis of an application of a producer, the Energy Market Inspectorate may approve different feed-in/premium in order to cover all RES-E generation costs for the producer.

Table 1. Current policy concerning RES-E in Estonia.

Purchase obligation (Feed-in tariff)	**Subsidy if electricity is sold on the market (Feed-in premium)**
115 senti/kWh renewables	84 senti/kWh renewables
81 senti/kWh CHP (peat, waste)	50 senti/kWh CHP (peat, waste)
Wind up to 200 GWh/year	Wind up to 400 GWh/year
The payment period is limited to a maximum of 12 years.	

3 Details RES-Heating and Cooling Support Policy

There are a few measures which could be considered as support instruments for RES-H production: the environmental program, environmental measures financed from the European Regional Development Fund (ERDF) and the European Social Fund (ESF), loans.

The Environmental Investment Centre (EIC) organizes financing of projects and monitors purposeful use of the money. By these schemes, capital grants, soft loans and co-financing grants are available. Policy target groups are municipalities and private companies, scientific research and education institutions. The EIC arranges calls for applications three times a year.

The environmental program

The environmental program is managed by the Ministry of Environment (Web page: http://www.kik.ee/?op=body&id=105). The environmental program redistributes state budget funds received from the environmental fees. The environmental fees are paid by the polluters and users of natural resources (for example, the biggest of which is the oil shale energy sector). Discharges of organic matter, phosphorous, nitrogen, suspended solids, sulphates and other pollutants along with wastewaters where pH value is greater than 9 or less than 6, are also subject to the charge.

ERDF and ESF in the period of 2007-2013

During the period of 2007-2013, the EIC performs the functions of the implementing agency of environmental measures financed from the ERDF and the ESF and intermediates a total of 2,55 billion kroons (162,9 million EUR) in the years 2007-2013, including 2,5 billion kroons (159,7 million EUR) from the ERDF and 50 million kroons (3,2 million EUR) from the ESF. The EIC processes the received applications, monitors the implementation of projects and verifies the expenses and realization of the projects. (Web page: http://www.kik.ee/?op=body&id=110).

The implementation of the action is specified in three operational programmes, one of which is the operational programme for the development of the living environment. The total budget for this programme is 68 million EUR (11,3 million EUR per year) for the period 2007-2013.

Loans

The EIC grants special purpose loans from its own funds (Web page: http://www.kik.ee/?op=body&id=108). The loan is initially intended for environmental investments and for the development of projects supporting sustainability and restoration of the environment. Among other things, EIC may organize the mediation of loans, subsidies or guarantees without being their issuer. The amount of a loan granted by the EIC is between 30,000 and 1,900,000 euros. The amount of the loan may not exceed 75 % of the total project value. The EIC grants loans for a period of 15 years and for 20 years as an exception.

Building obligations

In December 2007, the Government approved the regulation on the minimum energy performance requirements of buildings [2]. For new buildings, over 1000 m2 alternative heating systems should be considered.

Minimum energy performance requirements for existing (larger than 1000 m2) buildings apply when the building undergoes major renovation. Major renovation and the principles, (how the renovation can be categorized as a major renovation), are defined in the Building Act.

There is no requirement on share of final energy demand which needs to be produced from RES.

CHP support

According to the Electricity Market Act [1] a support scheme which encourages the use of combined heat and power (CHP) is available. Feed-in tariff (54 EUR/MWh) or feed-in premium (33.3 EUR/ MWh) is applied if electricity is produced in an efficient cogeneration regime using waste, peat or oil-shale processing retort gas as a source of energy, with a capacity not exceeding 10 MW. There are no other support schemes in place to encourage the use of district heating and cooling using RES in Estonia.

4 Details RES-Transport Support Policy

Since January 2005, biofuels used as motor or heating fuels are exempt from excise duties after issue of permit until the permit expires. A biofuel permit is issued by the Tax and Customs Board with a validity of six years. A biofuel permit gives the right to produce biofuel, import it into Estonia and release it for consumption, free of excise duty. If biofuel has been added to motor fuel or heating fuel, the portion of biofuel contained in the motor fuel or heating fuel is exempted from excise taxes.

There is no specific target per year or technology. The main target is to assure that 10% of transport fuels is produced on basis of RES in 2020.

5 RES-E Grid Integration

According to the Electricity Market Act [1] and Grid Code [2], the RES-E projects do not have priority in grid connection. A network operator shall observe the principle of equal treatment of market participants when providing network services. RES-E projects do not have priority in case of grid congestions.

Estonia applies “deep” connection charging - the costs of connection to the grid are borne by the plant operators. The connection charge includes the costs required for the connection, including the costs of the construction of new electrical installations.

6 RES Production, Potential and Market Development

RES-E

Estonian enterprises produced 91 GWh wind power and 22 GWh hydro power in 2007. The rise in wind power production took place in 2005, increasing seven times compared to the previous year. After that year, the production of wind energy has increased slightly. The production of RES-E increased in the period 2003-2007, despite the shortcomings of the support scheme which was in operation during this period.

Current barriers to RES-E in Estonia are the integration of wind electricity into the electricity system, low wind electricity production rate for subsidy, non-diversified tariffs for different sources, poor regulation in district heating market, and biomass is exported to countries with higher energy prices.

RES-T

Liquid biofuels for vehicle fuel - biodiesel (~5 000 t, 2007) – potential 100 000 t. However, in 2007 domestic biofuel consumption was considerably low.

In summary, biofuel production and use in Estonia is hampered by the lack of stable demand, high cost of biofuel raw materials, competition from the food industry for the raw material (rape), the additional investment required of fuel retailers to sell biofuel, and a lack of information on the effectiveness and impact of biofuel use.

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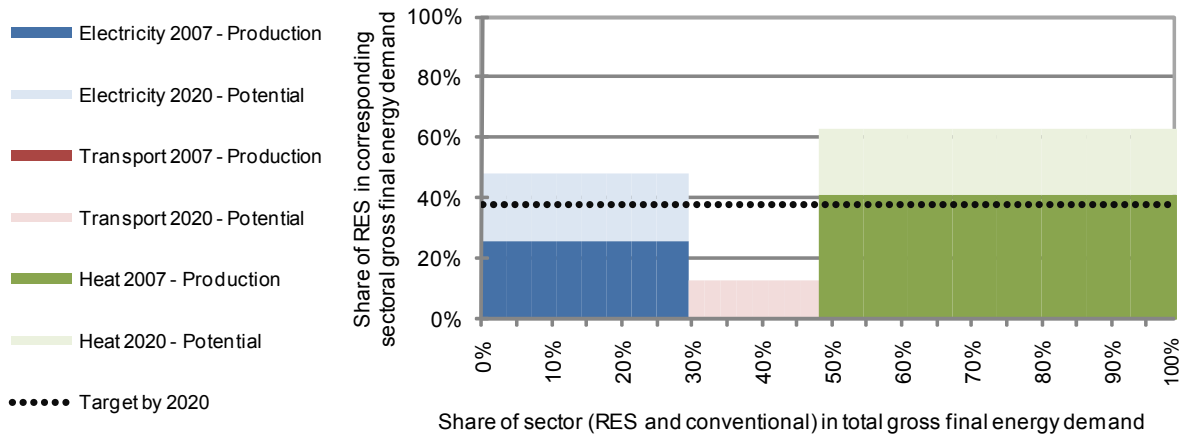
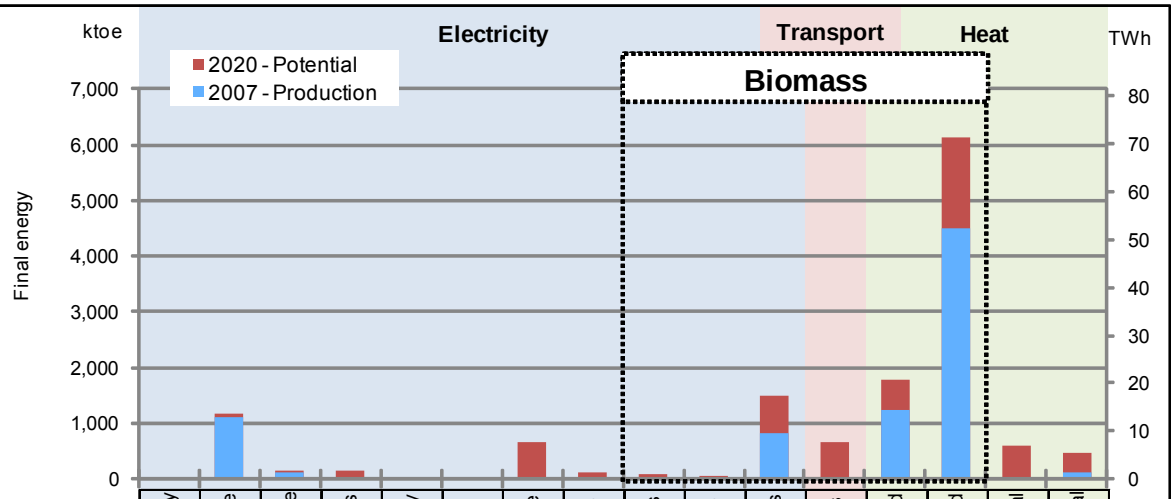
FINLAND - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	26%	0%	41%	29%
Share of total sector consumption in total final energy consumption	29%	19%	52%	100%
Production 2007 [ktoe]	2,090	1	5,873	7,964
Production 2005 [ktoe]	2,017	0	5,464	7,480
Production 1997 [ktoe]	1,636	0	4,718	6,354
Average growth 2005-2007 [%/a]	2%	-	4%	3%
Average growth 1997-2007 [%/a]	2%	-	2%	2%
Potential 2020 [ktoe]	3,897	668	8,970	13,535
Annual growth of RES needed to achieve target	-	-	-	1%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	1,116	104	0	0	0	16	0	2	21	831	1	1,249	4,495	1	128
Production 2005 [ktoe]	0	1,086	99	0	0	0	15	0	2	20	794	0	831	4,536	0	97
Production 1997 [ktoe]	0	949	86	0	0	0	1	0	2	0	597	0	407	4,311	0	0
Ø annual production growth 2005-2007	-	1%	2%	15%	-	-	5%	-	15%	3%	2%	-	23%	0%	-	15%
Ø annual production growth 1997-2007	-	2%	2%	15%	-	-	27%	-	2%	57%	3%	-	12%	0%	-	-
Total realisable potential by 2020 [ktoe]	3	1,159	133	155	0	27	676	116	97	41	1,490	668	1,770	6,121	596	483

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The main support instruments for RES-E are investment subsidies and a tax measure. The so called “energy aid” is a state grant for investments in RES. Grants are available for investment and research projects. “Tax aid“ is a guaranteed payment similar to a feed-in tariff and is paid per kilowatt hour of electricity fed into the grid, however the support level is much lower than in the average European feed-in tariff scheme.

These support instruments for RES-E are applicable at national level. There are no other important additional instruments contributing substantially to the growth of RES-E.

The introduction of feed-in tariffs for electricity from wind power and biogas is currently being discussed. Also, support in the form of green certificates, investment subsidies for consumers, higher taxes on fossil fuels and additional tax exempts are under consideration.

RES-H&C

The generation of RES-H is supported by investment subsidies and tax reliefs. State grants are available for RES-H investment and research projects. The maximum available investment subsidy is 30%. Finnish households can benefit from Energy Grants for Residential Buildings. The maximum amount of this subsidy is 25% of eligible costs. Taxes on heat are based on the net carbon emissions from input fuels and are zero for RES.

RES-T

A quota obligation (a minimum percentage of biofuels to be supplied for consumption) for the distributors of transport fuels has been set for the years 2008-2010. There are a few financial measures for RES-T production available: vehicle tax exemption according to the Law on Vehicle Tax and grants for R&D and pilot projects under the technology programme “BioRefine - New Biomass products”.

2 Details RES-Electricity Support Policy

The main support instruments for RES-E are electricity investment subsidies and "tax aid".

State grant for investments

According to the Regulation No. 1313/2007 on General Rules for the Allocation of Subsidies for Energy (Valtioneuvoston asetus energiatuen myöntämisen yleisistä ehdoista) grants are available for investment and research projects that involve the use of RES or the application of RES technologies [1]. This Regulation became applicable on 1 January 2008 and is valid until 31 December 2012.

All RES-E technologies are eligible for grants and there are no restrictions on sizes of plants. Among other costs, the preparation and planning costs and the cost of materials are eligible for subsidies. Only companies, municipalities and communities can apply for grants.

Up to 40% of investment costs may be subsidised. The maximum subsidies amount to: 40% for investment projects in the fields of wind energy or PV; 40% for investment projects that employ new technologies for the generation or use of RES; 30% for investment projects that employ traditional technologies for the generation and use of RES. The maximum amount of the subsidy is 250,000 EUR, but it can be extended by the Ministry of Employment and Economy. An annual budget for this measure is not strictly set. The company or other legal entity receiving the subsidy shall bear at least 25% of the total project costs.

The regulation does not make support conditional to the use of certified equipment and/or certified installers.

The instrument is managed by the Ministry of Employment and the Economy: (http://www.tem.fi).

Electricity tax aid

The current energy taxation system has been in use since 1997. Final consumers are obliged to pay a tax for the consumption of energy under the Law on Electricity and Certain Fuels Excise Tax (Laki sähkön ja eräiden polttoaineiden valmisteverosta) [2]. The consumption of RES-E is also subject to this tax. Grid operators are subject to the tax on electricity. The revenue from the electricity tax is used to pay "tax aid", to the operators of systems for the generation of RES-E. This "tax aid", is a guaranteed payment similar to a feed-in tariff and is paid per kilowatt hour of electricity fed into the grid. But the tariff level is very low compared to feed-in tariff schemes in other countries. All technologies used in the generation of RES-E are eligible, except photovoltaic systems, large-scale hydropower stations, geothermal systems and systems for the generation of electricity from peat.

The amount of "tax aid", depends on the technology used; wind energy and forestry waste - 0.69 €ct/kWh; small hydropower plants and biomass systems - 0.42 €ct/kWh; recycling fuels - 0.25 €ct/kWh.

The duration of this instrument is not set, and is therefore theoretically unlimited. This support is available for both existing and new installations. “Tax aids” are the same despite the installation time and/or location.

The support instrument is not periodically revised. It was implemented in 1996 and applied since 1997 and was revised in 2007 when the available budget was reduced. There is an annual cap on the available budget; 50 million EUR per year before 2007, 10 million EUR per year since 2007.

The regulation does not make support conditional to the use of certified equipment and/or certified installers.

The instrument is managed by Ministry of Employment and the Economy: (http://www.tem.fi).

Ongoing policy changes at national level

On 29 September 2009, a working group, chaired by Senior Engineer Petteri Kuuva of the Ministry of Employment and the Economy submitted a proposal to the Minister of Economic Affairs on the introduction of feed-in tariffs for electricity produced using wind power and biogas. Proposed level of feed-in tariffs: for wind – 83,5 EUR/MWh, for biogas – 50 EUR/MWh. The feed-in tariff will be paid for 12 years. Technologies eligible for feed-in tariffs: wind power plant capacity at least 1 MW, biogas PP capacity at least 300 kW. The feed-in tariff would be financed from a fee collected directly from electricity end-users.

3 Details RES-Heating and Cooling Support Policy

There is no direct RES-H support. The generation of RES-H is supported by investment subsidies and tax reliefs.

State grants for investments

Under Regulation No. 1313/2007 on General Rules for the Allocation of Subsidies for Energy, state grants are available for RES-H investment. Investment support in Finland is granted to biomass using plants, for both heat production and CHP. The maximum available investment subsidy is 30%, contingent on the type of project. All conditions of grants for RES-H projects are the same as for RES-E projects (see chapter 3).

The instrument is managed by the Ministry of Employment and the Economy: (http://www.tem.fi).

Energy Grants for Residential Buildings

Energy Grants for Residential Buildings are regulated by the Law on Energy Grants for Residential Buildings adopted on 19 December 2008 [7]. So called Energy Grants for Residential Buildings are not strictly allocated for heating and cooling, but one of the determined areas is heating systems and RES. The main beneficiaries of this instrument are households.

The implementation of this instrument started in 2003 and the last revision was made in 2009. This instrument is not periodically revised.

There is a cap on the annually available budget: 14 million EUR in 2008 and 22 million EUR in 2009. The maximum amount of the subsidy is 25% of eligible costs. Such eligible costs might include material and equipment costs but not the cost of work.

The instrument is managed by Ministry of the Environment and the Housing Finance and Development Centre of Finland. More information is available at: www.ara.fi/default.asp?node=692&lan=en#a5.

Tax exemptions

Taxes on heat are based on the net carbon emissions from input fuels, and are zero for RES.

4 Details RES-Transport Support Policy

Quota obligation

Law on the promotion of biofuels in transport adopted on 13 April 2007 placed a quota obligation on biofuel consumption [3]. A quota obligation (a minimum percentage of biofuels to be supplied for consumption) for the distributors of transport fuels has been set for the years 2008-2010. This minimum percentage will increase annually: 2% in 2008, 4% in 2009 and 5.75% in 2010. If the distributors failed to fulfill this obligation, the customs authorities will impose a penalty fee.

Tax exemptions

The Law on Vehicle Tax (Ajoneuvoverolaki) provides tax exemption for vehicles using biofuel [4]. This tax exemption entered into force in 2004. Beneficiaries of vehicle tax exemption are owners of all private and some commercial (except military, rescue, etc.) vehicles. There is no differentiation based on fuel type or technology. This instrument is managed by the Vehicle Administration: (http://www.ake.fi/AKE_EN/).

There is no specific support for electric vehicles that use RES-E.

5 RES-E Grid Integration

The Electricity Market Act provides guaranteed access to the grid for all electricity users and electricity-producing plants, including RES-E generators [6]. The grid operator is obligated to grant connection for RES-E generators to the grid according to non-discriminatory criteria. RES-E projects don't have priority in grid connection in case of grid congestions.

According to the Electricity Market Act, the grid operator shall expand his grid according to the needs of his customers. The cost of a grid expansion is born either by the grid operator or by the system operator. The grid operator shall bear the cost of an expansion of his grid if it is carried out to satisfy the needs of more than one grid user. The grid operator shall also bear the cost if the capacity of the systems to be connected does not exceed 2 MW. The grid operator is obliged to expand his grid without discriminating against certain customers. The system operator shall pay to the grid operator a reasonable cost for the connection of his system to the grid. He may request,

from the grid operator, a detailed list of the cost incurred by the connection of his system to the grid ("deep" connection charging).

According to the Electricity Market Act, the terms of acquisition for electricity necessary for maintaining national balance responsibility and the terms of trade for balancing electricity, shall be equitable and non-discriminatory to all electricity market participants and they shall not contain any conditions or limitations that would be unfounded or that would obviously restrict competition within electricity trade. However, these terms shall take account of the conditions necessitated by the reliability and efficiency of the electricity system. The pricing of balancing electricity shall be reasonable.

An electricity market participant shall be responsible for ensuring that the electricity generation and electricity acquisition contracts of the said participant cover the participant's electricity use and supply during each hour (balance responsibility).

6 RES production, potential and market development

RES-E

The share of RES-E in the total electricity demand amounted to 25.9% in 2007 compared to 24.7% in 1997.

The RES-E production from biomass showed the strongest growth during 1997-2007 due to a strong expansion of biomass fuelled CHP. In 2007, biomass amounted to about 40% and hydropower about 58% in RES-E production structure. The use of wind power is still not significant.

RES-H&C

The share of RES-H&C in the total heat demand amounted to 41.3% in 2007 compared to 35.3% in 1997.

The growth rate since 2000 is by far lower than the growth rate in the nineties. In 2007 the market was dominated by solid biomass (non-grid) with a share of more than three-quarter followed by solid biomass (grid) with 21%.

RES-T

In 2007 bioethanol consumption in Finland was 1 ktoe. However, Finland launched the technology programme "BioRefine - New Biomass products" (2007-2012) with the specific objective to significantly promote the development of second-generation biofuel production technology.

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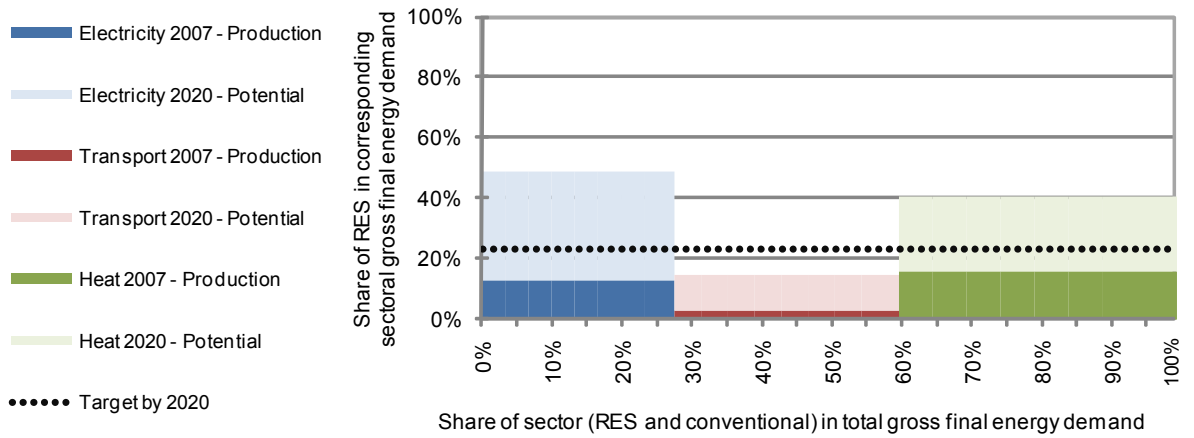
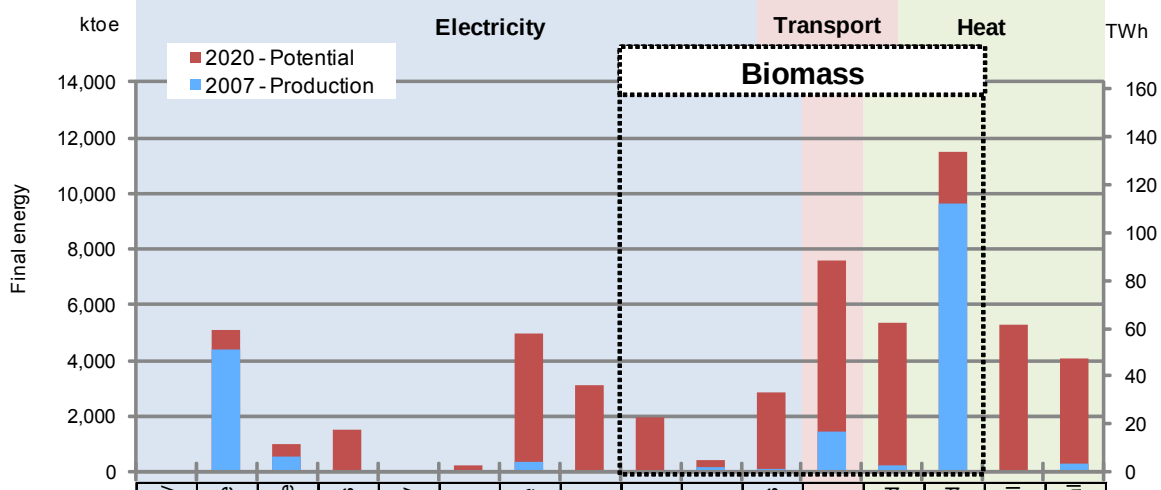
FRANCE - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	13%	3%	16%	11%
Share of total sector consumption in total final energy consumption	27%	32%	40%	100%
Production 2007 [ktoe]	5,686	1,473	10,217	17,376
Production 2005 [ktoe]	4,828	408	10,542	15,778
Production 1997 [ktoe]	5,724	272	10,341	16,337
Average growth 2005-2007 [%/a]	9%	90%	-2%	5%
Average growth 1997-2007 [%/a]	0%	18%	0%	1%
Potential 2020 [ktoe]	21,236	7,606	26,255	55,098
Annual growth of RES needed to achieve target	-	-	-	5%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	7	4,424	535	1	0	45	348	0	55	151	120	1,473	226	9,665	35	291
Production 2005 [ktoe]	0	3,897	507	1	0	46	83	0	44	142	108	408	258	10,035	21	228
Production 1997 [ktoe]	0	4,858	581	0	0	49	1	0	10	95	132	0	275	9,928	16	122
Ø annual production growth 2005-2007	-	7%	3%	30%	-	-1%	105%	-	12%	3%	5%	90%	-6%	-2%	29%	13%
Ø annual production growth 1997-2007	-	-1%	-1%	-	-	-1%	81%	-	19%	5%	-1%	-	-2%	0%	8%	9%
Total realisable potential by 2020 [ktoe]	44	5,116	1,012	1,524	0	226	4,990	3,103	1,954	427	2,839	7,606	5,382	11,512	5,320	4,042

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

A fixed feed-in tariff (tarif d'obligation d'achat) is the key instrument for RES-E development at the French national level. It is guaranteed for 15 to 20 years depending on the RES type. The feed-in tariff is set at a satisfactory level for most RES technologies. For on-shore wind energy, the tariff is satisfactory, but parks need to be in Wind Energy Development Zones (ZDE) to benefit from the tariff. The designation process of these zones is slow and slows down the whole sector development.

For solar PV, the tariff is very attractive and pulled the sector up in 2009. Nonetheless, important regional development differences are seen. This has been addressed by a call for tender requesting one large solar power plant per administrative region, and will be addressed in the future by a regionalized feed-in tariff. Conditions for integrated solar PV, granting access to a higher feed-in tariff, will be made stricter. Many regional incentives are available for private owners of PV.

Only biomass does not benefit from a feed-in tariff, but is supported by call for tenders. Discussions are ongoing about the implementation of a feed-in tariff for biomass in 2010. There are no important regional incentives for large scale RES-E installations.

RES-H&C

There are three main instruments supporting the development of RES-H&C at the national level. The recently implemented "Fond Chaleur" is the main instrument for large-scale installations. National calls for tenders, for large installations for industry or agriculture are, and will be organized in 2009, 2010 and 2011. For other large scale installations that do not fall within this category (large installation for public services or smaller installation for the industry or agriculture), a regional feed-in premium is in place. For small scale installations (local collectivities and private owners), two main incentives are in place. The "Eco-pret à taux zero", a zero interest loan, and the "Credit d'Impot Developpement Durable", a tax deduction support. These instruments are working properly. Regional incentive for small scale projects and private owners are, in certain regions, a substantial supplement to national incentives. They differ greatly from region to region.

RES-T

Two main instruments support the development of RES-T in France.

The first is a cluster of bonus and malus: "Bonus Ecologique", "Malus Ecologique" and "Super Prime". Together they support the replacement of old vehicles by new low CO2 emission vehicles. A premium for (hybrid) electric vehicles was recently increased. A second instrument aims at supporting the development of the biofuels sector. Biofuels are eligible to receive a tax deduction on the TIPP, a governmental tax on all petrol products including gasoline and diesel. It will be replaced in 2012 by an extra tax on fuel for gasoline or diesel retailers that do not include a sufficient share of biofuels in their mix.

2 Details RES-Electricity Support Policy

The French targets for RES-E are summarized in the table below:

	Stepping stone 2012	Target 2020
Hydroelectricity		70TWh/year
Onshore wind energy	10500MW	19000MW
Offshore wind energy	1000MW	6000MW
Solar PV	1100MW	5400MW
Biomass	980MW	2760MW

Feed in-tariff: Tarifs d'obligation d'achat in effect since 2006

The "Tarif d'obligation d'achat" is a fixed feed-in tariff implemented by the DGEMP (General Directorate for Energy and Raw Materials) and managed at the national level. It was first implemented under the Electricity Law 2000, and was reviewed under the finance law in July 2006. It is regularly actualized based on inflation, but major change must be agreed upon in within finance law. More information is available on the DGEMP's website http://www.developpement-durable.gouv.fr/energie/renou/f1e_ren.htm

The tariff is guaranteed for 15 years (onshore wind, biogas and geothermal energy) and 20 years (off-shore wind and solar PV and hydro power) and is adjusted according to inflation for new plants and for plants currently in operation.

Table 1: summary of feed-in tariffs and exceptions.

RES	Valid for	Feed-in tariff	Feed-in tariff exceptions	Comments
Biogas/ methanisation	15 years	75€/MWh to 90€/MWh	Efficiency bonus from 0€/MWh to 30 €/MWh	Methanisation bonus of 20 €/MWh
Onshore wind	15 years	82 €/MWh for first 10 years	28 €/MWh to 82 €/MWh for following 5 years	Following 5 years subsidy depending on number of FLH (3600 to 2400)
Offshore wind	20 years	130 €/MWh for first 10 years	30 €/MWh to 130 €/MWh for following 5 to 10 years	Following 5-10 years subsidy depending on number of FLH (3900 to 2800)
Solar PV	20 years	328 €/MWh for France mainland	437 €/MWh for France Territories and Corsica	Bonus of respectively 273 €/MWh (164 €/kWh) in Mainland France (France Territories and Corsica) for integrated PV.
Hydro power	20 years	60.7 €/MWh	Bonus of 5 €/MWh to 25 €/MWh for small plants	Bonus of 0 €/MWh to 16.8 €/MWh for winter production regularity
Geothermal	15 years	120€/MWh for France mainland	100 €/MWh for France territories	0 €/MWh to 30 €/MWh efficiency bonus

RES-wind

The onshore wind energy feed-in tariff is guaranteed for 15 years. The feed-in tariff is set to 82 €/MWh for the first 10 years. For the following five years, the feed-in tariff is set between 28€/MWh (parks operating at an average of 3600 full load hours) and 82 €/MWh (park operating at 2400 full load hours or less).

Guaranteed feed-in tariff are available only for wind parks located in a ZDE (*Zone de Developpement eolien*, Wind Energy Development zone). The ZDE are selected at a local level (administrative department) based on national and regional guidelines.

The offshore wind energy the tariff is guaranteed for 20 years: The feed-in tariff is set to 130 €/MWh for 10 years, followed by a variable rate during the following 5-10 years ranging from 30 €/MWh (park operating 3900 full load hours or more) to 130 €/MWh (park operating at 2800 full load hours or less). The legislation for offshore parks is not yet clearly defined. It is unclear whether there will be ZDE at sea and if so, it is unclear which body will select them.

Rates fall by 2% a year for plants built after 1 January 2008, and they are also adjusted to take account of inflation. Annulled in August 2006, the tariff for wind power was reinstated mid-December 2006.

RES-E PV

Solar PV installations are eligible for a feed-in tariff (actualized as of January 2009) of 328€/MWh for ground based power plant, and 602€/MWh for integrated panels (installed on already occupied surface). The tariff differs for French territories (DOM-TOM).

A call for tender was launched on April 21 2009 by the MEEDDAT for 300MW. The requirement is that at least one solar power plant should be built in each region of France. Requested feed-in tariffs are part of the bid, and will probably differ slightly from the regular feed-in tariff depending on the region. Successful solar power plants must have constructions scheduled in 2011. No call for tender is anticipated in the short term.

PV for private owners and small surfaces are eligible for other supports, namely the “Eco-pret à taux 0” and the “Credit d’impot development durable”. These incentives are described later in chapter 4 as they support mainly RES-H installation.

RES-E Biomass

For biogas and methanisation, a feed-in tariff can range from 75 and 90 €/MWh, with an energy efficiency bonus of 0 to 30 €/MWh and a methanisation bonus of 20 €/MWh. For all other biomass there is no feed-in tariff available upon request. National scale calls for tenders are implemented to support the development of biomass power plants. The last three were released in 2003 (315MWe), 2006 (300MWe) and 2009 (250MWe, closing date July 2009). Bidders bid on (amongst other aspects) the requested feed-in tariff. In case of success, the feed-in tariff is guaranteed over the 20 year lifetime of the project. The feed in tariff obtained during the 2006 call for tender was, on average, 128€/MWh. The Construction of the 2009 call for tender successful project should occur by 2012.

The calls for tender do not exclude any type of biomass fuel, but certain technologies may be favoured by The CRE (Commission de Regulation de l’Energie) who assesses the bid.

RES Geothermal

For geothermal energy, a feed-in tariff is available. It is set to 120 €/MWh, with an energy efficiency bonus of between 0 and 30€/MWh for mainland France and to 100 €/MWh, with an energy efficiency bonus of between 0 and 30 €/MWh on Corsica.

Future Changes

There are several ongoing discussions for the modification of feed-in tariffs for geothermal and solar, and for the introduction of a feed-in tariff for biomass. According to experts from the SER (Syndicat des Energies Renouvelables), these changes could lead to implementation in 2010.

Discussions on the modifications of the PV solar feed-in tariff are very advanced and could be implemented as soon as January 2010. The most likely consequences are:

- Regionalization of the tariff to support solar development in the north of France
- Stricter definition of integrated PV and creation of a new tariff for integrated PV on commercial buildings (e.g. supermarkets, factories, large barns). A 450€/MWh tariff is mentioned

For geothermal, a new feed-in tariff would be created for the French territories (DOM-TOM). It is still unclear what the geothermal and biomass feed-in tariff will be.

Regional Incentives

Large scale RES-E installations are mainly supported at the national level. Regional incentives aim at supporting smaller scale RES-E development for private owners and local communities (mainly integrated PV).

The incentive differs greatly from region to region and can include financing, premiums, pre-feasibility study, feasibility study or fiscal advantages, and can be relatively important for small projects. The incentive can be provided at different administrative levels (region, departement, municipality) or by the regional entity of the Ademe.

3 Details RES-Heating and Cooling Support Policy

The targets for RES-H&C for France are summarized in the table below:

	Stepping stone 2012	Target 2020
Biomass	9900ktoe	1260ktoe
CHP	540ktoe	2400ktoe
Deep and medium deep geothermal heat	295ktoe	750ktoe
Individual thermal solar	150ktoe	817ktoe
Collective thermal solar	35ktoe	110ktoe
Individual heat pump	1200ktoe	1600ktoe

Incinerators and wood wastes	470ktoe	900ktoe
Biogas	60ktoe	555ktoe

Feed-in Premium: *Le Fond Chaleur*

The "Fond Chaleur" is a feed-in premium for biomass central heating. It is implemented by the Ademe (French Environment and Energy agency). The instrument is in action and consists in either, call for tender or guaranteed feed-in premium, depending on the size of the installation. Calls for tender are regular and the tariff will be reviewed in 2011 at the latest. The budget of the Fond Chaleur is caped at 1000m€ on the period 2009-2011. The cap will be reviewed together with the tariff in 2011, but the MEEDDM (Ministry of Ecology, Energy, Sustainable Development, and of the Sea) – the financing body already mentioned that a budget cap of 800m€ would be the target in the middle term. More information is available at www.ademe.fr/fondschaleur

The Fond Chaleur offers a feed-in premium to eligible heat production installations such as biomass, geothermal, solar, district heating and heat recovery installations. Installations for industry or agriculture are dealt with differently than installation for public services (hospitals, school, swimming pools).

National Call for Tenders for Large Installation (over 1000toe/year) for the Industry or Agriculture

Large scale biomass heat production plants (annual heat production above 1000toe/year approximately 11,630MWh) for the industry or the agriculture are managed at the national level through calls for tender managed by the BCIA (Biomass and Heat for Industry and Agriculture) at a rate of one call for tender per year (2009-2010-2011).

Regional feed-in Premium:

Smaller projects (installation size between 200toe/year and 1000toe/year) for industry or agriculture, and other projects (installation size above 200toe/year) for public services (e.g. school, hospitals, swimming pools) can benefit from a feed-in premium managed at the regional level by the agencies of the Ademe. Eligible projects include solar thermal energy, geothermal power (direct or using heat pumps), biomass (boiler), recovery of energy (biogas and incineration) and district heating. Conditions to benefit from the incentive, are sufficient energetic and environmental performances, and are assessed by the Ademe.

The values of the feed-in premium vary according to the size of the installation, as shown in table 2 and 3 below.

Table 2: Regional feed-in premium for public service

Energy production in toe/year (output) (indicative MWh)	Regional subsidy for public service[41] (€/toe)

41 E.g. Urban centralized heating, hospitals, schools, swimming pools

0 à 250 toe (0 à 2 900MWh/year)	1750
250 à 500 toe (2 900 to 5 800 MWh/year)	1250
500 à 1000 toe (5 800 to 11 630 MWh/year)	600
> 1000 toe (11 630MWh/year)	300

For a 1100 toe installation the subsidy will be 1750*250+1250*250+600*500+100*300.

Table 3: Regional feed-in premium for industry and agriculture

Energy production in toe/year (output) (indicative MWh)	Regional subsidy for industry and agriculture (€/toe)
0 à 250 toe (0 à 2 900MWh/year)	1100 (650 for wood industry)
250 à 500 toe (2 900 to 5 800 MWh/year)	
500 à 1000 toe (5 800 to 11 630 MWh/year)	600
> 1000 toe (11 630MWh/year)	National scale call for tender by the BCIAT

Tax-deduction: Credit d'Impot Developpement Durable

The "Crédit d'impôt développement durable" is tax deduction scheme dedicated to sustainable development. It is implemented by the DGEC (Climate and Energy General Direction), operating under the MEEDDM (Ministry of Ecology, Energy, Sustainable Development, and of the Sea). The instrument is in action and is revised only upon legislation, but has experienced several amendments during the last 5 years. It can be cumulated with some other state financial supports. To qualify for investment, the support is condition to the use of certified equipment. More information is available on the websites: http://ecocitoyens.ademe.fr/financer-mon-projet/renovation/credit-dimpot-developpement-durable and http://ecocitoyens.ademe.fr/financer-mon-projet/construction/credit-dimpot-developpement-durable

Tax deductions are available for equipment enabling energy saving for private dwellings or collective dwellings. Depending on the system, conditions differ upon age of the house (under construction, constructed after 1977, constructed before 1977). The equipment eligible for tax deduction and the levels of tax deduction are listed in article 90 of the finance law 2005 and was reviewed twice in the article 83 of the finance law 2006 and in article 109 of the finance law 2009.

Equipment eligible for tax deduction are:

- Condensed air heaters. Tax deduction of 25% to 40% [42].
- High insulating property material (including roof, floor, walls, windows, doors, window-shutters pipes). Tax deduction of 25% to 40% [42].
- Material for heating regulation or programming systems. Tax deduction of 25% to 40% [42].

42 40% if installed material installed in building built before 1977, and material installed within two years after acquisition of dwelling.

- In-house- equipment for heat production including stand-alone wood or biomass heating system, geo-thermal heat pumps. Tax deduction brought back to 25% from 2010 on (previously 50%)[42].
- In-house- equipment heat production[43] from renewable including solar heating[44], and heat pumps. Tax deduction brought back to 40% from 2010 on (previously 50%).
- In-house- equipment for energy production[45] including electricity production systems using PV solar, biomass, hydraulic or wind, heat pumps. Tax deduction of 50% independent of year of construction of dwelling.
- From 2010, air-air heat pumps are not eligible for tax deduction anymore.

As a general rule, equipment is eligible for tax deduction if purchased and installed at the principal dwelling. Installation costs are not included in the eligible cost except for installation of insulating material (windows excluded). A maximum deduction of 8000€ for a single person, 16000€ for a married couple, and a supplement of 400 per dependant person is available.

This measure is complemented by a reduced level of VAT to 5.5% on material and installation costs. This extra incentive does not cover solar panels for installation bigger than 3kW.

More info: http://www.developpement-durable.gouv.fr/cgi-bin/industrie/frame23e.pl?bandeau=/energie/developp/econo/be_eco.htm&gauche=/energie/developp/econo/me_eco.htm&droite=/energie/developp/econo/textes/credit-impot-2005.htm

The list of equipment eligible for the tax deduction is available on page: http://www.developpement-durable.gouv.fr/energie/developp/econo/textes/credit-impot-2005.htm

Zero Interest Rate Loan: L'ECO PRET A TAUX ZERO

The Eco-prêt à taux zero is a zero interest loan implemented by the MEEDDM (Ministry of Ecology, Energy, Sustainable Development, and of the Sea). The instrument has been in place since April 2009 and no periodical revision is planned so far. The budget of this incentive is not caped. More information is available on the website http://ecocitoyens.ademe.fr/financer-mon-projet/renovation/eco-pret-a-taux-zero.

The Eco-prêt à taux zero is available to all land owners for the financing of energy saving construction works in their principal dwelling or in a dwelling of theirs under lease. The zero interest loan is available if:

- The land owner conducts several insulation improvements including at least two elements from the following: efficient insulation in the roofing, efficient insulation in outside walls, efficient insulation in outside windows, replacement of water

43 Heat production as primary function

44 Subject to conditions on standards and efficiency level

45 Heat production not primary function

heating system or heating system, installation of a RES heating system, installation of a RES water heating system

- The land owner improves the global house energy efficiency:
- For house consuming more than 180 kWhEP/m²/yr, consumption must go below the threshold of 150 WhEP/m²/an.[46]
- For houses consuming less than 150 WhEP/m²/yr, consumption must go below the threshold of 80 kWhEP/m²/yr. [46,47]

The expenditures covered by the loan include hardware, installation, induced works (e.g. electricity, ventilation), design and possible insurance costs. The loan is caped at 20000€ or 30.000€, depending on the type of work undertaken and the pay-back time is 10 years[48].

The loan can be cumulated with other incentives from the "collectivite territoriales" (local bodies). If obtained during 2009 or 2010, the Eco-prêt can be cumulated with the "Credit d'impot development durable" depending on the revenue of the family.[49]

Future Changes

As described above, the "Crédit d'impôt développement durable" will be reviewed as of January 2010 for some systems, e.g. in-house equipment for heat production, air-air heat pumps.

Regardless, the "Contribution Climat Energie" (CCE) will enter into enforcement as of 1 January 2010. The CCE is a carbon tax that will affect fuel prices, particularly, city gas and domestic fuel oil prices will increase (by respectively 0,35 c€/kWh, 4.5c€/L). In this way, the CCE acts as an indirect incentive to RES-H and RES-T.

Regional Incentives

A number of regional incentives exist for small scale projects. They differ greatly from region to region and can include support in technical feasibility study, premiums, fiscal advantages, and can be relatively important for the project. Most of the incentives (e.g. including financing, pre-feasibility study, feasibility study) for larger projects are managed by the regional entities of the Ademe, and are attributed on an individual basis upon request.

Regional incentives can be implemented by the Ademe, the regional administration, the "departementale" administration or even at the level of a municipality, but are normally listed by the regional offices of the Ademe.

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46 Does not apply to dwelling built before 1948, January 1

47 Values are corrected depending on climatic conditions and altitude on site

48 Pay-back time can exceptionally be increased to 15 years to reduce the reimbursement burden

49 Families with annual gross revenue above 45000€ cannot cumulate the subvention

More information:
http://www2.ademe.fr/servlet/KBaseShow?sort=-1&cid=96&m=3&catid=12430 (link to the Ademe regional sites)

4 Details RES-Transport Support Policy

France has a target of having a minimum of 7% of biofuels integrated in the fuel mix retailed at gas stations by 2012. There are no special targets on electric or hybrid vehicles.

RES-T – *TIPP (Taxe Interieure sur les Produits Petroliers – National Tax on Petrol Product) deduction*

The TIPP deduction is a tax deduction to support the incorporation of biofuels into conventional fuel (diesel or gasoline). The incentive is implemented by the DGEC (Direction Générale de l'Energie et du Climat) and the IFP (Institut Français du Pétrole). The instrument is in action and is revised every year (tuned down). The tax deduction is only available for state certified production centres having a licence "agréement". More information is available on the website http://www.developpement-durable.gouv.fr/cgi-bin/industrie/frame23e.pl?bandeau=/energie/renou/biomasse/be_biom.htm&gauche=/energie/renou/biomasse/me_biom.htm&droite=/energie/renou/biomasse/biocarburants.htm

The TIPP is a national tax on petrol products. Gasoline and diesel are taxed by the state (respectively 60.69€/hundred l and 42.84€/hundred l in 2009). Biofuels mixed with conventional fuels are eligible for a deduction on the TIPP since 2003. The condition is that the biofuels are produced in a site certified by the state. This tax deduction is decreasing step by step and should be totally cancelled by 2012.

Table 4: TIPP deduction per annum and fuel type.

Fuel type	TIPP deduction (2008)	TIPP deduction (2009)	TIPP deduction (2010)	TIPP deduction (2011)	TIPP deduction (2012)
Biodiesel	22€/hl	15€/hl	11€/hl	8€/hl	0€/hl
Bioethanol	27€/hl	21€/hl	18€/hl	14€/hl	0€/hl

An extra tax the TGAP applies from 2005 to fuel sold that does not include a minimum share of biofuels. The threshold defined in the article 32 of the finance lax 2005 is shown in table 5 below.

Table 5: minimum share of biofuels in fuel 2005-2010.

	2005	2006	2007	2008	2009	2010
Minimum share of biofuels in fuel (%PCI)	1.2%	1.75 %	3.5%	5.75 %	6.25 %	7%

RES-T - Super-prime, Bonus Ecologique and Malus Ecologique

The “Super-prime”, the “Bonus Ecologique” and the “Malus Ecologique” are three types of financial premium or malus to support the investment in sustainable transport. The instrument is currently implemented by the MEEDDM (Ministry of Ecology, Energy, Sustainable Development, and of the Sea). It is expected to be periodically revised, and the incentive is guaranteed until 2012. More information is available on the website http://www.developpement-durable.gouv.fr/article.php3?id_article=2825.

The “Super-prime” is available to all private owners or company fleets scrapping a vehicle older than 10 years to buy a new vehicle that consumes less than 100 gCO2/km. The “super-prime” is worth 1000€ for all type of private vehicles (up to 9 seats, trucks not included) until end of 2009. The government mentions that the “super prime” will be renewed in 2010, but the value is expected to be brought down.

The “Bonus Ecologique” is available for all newly bought vehicles, and ranges from 200€ to 1000€ depending on its certified CO2 emission. On the other hand, a vehicle with high CO_2 emission rate will be penalized by a “Malus Ecologique” ranging from 200€ to 2600€ depending in its CO_2 emission rate. The table below summarizes the instrument.

Renewable Energy Fueled Vehicles:

A special premium of 5000€ is given to electric vehicles and large plug-in hybrid vehicles. Another special premium of 2000€ was implemented for hybrid vehicles with a CO_2 emission rate under 135 gCO2/km. GPL and city gas fueled vehicles are also eligible for this second premium. Vehicles powered by E85 (bioethanol) do not receive this special premium, but are not eligible for the investment malus for CO_2 emission rates if they have a consumption below 250 gCO_2/km.

Table 6: investment premiums for vehicles.

Investment premium	
CO_2 emission	Investment Premium
Electric Vehicles	5000€
Hybrid EV under 135 gCO_2/km	2000€
60 to 100 gCO_2/km	1000€
101 to 120 gCO_2/km	500€
121 to 130 gCO_2/km	200€
Investment malus	
161 to 165 gCO_2/km	200€
166 to 200 gCO_2/km	750€
201 to 250 gCO_2/km	1600€
Above 251 gCO_2/km	2600€

Future Changes

The value of the “super-prime” is expected to be brought down from 2010. Experts mention a possible value of 700€ instead of 1000€.

The “Contribution Climat Energie” (CCE) will enter be implemented as of 1 January 2010. The CCE is a carbon tax that will affect fuel prices, in particular gasoline and diesel prices will increase by respectively 4c€/L and 4.5 c€/L. In this way, the CCE acts as an indirect incentive to RES-H and RES-T.

5 RES-E Grid Integration

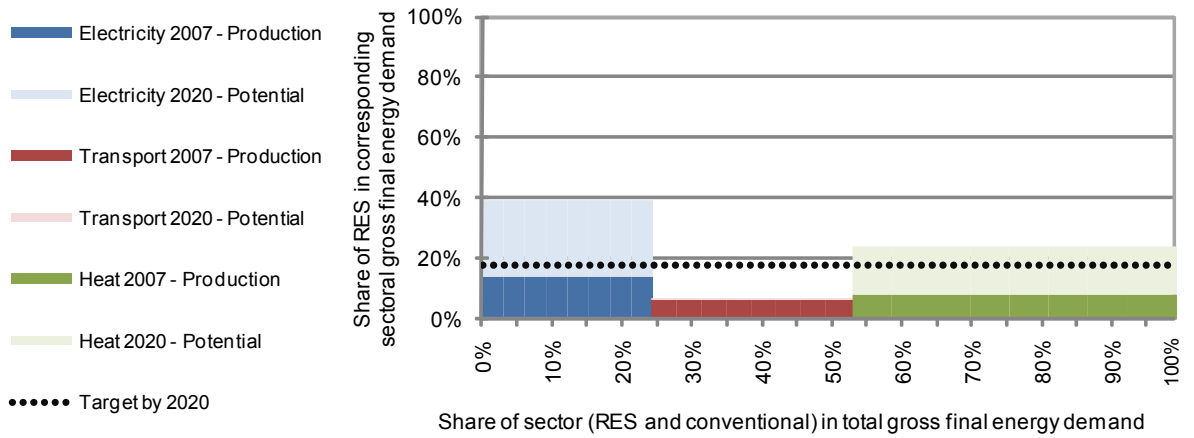
The grid connection of all important RES-E installation is arranged by a contract: “convention de raccordement” between the developer and the DSO (mainly ErDF (sic!)) or in rare cases, the TSO (RTE). The connection costs are low, the developer connects to the closest point on the network and the grid reinforcement costs are born by the DSO/TSO.

As a general rule, all electricity is bought by the grid operator (RTE the TSO, or ErDF the main DSO) at the guaranteed feed-in tariff. Thus RES-E installation operators do not have to sell their electricity on the market, and they are not responsible for their electricity production forecast.

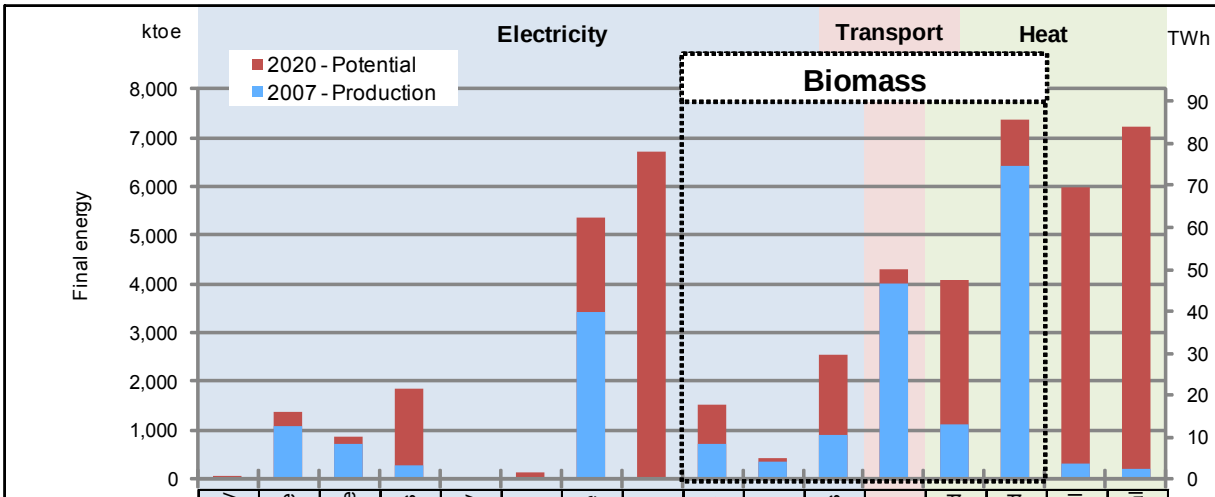
Some exceptional cases, force majeure, and other special cases, stipulated in the contract, can require the RES operator to reduce their production, leading to a momentary loss of earning. There is no priority of dispatch.

The request for connection to the TSO/DSO enters a waiting list. There is no priority given to RES-E producers on this waiting list.

GERMANY - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	14%	6%	8%	9%
Share of total sector consumption in total final energy consumption	24%	29%	47%	100%
Production 2007 [ktoe]	7,458	3,994	8,050	19,502
Production 2005 [ktoe]	5,202	1,948	7,034	14,184
Production 1997 [ktoe]	2,050	80	4,457	6,587
Average growth 2005-2007 [%/a]	20%	43%	7%	17%
Average growth 1997-2007 [%/a]	14%	48%	6%	11%
Potential 2020 [ktoe]	20,859	4,313	24,657	49,829
Annual growth of RES needed to achieve target	-	-	-	5%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	1,077	721	264	0	0	3,413	2	733	355	893	3,994	1,130	6,410	315	195
Production 2005 [ktoe]	0	999	684	110	0	0	2,342	0	405	261	400	1,947	845	5,834	243	112
Production 1997 [ktoe]	0	1,006	582	1	0	0	261	0	65	91	43	0	273	4,001	68	115
Ø annual production growth 2005-2007	-	4%	3%	55%	-	-	21%	-	35%	17%	49%	43%	16%	5%	14%	32%
Ø annual production growth 1997-2007	-	1%	2%	68%	-	-	29%	-	27%	15%	35%	-	15%	5%	17%	5%
Total realisable potential by 2020 [ktoe]	43	1,375	861	1,847	0	133	5,354	6,721	1,518	444	2,563	4,313	4,083	7,385	5,973	7,216

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The main support instrument for RES-E is a feed-in tariff scheme. All relevant technologies are eligible, except for co-firing in conventional power plants. The scheme grants fixed feed-in tariffs for a period of 20 years. Tariffs are differentiated by technology and size of installation, and are subject to annual degression for new installations. Additional bonuses are paid for the compliance with further quality criteria. There is no cap on the support, as the scheme is not financed by governmental budget, but by allocation to the final consumer.

In addition to the feed-in tariff system, there are further fiscal measures to support RES-E installations.

RES-H&C

RES-H&C is primarily supported by the RES-H Act. The Act introduces the obligation to use RES-H in new buildings >50m2 and includes the Market Incentive Programme (MAP), providing investment subsidies and grants as well as long-term, low-interest loans with a fixed interest rate and redemption-free grace years for RES-H&C installations. The annual budget for the MAP between 2009-2012 amounts to 500 million €.

RES-T

Biofuels are supported by a quota obligation as well as by a tax exemption. The overall quota is set at 6.25% annually until 2014. Currently there is a discussion about a higher quota obligation. Second generation fuels and Ethanol are exempt from taxes until 2015. The tax reduction for all other biofuels will be gradually (in steps of approx. 6€ct/litre and year) phased out until 2014.

2 Details RES-Electricity Support Policy

Support for RES-E is provided by a feed-in tariff scheme. Responsibilities are divided between the Federal Ministry of Environment (BMU) and the Federal Grid Agency[50]. Detailed information on the instrument is available at the BMU´s homepage dedicated to renewable energies (www.erneuerbare-energien.de).

The act and the tariffs are reviewed regularly by BMU, in accordance with the Federal Ministry of Food, Agriculture and Consumer Protection[51], as well as the Federal Ministry of Economics and Technology52. The last amendments took place in 2004 and 2008. The next evaluation report is scheduled for 31st December 2011, and following evaluations will be carried out at four-year intervals.

The scheme is regulated by the Renewable Energy Sources Act (EEG)[53] which was compiled on 25. October 2008 by the German Parliament and was enacted on 1.1. 2009. The act aims to increase the share of RES in total energy supply to at least 30% by 2020, however, there is no end-date set for the feed-in scheme.

Tariff levels are differentiated for different technologies and sizes. No support is granted for new hydropower plants > 5 MWel, biogas plants >5 MWel based on sewage and landfill gas as well as biomass installations > 20MWel. The scheme is not financed by governmental budget and costs are allocated to the final consumers. There is no cap on the annually available budget or volume of new installations.

Under the feed-in scheme, support is paid for both the physical electricity and the green value together. In order to receive the support, operators have to register their installation with the federal grid regulator. The RES-E Act does not include an obligation to use certified equipment or certified installers. Tariffs are differentiated by source, technology and installed capacity.

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50 Bundesnetzagentur http://www.bundesnetzagentur.de/enid/2.html

51 Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz http://www.bmelv.de/cln_102/DE/Startseite/startseite_node.html

52 Bundesministerium für Wirtschaft und Technologie http://www.bmwi.de/

53 Erneuerbare Energien Gesetz http://www.umweltministerium.de/files/pdfs/allgemein/application/pdf/res-act.pdf

Table 1: Overview on tariff ranges granted by feed-in tariff scheme per technology

Tariffs incl. Boni	Support level 2009 (€/MWh)	Support level 2010 (€/MWh)	Degression*
Hydro	35-126.7	34.6 (>50MW)-126.7	1% for >5 MW (no degression for smaller installations)
Wind onshore	High tariff: 92 Low tariff: 50.2 Repowering bonus: 5	High tariff: 91.1 Low tariff: 49.7 Repowering bonus: 5	1%
Wind offshore	130-150	130-150	5% (as of 2015, until then no degression)
Biomass solid	77.9-296.7	77.1-293.7	1%
Sewage and landfill gas	41.6-110	41-108.4	1.5%
Solar PV			8% in 2010; 9% as of 2011
<30kW	430.1 (remuneration for autoproduction: 250.1)	391.4 (remuneration for autoproduction: 227.6)	
30kW -100kW	409.1	372.3	
>100kW	395.8	352.3	10% in 2010; 9% as of 2011
>1000kW	330	293.7	
Ground-mounted installations	319.4 (independent from inst. capacity)	284.3	
Geothermal	105 - 230	104-228	1%

*on base tariff and boni

Different additional boni are granted for certain characteristics, such as innovative technology, the fulfilment of sustainability criteria or high efficiency. New installations are supported at different rates to modernized or retrofitted installations.

For existing and new installations that start operation before 1. January 2010, uniform tariffs are guaranteed for a period of 20 years (exception: modernized hydropower plants receive the tariff for 15 years). Tariffs for new installations are reduced by a fixed rate on a yearly basis in order to foster technical development. The pre-defined degression rates are differentiated for technologies and vary between 1 and 10%. For solar PV the exact level of degression depends on the amount of installed capacity in the preceding year. Tariffs for offshore wind energy are only reduced after 2015.

Tariffs for wind power plants depend on the site quality: The first five years all plants receive the high tariff. Plants at the best sites receive the high tariff for just five years and the low tariff for the remaining 15 years. Plants at poorer quality sites receive the higher tariff for a longer period. How long a plant receives the high tariff depends on the average yield /generation cost of each single plant during the first five years.

Detailed information on tariffs and conditions for payment can be viewed at the BMU's homepage[54].

The EEG 2009 includes an authorization clause (§ 64 Abs. 1 Nr. 6a) that allows the German Federal Ministry for the Environment to introduce a feed-in premium scheme parallel to the feed-in tariff, without the consent of the Bundesrat, one of the two parliamentary chambers. This clause aims at increasing market integration of electricity from renewable energies. For this purpose, the operator of a renewable power plant may choose between the feed-in tariff scheme or direct marketing in combination with a premium tariff that is being paid on top of the regular electricity market price. Switching between the schemes will be possible on a monthly basis. The exact design of the premium tariff scheme is still in debate.

The new government (elected in September 2009), will probably not fundamentally change the system, but it is considering reducing the review-interval to three years and to increase degression of tariffs for solar PV.

A project can be simultaneously supported by further support instruments. Low interest loans for different technologies are available from state-owned bank KfW[55]. The support from the single KfW programmes can not be cumulated, however a project can profit from the feed-in tariff scheme in combination with low interest loans. Further information on KfW support programmes can be downloaded from the KfW webpage.

3 Details RES-Heating and Cooling Support Policy

No important changes are expected in the near future for heat support. The coaltition treaty states the continuation of the Market Incentive Programme (MAP). Some adjustments may be possible in terms of budget allocation.

The RES-H law (EEWärmeG) enacted in 2009 introduces a legal mandate on building owners to use renewable energies for heating and cooling purposes in new buildings with an effective surface > 50m^2. The law includes residential as well as commercial buildings. On a national level, it does not include existing buildings (federal states may also include existing buildings); buildings with an actual annual period of use below four months are exempted from the obligation. The share of total heating and cooling demand that is to be covered by renewable energies depends on the technology used:

Table 2: Obligatory RES-H share of total heat demand per technology

Technology	Obligation
Solar collectors	0.04 m²/ m^2 total effective area for single/double family houses (0.03 m² for apartment houses)
Other solar energy	15%
Geothermal, heat pumps, solid and liquid biomass	50%
Biogas	30%

54 http://www.erneuerbare-energien.de/files/pdfs/allgemein/application/pdf/eeg_verguetungsregelungen_en.pdf

55 http://www.kfw.de/EN_Home/index.jsp

Combinations of RES-H sources and technologies may be used for quota fulfilment. Building owners who cannot use renewable energies may comply with the obligation by using other climate protecting measures such as the use of waste heat (50% of heat demand), connection to district heating networks or combined heat and power units (50% of heat demand) or the reduction of primary energy needs by 15% in comparison to the requirements by the Energy Savings Ordinance (EnEV). Compliance is checked by means of certificates, which have to be presented and are checked for integrity by authorities on a random basis. Penalty for non-compliance is a fine of up to 50.000 Euro. The amount is oriented towards commercial buildings. For private buildings, much lower fines are expected.

MAP

The Market Incentive Programme for Renewable Energies on the Heat Market (MAP) is a financial incentive programme, that offers investment subsidies and grants as well as long-term, low-interest loans with a fixed interest rate and redemption-free grace years and an additional repayment bonus (financed from federal funds) for RES-H producing installations. The supervising authority for the MAP is the Federal Ministry of Environment, in accordance with the Federal Ministry of Finance. Responsibilities of agencies are allocated according to the legislation of the respective federal states. The programme is financed from federal funds. The years 2009 to 2012 were allocated a budget of 500 Mio per year. The up-to-date availability of funds is stated on the Federal Office of Economics and Export Control´s (BAFA) homepage. The MAP is regulated by the RES-H Act. The programme was amended and embedded into the RES-H Act in 2008. There is no end date set for the programme.

The MAP is divided into two parts:

MAP Part A: Investment Grants and Subsidies

Investment grants and subsidies for new installations or the extension of existing installations are provided through the BAFA for several RES-H technologies. Eligible technologies are[56]:

- Solar collector plants up to 40 m² collector surface
- Solar collector plants with more than 40 m² collector surface on single or double-family homes if they are providing a large heat storage volume
- Automatically fed plants for the incineration of solid biomass for heat supply up to 100 kW heat power
- Manually fed plants for the incineration of solid biomass for heat supply between 15 and 50 kW heat power
- Efficient heat pumps
- Specific innovative technologies for heat and cold supply from renewable resources
- large solar collector plants (20 - 40 m² collector surface)

56 http://www.bafa.de/bafa/de/energie/erneuerbare_energien/solarthermie/index.html)

- secondary measures for the reduction of emissions and for the increase of efficiency in plants for the incineration of solid biomass up to 100 kW heat power.

Support is granted to private individuals, self-employed professionals, SMEs, municipalities and nonprofit organizations. Large-scale enterprises only benefit from the support in specific cases (deep geothermal energy, large-scale solar thermal energy, heat distribution networks).[57]

Solar collectors are to be certified according to EN 12975. Solar collectors certified after 2007 are to obtain the additional European Solar Keymark. For biomass, technical provisions according to the Ordiance on Waste Incineration and Co-Incineration (BImSchV) have to be met. Exhaust separators are to be certified by TÜV or a public research institute. Heat pump calculations are to follow DIN Norms.

Applications for support are continuously accepted by BAFA. Financial support is differentiated for different sources and technologies, and consists of a base support and additional boni for, e.g. efficiency, combination of technologies and the exchange of boilers. The base support level for new buildings (building application after 1.1. 2009) is 25% lower than support for existing buildings.

Table 3: Support for selected RES-H installations according to the MAP

Measures examples	Base support (existing buildings)	Max. accumulated boni (existing buildings)
Solar collectors (warm water) <40m^2	60 €/m^2	210 €/m^2
Solar collectors (warm water & heating)<40m^2	105 €/m^2	210 €/m^2
Pellet boilers & stoves (<100kW)	36 €/kW^2	1450 € per installation
Split log gasification boilers (15-50kW) (per installation)	1000 € per installation	1450 € per installation
Efficient Heat Pumps	10-30 €/m^2 (sic! not per kW)(max. 1500 -4500 €/housing unit)	950 € per installation

A detailed overview over the support levels granted by the scheme is available at the BAFA website[58].

MAP Part B: KfW Renewable Energies Programme

The KfW programme offers long-term, low-interest loans with fixed interest rates, as well as an additional redemption-free year, at the end of the loan duration, as a bonus. Up to 100 % of the eligible net investment costs are supported, up to a maximum loan amount of usually 5 mio. €. Eligible technologies are, solar thermal installations with a collector

57 Quoted from IEE project Support_ERS

58 http://www.bafa.de/bafa/de/energie/erneuerbare_energien/publikationen/energie_ee_uebersicht_basis_und_bonusfoerderung.pdf

area > 40 m² in apartment houses or commercially used buildings, biomass-installations with an installed capacity >100 kW, installations for the conditioning of biogas to natural gas quality, biogas-lines for untreated biogas, deep geothermal plants, local heat grids for RES-H, as well as large heat storage installations for RES-H. Detailed information can be downloaded from the KfWs homepage.

The cumulation of public financial support is possible, however, for Part A of the MAP (investment subsidy), the double amount of the support level stated in the programme for a certain technology may not be exceeded. Furthermore, the maximum acceptable support intensity as stated by the EU may not be surpassed. Energy generating plants that receive support under the EEG or the Combined Heat and Power Act (KWKG) cannot be supported by MAP.

CHP Support

The EEG encourages the use of CHP in biomass installations. There is a CHP-Bonus for the share of electricity that counts as CHP-electricity of 3 €ct/kWh up to a capacity of 20 MWel. (also for existing plants that have been operated in CHP-mode after 31.12. 2008 for the first time). For all other existing plants, support is increased by 3ct/kWh for capacity < 500 kW. Installations with an installed capacity of >5 MW are obliged to use CHP technology.

Under the RES-H Act, buildings that receive a considerable share of heat demand from local heat grids based on RES, are exempt from this obligation by law. The MAP programme further supports the extension of heat grids that (at least) receive parts of their heat from RES-H installations. Indirectly, district heating and cooling is also encouraged by the CHP-bonus provided in the EEG. On a regional level there are further support mechanisms, such as the Heating and Heat Grid Based on RES Programme (EFRE) in Baden-Würtemberg, which supports installations that feed geothermal heat into existing or new heating grids (http://www.keabw.de/). In Bavaria, heat grids based on deep geothermal energy are supported in the frame of the KfW programme Renewable Energies (http://www.lfa.de/website/de).

4 Details RES-Transport Support Policy

Quota

Biofuels in Germany are supported via a quota obligation on the fuel suppliers (not just gas stations). The quota regulation is embedded in the BImSchG (federal emission protection law). With the decision of the Act to Change the Support for Biofuels of 2008, the overall biofuel quota was lowered from 6.25% to 5.25% in 2010, remaining at the same level until 2014 (instead of increasing to 8%). The biodiesel specific quota was set at 4.4 % until 2014, whereas the ethanol specific quota was reduced from formerly 3.6% to 2.8% (2010-2014). The quota is based on energy content, not on volume. As of 2015, the quota will be based on greenhouse gas (GHG) emission reductions. GHG-emission reduction targets (compared to reference diesel or ethanol fuel) will be set at: 2015: 3%, 2017: 4.5%, 2020: 7%

All sources covered by the Biomass Ordinance are eligible[59]. Energy products that are only partly made from biomass, are counted as biofuels for the share of biofuel contained. The Biofuel Sustainability Ordinance[60] makes support conditional to various quality criteria (§4-7) for which certification has to be obtained. The ordinance includes a list of accepted certificates as well as specifications on form and content. Agencies responsible for the monitoring and control of quota-fulfilment are authorized and supervised by the Federal Ministry of Finance.

Biofuels produced from waste residues, non-food cellulosic material, and lingo-cellulosic material, in addition to Bioethanol are exempt from taxes until 2015. There is no specific support for electric vehicles that use renewable electricity.

Tax Exemption

The coalition treaty of 26th October 2009 includes a plan to revive the B100 biofuel market as of 1.1.2010 (market introduction of fuel with a 10% share of bioethanol). The taxing of biodiesel is intended to be based on current CO_2-efficiency as of 2013. Biodiesel benefits from a partial tax exemption for B100 under the Energy Tax Act (§ 46). As of August 2006, the tax exemption for biodiesel and crude vegetable oil is gradually phased out. In 2013, taxes will correspond to those for conventional fuels. With the Amendment of the Support for Biofuels61 which was decided by the parliament on 23. April 2009, the tax reduction was phased out slower than originally planned. According to the law, the tax will now be increased in steps of approx. 6c€ per litre and year from 18 c€/litre in 2009 up to 45 c€/litre in 2013.

Tax reduction is only valid for biofuels that are not used for quota fulfilment. Tax exemption is granted on request by the production company. Requests are accepted continuously. The coupling of the tax exemption with other direct support measures (national and foreign support) is not possible.

According to §3 of the Fuel Quality Decree[62], biofuels can enter the market only if their characteristics comply with the respective DIN Norms. As of September 2009, the government has passed a Biofuel Sustainability Ordinance[63], under which biofuel support is made conditional to the fulfilment of certain sustainability criteria.

5 RES-E Grid Integration

There is a “shallow” connection charge philosophy in Germany. According to the EEG, grid operators are obliged to feed in RES-E, with priority over conventional generators. It is granted further priority in case of grid congestion (priority in dispatch).

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59 http://www.bmu.de/files/erneuerbare_energien/downloads/application/pdf/biomasseverordnung.pdf

60 http://www.gesetze-im-internet.de/bundesrecht/biokraft-nachv/gesamt.pdf

61 Gesetz zur Änderung der Förderung von Biokraftstoffen

62 Kraftstoffqualitätsverordnung

63 Biokraft-NachV

Extension measures in the grid that are necessary for the connection and reception of RES-E are paid by the grid operator. The RES-E investor bears the costs of grid connection to the economically next-best connection point. This includes the costs for the necessary measuring devices.

The connection charges are calculated on an individual basis. Generally, they are rather low, due to the "shallow" charging approach. The German law excludes the possibility to levy use-of-system or "entry" charges for electricity generators.

6 RES Production, Potential and Market Development

RES-E

The share of RES-E in Germany in total electricity demand amounts to 15.1% in 2008 (14.2% in 2007). With approx. 40.4 TWh of electricity generated in 2008, wind energy is the largest contributor of RES-E. Biomass is the second-largest RES-E contributor (20.5 TWh in 2008). Solar PV showed very high growth rates and absolute growth in the recent years. Hydropower shows a constant contribution, as potential is exploited to a large extent.

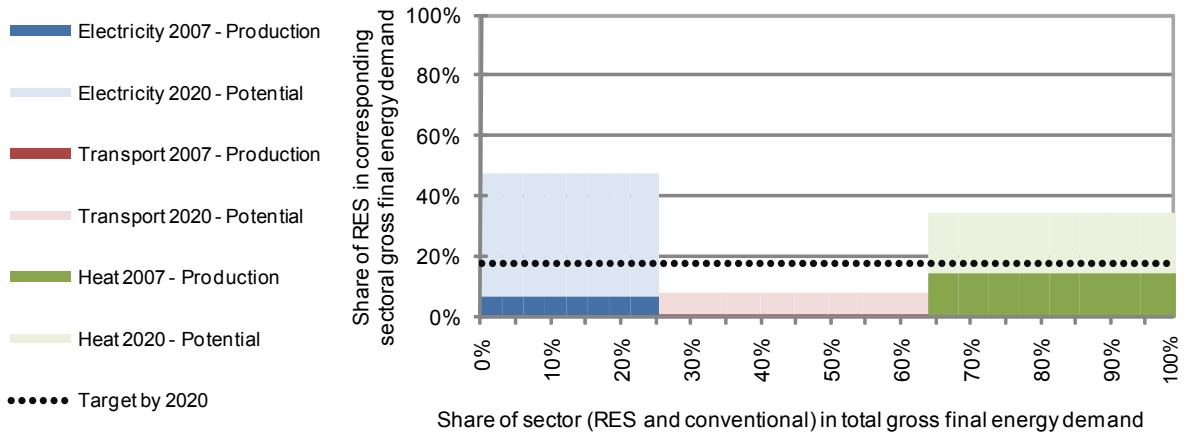
RES-H&C

The share of RES-H in total heat supply amounts to 7.4% in 2008. A share of 77.8% of RES-H is provided by solid biomass, and a further 15.7% comes from liquid and gaseous biomass, as well as from waste (4.8%). The remaining 6.5% results from solar collectors (4%) and geothermal sources (2.5%).

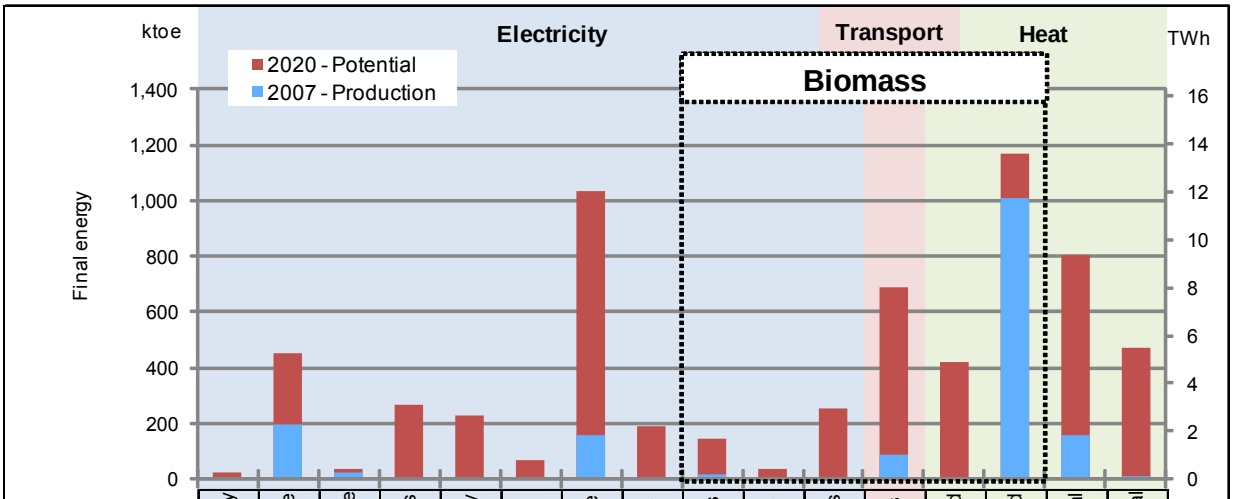
RES-T

The total share of RES-T fuel supply amounts to 5.9% in 2008 (36.7 TWh). Biodiesel holds 75.8% of the major share in total biofuel supply. Bioethanol contributes 12.8%, while vegetable oil contributes 11.4% to RES-T supply. The average annual growth of biofuel supply amounts to 48% between 1997 and 2007. While approx. 80 ktoe of liquid biofuels were produced in 1997, approximately 4000 ktoe have been produced in 2007.

GREECE - Summary: RES Target, Penetration and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	7%	1%	14%	7%
Share of total sector consumption in total final energy consumption	25%	39%	36%	100%
Production 2007 [ktoe]	395	85	1,180	1,660
Production 2005 [ktoe]	551	0	1,077	1,628
Production 1997 [ktoe]	339	0	1,003	1,342
Average growth 2005-2007 [%/a]	-15%	-	5%	1%
Average growth 1997-2007 [%/a]	2%	-	2%	2%
Potential 2020 [ktoe]	2,731	690	2,864	6,286
Annual growth of RES needed to achieve target	-	-	-	7%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	198	25	0	0	0	156	0	16	0	0	85	0	1,007	160	13
Production 2005 [ktoe]	0	404	28	0	0	0	109	0	10	0	0	0	0	962	102	13
Production 1997 [ktoe]	0	323	13	0	0	0	3	0	0	0	0	0	0	912	89	2
Ø annual production growth 2005-2007	-	-30%	-5%	0%	-	-	20%	-	23%	-	-	-	-	2%	25%	0%
Ø annual production growth 1997-2007	-	-5%	7%	-	-	-	48%	-	-	-	-	-	-	1%	6%	19%
Total realisable potential by 2020 [ktoe]	22	454	38	269	227	69	1,033	191	143	35	251	690	421	1,170	803	471

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

Greece has, in place, three main policy programmes supporting RES-E: a feed-in tariff, an investment subsidy and has recently introduced a specific scheme for photovoltaic. The actual impact of such measures has been limited, not for the lack of incentives, but for red tape that often negates these benefits, and creates a huge licensing back-log. This is why the Greek Government recently announced a law proposal to overhaul the current system.

RES-H

Subsidies for investments, grants and tax exemptions are the main support mechanisms for RES-H technologies.

RES-T

Subsidies for investments and tax exemptions exist for biofuels.

2 Details RES-Electricity Support Policy

The Greek market started to change after 2001, when Law 2773/99 liberalized the market as required by Directive 96/92/EC. The same act established the Regulatory Authority for Energy (RAE) as a separate and independent authority, supervised by the Minister of Development, and the Hellenic Transmission System Operator (DESMIE), to be supervised by the RAE.

It is only in 2004, however, that new companies joined the market, although their size is less of that of PPC, the former public electricity producer.

Feed-in Tariff

RES development was initiated in 1994, with Law 2244/94 with the intention facilitating the adoption of specific RES technologies. It introduced a unique feed-in tariff. Subsequent Laws (2941/2001, 3017/2002, 3175/2003) helped remove administrative barriers for specific technologies. Currently, the primary supporting instrument in Greece is a feed-in tariff; introduced by Law 3468/2006, that covers all renewable energy sources generated in the country (i.e. it excludes foreign production).

The beneficiary must be an independent producer or auto-producer, legal or natural person. The grid operators shall pay guaranteed tariffs in the form of minimum tariffs, the amount of which, depends on the energy source (Art. 13 Par.1 b) Law No. 3468/2006).

The criteria determining the amount of payment are the costs of construction and operation of a certain system type, i.e. investment costs, operational costs, costs of metering and capital. Cost and efficiency audits are not carried out in each individual case.

The dispatch of energy coming from RES is prioritized by the system operator and remunerated according to the tariffs scheme described in table 1 for 2009.

Table 1: tariff scheme for the year 2009, for each eligible technology category.

Generation of electricity from:	Price of energy (€/MWh)	
	Interconnected System	Non-interconnected island systems
On-shore wind, Small hydro up to 15 MW, Geothermal, Biomass, Biogases, Miscellaneous RES, High-efficiency cogeneration.	80.14	91.74
Off-shore wind	97.14	
PV with an installed capacity <= 100 kW, installed in a lawfully owned or possessed property or in adjacent properties of the same owner or lawful possessor	457.14	507.14
PV with an installed capacity > 100 kW	407.14	457.14
Solar energy other than PV with an installed capacity <= 5 MW	257.14	277.14
Solar energy other than PV with an installed capacity > 5 MW	237.14	257.14
Hydro with an installed capacity <= 15 MW	80.14	91.74
Geothermal Energy, Biomass, Biogas	80.14	91.74
Other RES	80.14	91.74
CHP	80.14	91.74

The reasons for different tariffs to be applied to interconnected systems and (non-interconnected) island systems include the following:

- As the power production on the islands is based mainly on diesel plants, the cost reduction implied by RES generation is higher.
- Due to the unstable grid system on the islands the risk of congestion losses is higher.

According to article 3 of the law, the production of electricity using RES and high-efficiency cogeneration of electricity and heat requires an authorisation by the Regulatory Authority of Energy (RAE) that evaluates:

- The national security,
- The protection of public health and safety,
- The overall safety of the facilities and the relevant equipment of the System and Network,
- The energy efficiency of the project for which a relevant application is filed as that efficiency is established for RES projects from measurements of the RES potential and for high-efficiency cogeneration of electricity and heat, from their energy balances. In particular, for wind potential, the submitted measurements should have been carried out by certified organizations according to standard DIN-EN ISO/IEC 17025 of 2000, as in force at any time,

- The degree of maturity of the project implementation process as indicated by the relevant permits or approvals granted by competent services, studies having been prepared, as well as any other pertinent data,
- The assurance or the capacity for ensuring the right of use of the land where the plant will be installed,
- The ability of the applicant to implement the project on the basis of its financial, scientific and engineering skills. In the event that the applicant is a newly established legal person, that skills shall be assessed according to the persons participating therein as partners or shareholders,
- The safeguarding of supplying public utility services and the protection of customers,
- The protection of the environment according to the laws in effect and the special planning framework for RES and sustainable development.

Large Photovoltaic > 10 kWp

Photovoltaic systems are the subject of specific provisions: for applications with a capacity exceeding 10 kWp and not installed on roofs, each PV operator is rewarded with the feed-in tariff for 20 years, small roof-top system, by contrast are rewarded with a specific tariff for 25 years and will be the object of the next sub-paragraph.

Each PV operator is rewarded with the feed-in tariff in effect at the time of the signing of the electricity supply contract with the grid operator. FITs will remain unchanged for the next two years. There will be a regression of FITs as of Aug. 2010. However, in case the PV operator is not in the position to start test operation (or connect to the grid if test operation is not envisaged) within 18 months for PV with capacity less than 10 MW or 36 months for PV with capacity higher than 10 MW, then he/she will be rewarded with the feed-in tariff that is valid at the start of the operation. This practically means that FITs remain unchanged till early 2012.

The tariffs are initially set at 400, 450 or 500 €/MWh depending on the PV's size (larger or smaller than 100 kW) and location (interconnected system or non-interconnected islands). Starting from August 2010, the tariffs de-escalate every 6 months to reach 260.97 – 326.22 €/MWh for the period August – December 2014. This amounts to an accumulated reduction of 35% over the period of 6 years or 6.9% compounded annual reduction rate. From January of 2015, the feed-in tariffs will be set to the previous year's average price in the wholesale electricity market, plus a premium that varies between 30% and 50% depending on the PV's size and location. PV projects with a capacity less than 100 kW and those that are installed in the non-interconnected islands are paid higher feed-in tariffs both before and after January 2015.

The feed-in tariff schedule is updated each year, with consideration of the inflation rate. The compensation is not entire, however, but amounts only to 25% of inflation.

Costs arising from the feed-in tariff are borne by the grid operator. Statutory law does not explicitly provide for a specific procedure that would allow the costs to be passed on to the consumers. Indirectly, the system operators are also funding the promotion system. Except for the operators of solar energy systems, all system operators pay a fee to the grid operator, who transfers these resources to the local administrative bodies to provide the funds for development projects.

The operators of renewable energy systems shall pay the grid operator a surcharge of 3% of their net proceeds from energy production. Only the operators of solar power systems are exempt from the surcharge (Art. 25 Par. 1 Law No. 3468/2006). However, the resources gained through the charge shall not serve the purpose of covering the grid operator's costs. On the contrary, 80% of these proceeds shall be paid to those local administrative bodies of first instance in whose area of jurisdiction the system is located, while 20% of the proceeds shall be paid to those administrative bodies of first instance through whose area of jurisdiction, the connecting line between the power system and the network or grid passes. The administrative bodies shall use the resources deriving from the charge for development programmes in this area, which they shall provide evidence for on request. (Art. 25 Par.1 Law No. 3468/2006).

The duration of the support program is planned until end of 2020, and the responsibility is under the Ministry of Development.

Table 2: The 2009 PV feed-in tariff de-escalation (€/MWh) source Regulatory Energy Authority

Date	Interconnected System		Non-interconnected islands	
	> 100 kW	<= 100 kW	>100 kW	<= 100 kW
Feb-09	400.00	450.00	450.00	500.00
Aug-09	400.00	450.00	450.00	500.00
Feb-10	400.00	450.00	450.00	500.00
Aug-10	392.04	441.05	441.05	490.05
Feb-11	372.83	419.43	419.43	466.03
Aug-11	351.01	394.88	394.88	438.76
Feb-12	333.81	375.53	375.53	417.26
Aug-12	314.27	353.56	353.56	392.84
Feb-13	298.87	336.23	336.23	373.59
Aug-13	281.38	316.55	316.55	351.72
Feb-14	268.94	302.56	302.56	336.18
Aug-14	260.97	293.59	293.59	326.22

Small Photovoltaic < 10 kWp

In 2009, the Government launched a new scheme aimed at supporting electricity generation by small roof-mounted PV systems (Art. 1 Par.1 FEK 1079/2009) aimed at producing 750 extra MWp. The new program covers rooftop PV systems up to 10 kWp (both for residential users and small companies) and sets a new feed-in-tariff (FIT) for such systems. The new FIT is set at 0.55 €/kWh. It is guaranteed for 25 years, and is adjusted annually for inflation (25% of last year's Consumer Price Index). An annual regression of 5% is foreseen for newcomers as of 2012. No cap is set. The sales contract is signed with the utility (PPC). Currently, the program is only valid for the mainland grid areas. Islands with autonomous grids will enter the program in a second phase as soon as an extra rooftop solar capacity is set for each island.

The grid operator is obliged to enter into this contract (Art. 3 Par.1 in connection with Art.3 Par. 6 FEK 1079/2009). The persons entitled are private individuals or legal entities in the private sector and small enterprises that own the building area on which the

system is installed (Art.1, Par. 4 FEK 1079/2009). A “small works permit” by the building authorities is the only license needed before installing the system.

The payment mechanism is as follows: A given PV system is connected to the system operator's existing power supply. The electricity generated is deducted from the electricity consumed. The tariff is listed as credit on the system operator's electricity bill. The tariff is annually adjusted by 25% of the consumer price index. The consumer price index is annually calculated and published by the Bank of Greece (Art. 3 Par. 4 FEK 1079/2009). From 2012 to 2019, the tariff is intended to be reduced by 5% every year (Art. 3 Par. 3 FEK 1079/2009). Eligibility for the tariff is limited to 25 years (Art. 3 Par. 3 FEK 1079/2009).

Investment Subsidies

The legal basis for a claim is the Investment Incentives Law No. 3288/2004, as amended by Law No. 3522/2006. All companies planning to construct renewable energy systems (Category 1) are entitled to apply for a subsidy. Building projects initiated prior to their application are not eligible.

According to its amount, the subsidy is managed by different authorities (special departments of the regions, the Ministry of Economy and Finance or the Hellenic Center for Investment (ELKE)). The value of the investment incentive amounts to a certain percentage of the total investments. This percentage depends on the region (zone) the promoted renewable energy system is to be constructed in: 20% in zone A, 30% in zone B and 40% in zone C.

Under certain conditions, "small enterprises“(less than 50 employees and less than 10 million Euros of annual turnover) may be granted a percentage increase of up to 20 % and “medium-sized companies“ (less than 250 employees and less than 50 million Euros of annual turnover) may be granted an increase of up to 10 % on the percentages listed above.

Companies shall apply to the relative authority. They shall attach to the application, a certificate proving that the investor’s equity capital amounts to a minimum of 25% of the total investments. The amount of investments initially stated in the application shall not be revised by more than 5%.

The application is examined by the authority in charge. The examination shall be completed within two months. The granting procedure concludes with a decision, which shall be published in the government gazette.

The subsidy is paid in two instalments of 50%, according to the state of implementation of the project. Investors may receive an advance payment of up to 50% of the granted subsidy, if they are able to produce a guarantee of a bank based in Greece.

Small residential photovoltaic applications are eligible for a 20% tax deduction capped at € 700 per system. Residential users do not have to be registered as “business” with the tax authorities and are exempted from any tax (with the exception of the 19% VAT paid for the initial investment). Small companies are also exempted from any tax as long as they keep the income from PV as untaxed reserves.

3 Details RES-Heating and Cooling Support Policies

The Greek government supports the RES-H&C market with subsidies to investments, grants and tax deductions exemptions.

The first incentives, consisting in tax credits, were introduced by Law 2364/95 and they covered up to 75% of the total cost of buying and installing a system. The mechanism has later been cancelled (as of 2003) due to budget restrictions. With Law 3522/06, tax exemptions were reintroduced, although they cover only 20% of the cost of a RES-H system, and only for an amount of up to 700 €.

Biomass is the main source of RES-H in Greece, followed by solar heat and geothermal. Subsidies are set for these technologies to cover up to 35% of the investment.

Solar heat, after a 30 year development period, is now a mature market where a high competitive system manages to keep installation prices quite low.

Industrial installations are supported with grants of up to 40%, issued on call basis.

4 Details RES-T Support Policy

Quota Obligation and Tax Exemption and Subsidy

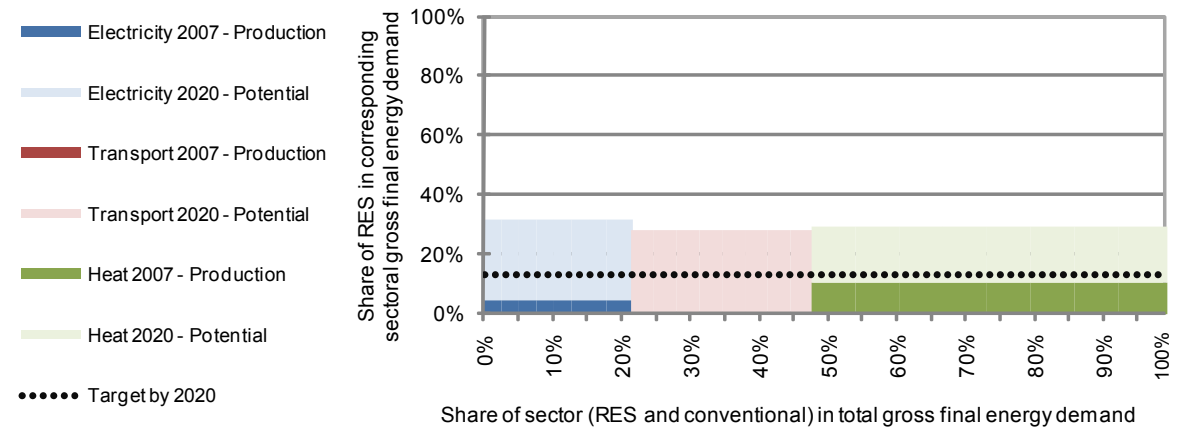
After EU Directive 2003/30, the Greek government has issued Law 3423/05 for the introduction of biofuels in the market; the law imposes the use of detaxed biofuels in existing refineries in blends up to 5%.

A quota of biofuels is defined each year, which is exempt from fossil fuel tax (currently 24.5 €cent/liter). Subsidies defined in the National Development Law apply for biofuels, varying between 40 and 55%, according to region and type of enterprise.

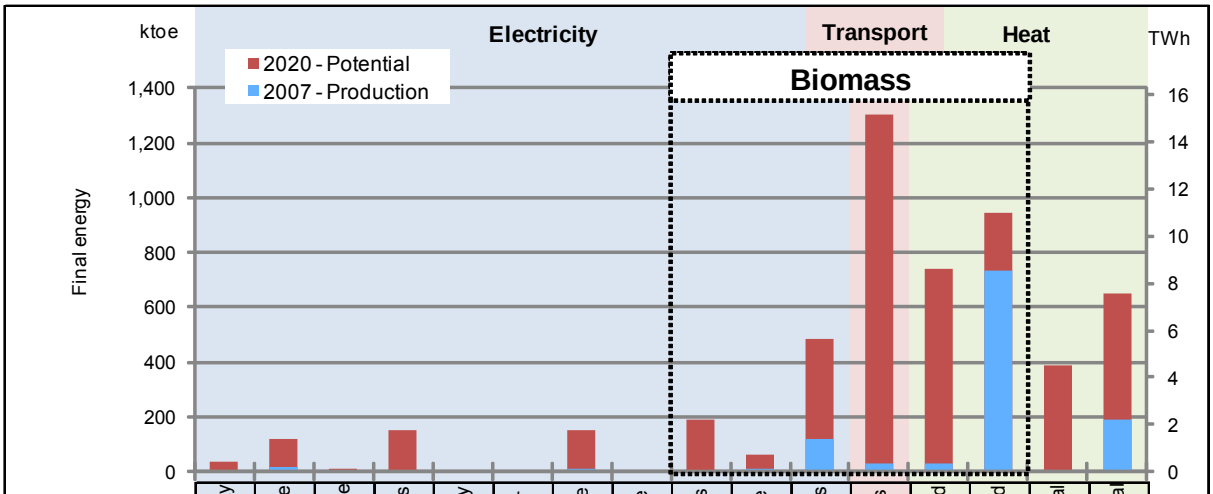
5 RES-E Grid Integration

The plant operator is entitled the preferential connection at the connection point that is most economically and technically suitable; priority for hydro-electric systems is given to systems whose capacity does not exceed 15 MW. The grid operator is obliged to purchase, pay for and transmit all electricity generated by RES systems. The costs for grid connection are the responsibility of the power producer and the date of connection depends on the contractual terms; if a grid expansion is required to fulfil the obligation, the grid operator has to cover related costs.

HUNGARY - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	4%	1%	10%	6%
Share of total sector consumption in total final energy consumption	21%	26%	52%	100%
Production 2007 [ktoe]	162	29	953	1,143
Production 2005 [ktoe]	161	5	774	940
Production 1997 [ktoe]	23	0	435	458
Average growth 2005-2007 [%/a]	0%	141%	11%	10%
Average growth 1997-2007 [%/a]	22%	-	8%	10%
Potential 2020 [ktoe]	1,204	1,304	2,718	5,226
Annual growth of RES needed to achieve target	-	-	-	6%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	15	3	0	0	0	9	0	4	12	118	29	29	732	2	190
Production 2005 [ktoe]	0	13	4	0	0	0	1	0	2	5	135	5	15	568	2	189
Production 1997 [ktoe]	0	15	3	0	0	0	0	0	0	4	1	0	16	347	0	72
Ø annual production growth 2005-2007	-	5%	-10%	-	-	-	232%	-	37%	55%	-7%	141%	39%	14%	0%	0%
Ø annual production growth 1997-2007	-	0%	3%	-	-	-	-	-	-	11%	64%	-	6%	8%	-	10%
Total realisable potential by 2020 [ktoe]	36	117	10	149	0	0	152	0	191	64	485	1,304	737	946	388	648

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The main support instrument at national level has been a feed-in tariff, with additional instruments in the form of EU structural funds. Due to the immature state of the RES industry lower than EU average level of premium prices, and diverging interest of the fossil power sector, the speed of development is falling below the schedule. There has been a differentiation in support scheme by technology and size of power plant, placing more focus on areas in line with the overall national economic strategy and competitive advantages. The green movement and sustainability has been increasingly on the agenda with new party LMP taking it as one of their main goals. Regional funding is financed by central funds and co-financed by EU structural funds. National policy remains to be dominant with regional issues mostly limited to the execution.

RES-H&C

Different investment support instruments are available for renewable heating and cooling. There has also been a strong market share for natural gas, which will be hard to break especially considering the decreasing gas prices in 2009.

RES-T

Biofuel production is mostly aimed at export markets. Due to the capital intensive nature of production and a lack of financing, a number of planned biofuel projects have never reached the completion stage.

2 Details RES-Electricity Support Policy

Feed-in tariff

Hungary has introduced a non-central-budget-based feed-in-tariff scheme which is guaranteed until 2020. According to the regulation the grid operators are statutorily obliged to purchase RES-E and to pay a guaranteed price. A green certificate scheme has also been addressed by the Law 2007. LXXXVI. on electricity, empowering the Government to work out the executive steps. However, no steps towards a green certificate scheme have been taken yet. The Hungarian Energy Office (HEO www.eh.gov.hu) sets the period of payment and the maximum amount of eligible electricity in compliance with the statutory provisions (§ 11 (3) Act Nr. LXXXVI of 2007). HEO issues a formal licence defining the volume of electricity for which it is paid, as well as the duration of the feed-in tariff in the licence based on the project payback period.

The feed-in tariff levels are set annually and are adjusted to the rate of HUF PPI inflation (Annex Nr. 13 Decree Nr. 389/2007). There has been ongoing changes to take out the inflation indexing from the formula and implement a degressive scheme. The review of the feed-in tariff system is now under way by the HEO. This audit of the law will be closed approx. march 2010. The scheme is governed by Act Nr. LXXXVI of 2007, and the price is regulated by Government Decree Nr. 389/2007. (XII. 23.) and by Decree Nr. 287/2008. (XI.28.). The scheme will run until 2020. The HEO as the energy sector regulator has set up maximum duration period beyond which the feed-in tariff is not applied based on differentiation by technologies.

The Hungarian Energy Office determines the duration of the compulsory procurement based on the pay-back time set in the decree Nr. 389/2007. (XII. 23.) and by Decree Nr. 287/2008. (XI.28.) The annual amount of energy purchased under the compulsory procurement system is determined by the capacity, the utilization and the self-consumption of the power plant.

The Office calculates the pay-back time separately by the sources of energy, technologies taking into consideration the site selection, the application of the principle of lowest cost and the use of best available technology of the plants; as well as the set prices written in the decree Nr. 389/2007. (XII. 23.) and by Decree Nr. 287/2008. (XI.28.) The Office displays the calculation method of the rate of return and results on its own web-site. If support is being provided to an investment according to the new electricity act (LXXXVI of 2007), 11th § Subsection (5), the Office calculates the rate of return based on the amount of support compared to the total cost of the investment.

The maximum preferred size of a plant is 20 MW, above which there is a 5 HUF (0,018 €r/ kWh) discount making the construction of the plant economically questionable. Structural grant funding and feed-in tariff can be cumulated, despite former structural funding schemes before 2008 did not alow for this combination. The regulation hasn't made support conditional to the use of certified systems.There has been no certification procedures implemented up till now.

Basically, all technologies used in the generation of renewable-energy-sourced electricity are eligible (§ 1 (1) a), (3) b c) Decree Nr. 389/2007), with separate tariffs applicable for wind energy, awarded through calls for applications (§ 1 (5) Decree Nr. 389/2007).The mandatory feed-in tariffs apply to

- solar energy,

- wind energy,
- hydro energy,
- biomass or bio gas,
- geothermal energy,
- energy produced indirectly or directly from biomass,
- gas from waste yard,
- gas from sewage treatment facility.

The amount of payment varies according to technology and size, and day periods (solar and wind energy are subject to a single standard tariff). The intraday periods depend on the area concerned and differ for weekdays and weekends/holidays. The mandatory feed-in tariffs are the following based on Government Decree 287/2008.:

Table 1: Feed-in tariffs

Feed-in tariffs for weather-dependent renewable energy sources (solar, wind)	HUF/kWh (€ct/kWh)
Peak period	26.46 (9.5)
Valley period	26.46 (9.5)
Deep valley period	26.46 (9.5)

Feed-in tariffs for non-weather dependent renewable energy sources	HUF/kWh
Peak period	29.56 (10.7)
Valley period	26.46 (9.5)
Deep valley period	10.80 (3.9)

Feed-in tariffs for CHP	HUF/kWh	
	Produced with gas motor	Not produced with gas motor
Peak period	32.59 (11.8)	27.32 (9.9)
Valley period	20.82 (7.5)	18.73 (6.8)
Deep valley period	3.00 (1.1)	3.00 (1.1)

The period of payment is set by the Energy Office in line with the statutory provisions and shall not exceed the pay¬-off period of the system (§§ 11 3)-4) Act Nr. LXXXVI of 2007).

EEOP (Energy and Environmental Operative Program)

The structural fund scheme EEOP provides capital grants for RES projects. See section on RES-H&C for more detail.

Subsidies for energy crops - EAFRD (European Agricultural Fund for Rural Developement)

The measures of the New Hungary National Regional Development Strategic Plan (NARDP) promote the utilization of renewable energy sources in Hungary. The objective of NARDP is to ensure that the countryside, in addition to producing the required basic commodities, can intensively participate in the development of the bioenergy segment. The competitive production of commodities includes the special subsidization of energy

crops. NARDP supports the production of renewable energy sources in three strategic categories: liquid biomass (bioethanol and biodiesel), solid biomass (ligneous and non-ligneous energy crops) and biogas. The subsidies are financed by the European Agricultural Fund for Rural Development (EAFRD) that provides funding for the competitive production of biomass and its processing into a primary half finished product and for the producers' own energy supply.

Decree 27/2007. (IV.17.) of the Ministry of Agriculture and Rural Development regulates the detailed criteria of subsidies granted from the European Agricultural Fund for Rural Development for the modernization of animal farms. Under the decree livestock farms eligible for funding aim to manage their manure disposal in biogas plants instead of insulated manure storage tanks, in accordance with the Nitrate Directive. The intensity of the subsidy is 50-60% on average for the power plant. The subsidy can be used for built and in-built technology, energy peripheries and logistics machinery.

Decree 44/2009. (IV. 11.) of the Ministry of Agriculture and Rural Development establishes the criteria for subsidies for the manufacturing of liquid biomass. This decree contains the detailed terms and conditions of subsidies for the setting up of non-food low capacity factories to produce crop-based raw spirits and raw oil from the European Agricultural Fund for Rural Development. The intensity of the non-refundable subsidy is 40-60%.

Decree 78/2007. (VII. 30.) of the Ministry of Agriculture and Rural Development establishes the detailed criteria for the use of renewable energy sources to produce energy for agricultural consumption from the European Agricultural Fund for Rural Development. The objective of the subsidy is to promote the wide-spread use of renewable energy sources in agriculture and reduce crop producers' dependence on fossil fuels. Agricultural applicants can submit tender bids for biomass-fired boilers to use for agricultural purposes. The intensity of the non-refundable subsidy is 35%.

Decree 72/2007. (VII. 27.) of the Ministry of Agriculture and Rural Development regulates the subsidies and detailed criteria for planting ligneous energy crops. Pursuant to the decree the planting and nurturing of ligneous energy crops multiplied by root suckers until their first harvest are deemed an activity eligible for subsidization. The intensity of the non-refundable subsidy is 40-60%. As a consequence it is assumed that the size of Hungarian energy crop plants will grow from 300 hectares in 2006 to 2,700 hectares by 2009. The target for 2013 has been set at 49,000 hectares.

Decree 71/2007. (VII. 27.) of the Ministry of Agriculture and Rural Development regulates the detailed criteria of subsidies granted for planting non-ligneous perennial energy crops from the European Agricultural Fund for Rural Development. Pursuant to the decree the planting of non-ligneous energy crops existing for a minimum of 5 years without re-planting is deemed an activity eligible for subsidization. Currently the planting of energy grass and Chinese reed are subsidized, with the anticipated addition of Virginia fanpetals (Sida Hermphrodita L. Rusby) in the future. The intensity of the subsidy is 40-60% of the total costs.

3 Details RES-Heating and Cooling Support Policy

Revolving soft loan – Energy Saving Credit Fund

The credit with preferential interests supporting energy savings, increase of energy efficiency and the utilization of RES can be completed from the Energy Saving Credit Fund (German coal grant). This credit construction operating continuously from 1991 is available for building co-operatives.

NEP (National Energy Saving Plan)

The subsidy entitled NEP-2009-4, announced in the framework of the National Energy Saving Plan, provides non-refundable grants to private individuals, blocks of flats and building societies to increase the use of renewable energy sources. Such grants can cover up to 35% of the costs but cannot exceed the amount of HUF 1,470,.000 (€ 5,300). There's new calling for tender in NEP in each year, and it is open till the allocated budget is exploited. Within the NEP 1.5 billion HUF (5.4 million €) budget was available in 2009. This program is evaluated in every year, and all the experiences are implemented in the next year. The beneficiaries can get also low interest loans from the frame of the National Energy Efficiency Program (NEP). The granting procedure in the case of subsidy NEP is periodically.

Subsidy - Panel Programme for Prefabricated Houses (national fund)

In the Hungarian support system the other major subsidy available for the residential sector is the Panel Programme managed by the Ministry of Local Government and Regional Development. The programme promotes the modernization and renovation of pre-fabricated buildings with the aim of saving energy. From the targeted appropriation of supporting the renovation of residential dwellings and their environment, subsidies can be granted to increase the use of renewable energy sources, to replace traditional energy sources with renewables, to promote energy production, storage, transport and possible feed-back to the network.

Ministry of Transport, Telecommunication and Energy is the monitoring authority and Energy Center is the implementing body. For more information:

- Ministry of Transport, Telecommunication www.khem.gov.hu Phone:+36-1-475-3434
- Energy Centre www.energiakozpont.hu Phone: +36-1-802-4300

EEOP (Energy and Environmental Operative Program)

The structural funds scheme EEOP provides capital grants for enterprises (mainly SME, but the EEOP 2009-4.4.0 give subsidy for larger corporations), public administration bodies and institutions, and NGOs.

The Environment and Energy Operational Programme (EEOP) is one of the operational programmes intended to serve the overall objective, horizontal policies and the six thematic and territorial priorities of the New Hungary Development Plan (NHDP) – the National Strategic Reference Framework (NSRF) in EU terminology - applicable to the European Union's budget projection period between 2007 and 2013. So EEOP has been

planned in the frame of New Hungary Development Plan based on the experience of the National Development Plan 2004-2006.

National Development Agency is the monitoring authority and Energy Center is the implementing body in energy priority axes. More information is available from

- National Development Agency www.nfu.hu Phone:+36-40-638-638
- Energy Center www.energiakozpont.hu Phone:+36-1-802-4300

The technical implementation of the operations (conditions of support, selection

criteria, preferred fields, allocation of funds etc.) are based on the Energy Policy and the related "Strategy for the increasing of renewable energy source utilisation", which are being elaborated simultaneously with the OP. The strategy is expected to be approved by the government by the end of 2007. The guidelines of the strategy will be integrated into EEOP's two year action plans as well, the action plans for the 2009-2010 period has been elaborated on the basis of these documents. The EEOP has been working since 2007. The EEOP is regulated by a too large number of acts and decrees to be mentioned here. There is a planned number of installations in the structural funding schemes to be supported which constitutes a kind of a cap.

Different measures can not be cumulated in one project, but different project elements can be supported from different support systems. Within the EEOP the applications and granting procedure is continuous, while the applications and granting procedure in NEP is periodically. Within the EEOP there is a limited amount of subsidy. In EEOP 2009/4.4.0 and in EEOP 2009/4.2.0/B the subsidy has a minimum of 1 million HUF (3,600€) and a maximum 1000 million HUF (3.6 million €), in EEOP 2009/5.3.0/B the subsidy is between 1 Million HUF (3,600€) and 500 million HUF (1.8 million €).

There is an available budget for each EEOP applications for the 2009 and 2010 years. In EEOP 2009/5.3.0/B this is 6 billion HUF (22 million €), in EEOP 2009/4.2.0/B the budget is 6 billion HUF (22 million €), and in EEOP 2009/4.4.0 it is 10 billion HUF (36 million €).

Heat and/or electricity production from renewable sources and bio-methane production (EEOP 2009/4.4.0)

The supported activities within the EEOP 2009/4.4.0 are the followings: electricity generation from solar energy, biomass utilization for electricity or combined heat and power, utilization of hydropower: establishment or renovation of hydropower plants below 5MW, production and utilization of biogas, utilization of geothermal energy, utilization of wind energy, and combining renewable energy sources.

The amount of subsidy can be minimum 1 million HUF (3,600 €) and maximum 1000 million HUF (3.6 million €), and the supported rate is minimum 10% and maximum is 70% of eligible costs. Enterprises, public administration and institutions, NGOs and other companies could be the potential beneficiaires. If wind power station is connected to the national electricity network, only plants up to 50 KW are supported through EEOP 2009/4.4.0

Local heat and cooling supply from renewable sources (The EEOP 2009-4.2.0/B)

The supported activities within the EEOP 2009/4.2.0/B are the followings: development and enlargement of systems generating and using biogas from solid and/or liquid

material landfill gas for heat consumption,, geothermal energy utilization, installation of heat pump systems, renewable energy utilization for cooling, combining renewable energy sources and establishment of communal district heating systems using renewable energy sources, total or partial replacement to renewable sources

The amount of subsidy can be minimum 1 million HUF (3,600 €) and maximum 1000 million HUF (3.6 million €), and the supported rate is minimum 10% and maximum is 70% of eligible costs. Enterprises, public administration and institutions, NGOs and other companies could be the potential beneficiaries.

Building energetic developments combined with renewable energy utilization subsidy schemes encourage the use of district heating and cooling using RES (EEOP-2009-5.3-0/B)

The supported activities within the EEOP 2009/5.3.0/B are the followings: Supporting energy conscious architecture, reduction of heat loss during renovation combined with renewable energy (solar panel, biomass, geothermal, heat-pump), modernization of heating, cooling and domestic hot water systems in institutions combined with renewable energy (solar panel, biomass, geothermal, heat-pump), and the modernization of lighting system combined with renewable energy sources (PV for grid or separate). The tender support small and medium cost projects, providing minimum 10 % and maximum 70% support rate. The total amount of the subsidy is minimum 1 million HUF (3,600 €) and maximum 500 million HUF (1.8 million €).

RES use in agriculture

Decree 78/2007. (VII. 30.) of the Ministry of Agriculture and Rural Development establishes the detailed criteria for the use of renewable energy sources to produce energy for agricultural consumption from the European Agricultural Fund for Rural Development. The objective of the subsidy is to promote the wide-spread use of renewable energy sources in agriculture and reduce crop producers' dependence on fossil fuels. Agricultural applicants can submit tender bids for biomass-fired boilers to use for agricultural purposes. The intensity of the non-refundable subsidy is 35%.

4 Details RES-Transport Support Policy

Tax relief in case of minimum share of biofuels

The compulsory blending standards have been removed. However, gas companies must use more than 4.4% bio-component in their fuels (% based on volume) to be eligible for the lower excise tax. If they do not meet the 4.4% criteria, the normal excise tax will be imposed. The preferential tax is 32 €/hl lower for diesel oil and 33 €/hl lower for gasoline compared to the normal tax rate.

The difference between the preferential and the normal excise tax level takes 7-10 % off the price of the fuel at current prices. Excise tax on biofuel was lower from July 2007 and then lowered again from January 2008.

Supporting the establishment of low and medium-capacity bio ethanol factories (EEOP-2009-4.6-0.)

See for introduction of EEOP the section on RES-H&C above. The key aim of the scheme is to subsidize projects aimed at establishing high and medium capacity bioethanol factories in the form of non-refundable grants. Implemented projects contribute to a growing share of biological motor fuels including bioethanol and the spread of renewable energy sources through the energy supply of manufacturing capacities by renewables. Applicants are invited to submit their tender bids in a single-round tender.

In the framework of the scheme the following activities can be subsidized:

1. Establishing bioethanol factories of 80 kt/year capacity at the minimum.
2. Establishing bioethanol factories of 30 kt/year capacity at the minimum and 60 kt/year at the maximum.

Amount of subsidy: HUF maximum 1,200 million (4.3 million €) for medium and 1,500 (5.4 million €) for large capacity factories, 25% of eligible costs, for SMEs 30%.

Decree 44/2009. (IV. 11.) of the Ministry of Agriculture and Rural Development establishes the criteria for subsidies for the manufacturing of liquid biomass. This decree contains the detailed terms and conditions of subsidies for the setting up of non-food low capacity factories to produce crop-based raw spirits and raw oil from the European Agricultural Fund for Rural Development. The intensity of the non-refundable subsidy is 40-60%.

5 RES-E Grid Integration

Plant operators are contractually entitled to connection to the grid. The grid operator is obligated to enter into a grid connection contract. (§§ 35 (1), 58 (1) and (2) Act Nr. LXXXVI of 2007). The contract shall be in line with the conditions and procedures stipulated by other legal provisions or by the grid operator's terms and conditions, which shall be approved by the Energy Office (§ 58 (1) Act Nr. LXXXVI of 2007).

The grid operators (often in the same ownership as conventional generators – EON, EdF) may refuse to connect a system to the distribution or transmission grid for technical reasons. However, when refusing the connection of a system, they are obliged to specify the conditions under which connection is granted. If technically possible, they shall provide for another connection point (§ 27 (2), (3) Act Nr. LXXXVI of 2007).

In the original law, the grid operator was allowed to refuse to buy energy from RES power plants below 100 kW. This situation has changed: the grid operator cannot refuse to buy energy from power plants below 100 kW as well.

Systems that generate renewable-energy-sourced electricity shall be connected to the grid at a priority (§ 35 (3) Act Nr. LXXXVI of 2007). Furthermore, renewable energy systems shall be authorised at a priority by the Energy Office (§ 78 Act Nr. LXXXVI of 2007).

"Shallowish" connection charging applies: only a certain share of grid reinforcement costs has to be carried by the RES-E project. Presently grid operators cover 50% of the connection costs, while the other 50% is born by the project directly.

6 RES Production, Potential and Market Development

RES-E

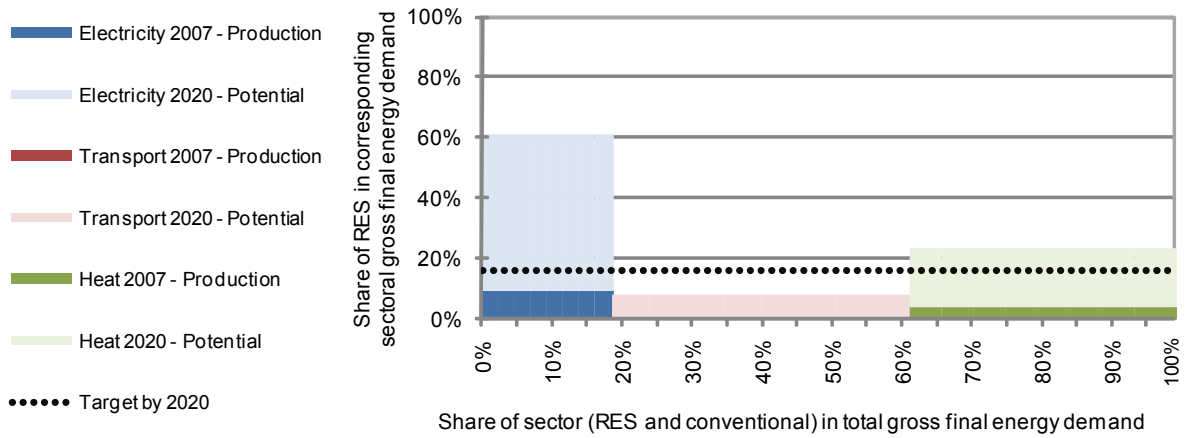
Biomass accounts for the largest share of Hungary's RES-heat production. Forestry wastes and sawmill by-products are currently burnt in furnaces to provide heat for the forestry industry or briquetted for retail sale.

In the first half of decade the electricity production from biomass was increasing rapidly, mainly due to brown field co-firing fuel switch projects, thereby also avoiding the closure of inefficient hard fuel power plants (Pécs, Ajka, Vértes).

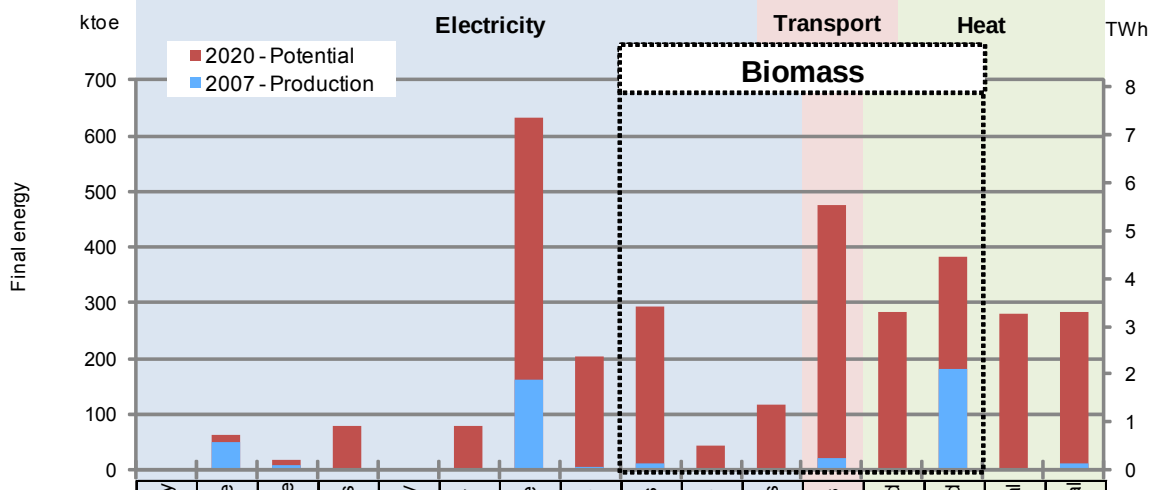
Recent regulations have limited the use of round wood for energy purposes, which apply to all new power plants. There has been a lack of green field projects due to questionable economic feasibility. There are advanced stage plans for large size straw plants to be constructed in the near future. Wind energy capacity has rapidly expanded in the second half of the decade but is expected to reach maximum level limited by grid load issues.

The Hungarian government's strategy on the increased use of renewable energy sources (2007-2020 Energy Policy sets a target of 186.4 PJ from renewable energy by 2020, compared to 55 PJ in 2006. The target is broken down by sector: 79.7 PJ (9470 GWh) in electricity production, 87.1 PJ in heat production and 19.6 PJ from biofuel within fuel consumption.

IRELAND - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	9%	0%	4%	3%
Share of total sector consumption in total final energy consumption	19%	43%	39%	100%
Production 2007 [ktoe]	237	21	194	452
Production 2005 [ktoe]	161	1	185	347
Production 1997 [ktoe]	73	0	96	169
Average growth 2005-2007 [%/a]	21%	358%	2%	14%
Average growth 1997-2007 [%/a]	13%	-	7%	10%
Potential 2020 [ktoe]	1,531	475	1,228	3,234
Annual growth of RES needed to achieve target	-	-	-	12%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	49	8	0	0	0	162	6	10	0	1	21	0	182	1	11
Production 2005 [ktoe]	0	45	9	0	0	0	89	6	10	0	1	1	0	182	0	3
Production 1997 [ktoe]	0	53	8	0	0	0	4	0	7	0	0	0	0	96	0	0
Ø annual production growth 2005-2007	-	4%	-4%	-	-	-	35%	0%	-1%	-	27%	358%	-	0%	-	93%
Ø annual production growth 1997-2007	-	-1%	0%	-	-	-	44%	-	4%	-	-	-	-	7%	-	72%
Total realisable potential by 2020 [ktoe]	2	63	18	80	0	79	633	203	294	43	118	475	282	383	279	283

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The Government's 2007 White Paper[64] sets RES-E targets of 15% in 2010 and 33% in 2020 (increased to 40% in October 2008). The key policy instrument for the support of RES-E in Ireland is the feed-in tariff (FIT). The FIT scheme (REFIT) was launched in May 2006 to include support for hydro, onshore wind and biomass. An additional scheme, REFIT II, is planned for introduction once state aid clearance has been obtained from the European Commission, which will include support for additional technology categories (anaerobic digestion, high efficiency CHP, ocean and offshore wind). The REFIT scheme has been successful in increasing RES-E deployment in Ireland since its introduction.

RES-H&C

Ireland's Energy White Paper sets RES-H targets of 5% in 2010 and 12% in 2020. The main support instruments for RES-H in Ireland are grant schemes: the Renewable Heat Deployment Programme (ReHeat) for the industrial, commercial, public and community sectors; and the Greener Homes Scheme for domestic applications. There is also specific grant support available for biomass CHP and anaerobic digestion CHP. The schemes have proven to be effective in increasing RES-H use, although they both have a limited lifespan, so their long-term effectiveness could be questioned.

RES-T

Ireland has a number of implemented measures to support the build up of the nascent biofuels industry in the country. A Biofuels Obligation Scheme (BOS) is also planned to be introduced by the end of 2009 to further mainstream biofuels into road transport fuel.

The main support instrument currently (before BOS), is mineral oil tax relief for biofuels, introduced in 2006.

A National Energy Crop Premium is also available for farmers, in addition to any EU support for growing energy crops, and establishment grants are also available to farmers wishing to grow miscanthus or willow.

BOS is planned to be introduced as an obligation on suppliers of petrol and auto-diesel to supply a certain percentage of biofuels. No exact start date is given, although the scheme is intended to be started "by the end of 2009". The first obligation level proposed is for 2010. The proposed initial obligation level is 4% (by volume) in 2010, moving to 6% in 2012. It is intended that BOS will be continued as the main instrument to achieve the EU target of 10% renewable transport fuel at least to 2020.

64 Department of Communications, Marine and Natural Resources. Delivering a sustainable energy future for Ireland. http://www.dcenr.gov.ie/NR/rdonlyres/54C78A1E-4E96-4E28-A77A-3226220DF2FC/27356/EnergyWhitePaper12March2007.pdf

2 Details RES-Electricity Support Policy

The Government's 2007 White Paper sets RES-E targets of 15% in 2010 and 33% in 2020 (increased to 40% in October 2008). The key policy instrument for the support of RES-E in Ireland is the FIT.

Renewable Feed-in tariff (REFIT)

The REFIT is a feed-in tariff scheme which is managed by the Department of Communications, Energy and Natural Resources (DCENR) and is the main support instrument in place for RES-E projects[65]. An additional scheme, REFIT II, is planned for introduction once state aid clearance has been obtained from the European Commission which will include additional technology categories.

The scheme was launched on 1 May 2006. The initial REFIT scheme was designed to ensure that Ireland would reach its 2010 renewable electricity target. Support for any particular project cannot exceed 15 years and may not extend beyond 2024, implying that REFIT payments should start no later than the end of 2009. This scheme is currently under review, given that Ireland now has a 2020 renewable energy target to achieve under the Renewable Energy Directive. (Under REFIT II support for any particular project cannot exceed 15 years and may not extend beyond 2030. Access to the ocean energy feed in tariff is only available until 2015.)

Under the REFIT, a maximum size of 5MW is in place for hydro power projects. There is no such restriction on other eligible technologies (i.e. biomass or wind projects), neither is there a minimum size limit for RES-E projects. Note that support for biomass CHP to produce heat and electricity is eligible for plants larger than 20MW that have an electrical efficiency of >30% and an overall CHP efficiency of >80% and for small to medium-scale plants (1MW to 20MW) that have an electrical efficiency of >20% and an overall CHP efficiency of >70%. The initial REFIT scheme, aimed to allocate support towards the construction of 400MW of RES-E by 2010.

There is no cap on the total volume of electricity produced per year. Overall budgetary control is maintained by controlling total installed capacity supported. The support programme is allocated up to a cumulative capacity limit of 1,450 MW and the budget foreseen is €150 million overall, or €10 million annually[66]. The same project cannot be supported by more than one support measure.

The terms and conditions do not refer specifically to certified equipment. However, applications for REFIT cannot be approved unless the generator has a connection offer from the network operator who will approve/disapprove the equipment being connected. A generator must apply to the Commission for Energy Regulation (CER) for Authorisation to Construction licence. As part of the application process they must

65 Further information regarding the scheme can be found at: http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/Sustainable+and+Renewable+Energy+Division.htm

66 See the Commission's Decision on State Aid: N571/2006. http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/Sustainable+and+Renewable+Energy+Division.htm

provide a detailed description of measures to be taken by the applicant to ensure the safety and security of the electrical system.

REFIT is a feed-in tariff and not a feed-in premium. In order to be eligible, the project developer will require planning permission, signed grid connection offer and an offer of a power purchase agreement from a registered supply company.

FITs for each RES-E source are listed in table 1 below. As can be seen in this table the tariff in place for onshore wind is dependent on the project size (i.e. 5 MW threshold). However, there are no other criteria that differentiate tariff support.

Table 1: Summary of the FITs per technology type in the REFIT schemes

Technology	Tariff duration	2006 (€/MWh)	2009 (€/MWh)[67]
REFIT			
Onshore wind > 5MW	15 years	57	66.353
Onshore wind < 5MW		59	68.68
Biomass (landfill gas)		70	81.486
Other biomass *		72	83.814
Hydro		72	83.814
REFIT II			
Anaerobic digestion			120
High Efficiency CHP			120
Offshore wind (from 2008)			140
Wave (from 2008)			220

* Co-firing of biomass in power stations with biomass is eligible for support under REFIT.

A new project is eligible to receive the tariff for a period of 15 years. Support for existing projects is guaranteed to remain at the same level for the whole support period.

REFIT tariffs are subject to an annual inflationary rise according to the consumer price index (CPI) published by the Central Statistics Office68. This tariff increase is applicable for both new and existing projects. Were there to be a future significant downward shift in e.g. wind turbine prices, this would require a fundamental review of the tariffs published. REFIT II tariffs would not be subject to an inflationary adjustment, however.

There are no major policy changes expected at the national level. There are no regional/local level important additional instruments contributing substantially to the growth of RES-E in Ireland.

67 Based on information from the Department of Communications, Energy and Natural Resources of Ireland

68 http://www.cso.ie/statistics/conpriceindex.htm

3 Details RES-Heating and Cooling Support Policy

Ireland has a number of grant funding schemes available to promote RES-H in the country. The Government's White Paper sets RES-H targets of 5% in 2010 and 12% in 2020. Key support schemes are detailed below.

Renewable Heat Deployment Programme (ReHeat)

The Renewable Heat Deployment Programme[69] (ReHeat) is a grant scheme for the deployment of RES-H systems in industrial, commercial, public and community premises in Ireland. The programme is administered by Sustainable Energy Ireland (SEI) and is an expansion of the previous Bioheat Boiler Deployment Programme which only supported woodchip or pellet boilers.

The ReHeat scheme was launched in March 2007 and funding is available until 2010. Grant support of up to 30% of eligible costs is available for capital investment projects and support of up to 40% of eligible costs is available for feasibility study projects.

Grants are available for the deployment of the following qualifying RES-H systems:

- Wood Chip or Pellet Boilers
- Solar Hot Water Heating Systems
- Heat Pumps
    - Horizontal ground collector
    - Vertical ground collector
    - Water (well) to water
    - Air source

Qualifying technologies must meet certain standards of manufacture, such as the CE mark, and certain efficiency standards in the case of biomass boilers[70].

Ground source, air to water, and ground water to water heat pump are eligible for funding under the programme. Cooling only heat pumps are not eligible under the programme. The following types of heat pump systems are also not eligible for funding under the programme:

- comfort air conditioner (factory-made units intended to produce cooled air for air conditioning);
- heat recovery heat pumps using waste heat from other processes as a heat source;
- heat pumps producing sanitary hot water only.

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69 http://www.sei.ie/Grants/Renewable_Heat_Deployment_Programme/

70 Further information on eligibility criteria is available here: http://www.sei.ie/Grants/Renewable_Heat_Deployment_Programme/How_to_Apply/Eligibility_Criteria/

There is no minimum or maximum plant size defined, but special criteria are set for larger biomass boilers or heat pumps over 1,000 kW and solar installations larger than 500 m^2.

Qualifying installations can be in the commercial, industrial, services and public sectors and also include community organisations and Energy Supply Companies (ESCOs), in Ireland.

Applications for funding can be made at any time to SEI. The indicative decision time from SEI from the receipt of a complete application form is four weeks. If approved, a Grant Agreement is issued. A signed copy of the Letter of Offer must then be returned to SEI within 30 days of date of issue. The grant offer remains valid for 12 months from the date of issue of the Grant Agreement unless a later project completion date is agreed with SEI. The offer will automatically lapse after this date.

In the 2006 Budget presented in December 2005, the Minister of Finance announced the allocation of €65 million over the period 2006 to 2010 to "launch several innovative grant schemes relating to biofuels, CHP, biomass commercial heaters and domestic renewable heat grants". An indicative allocation of €22 million was made for a Bioheat Boiler Deployment Programme to run from 2006 to 2010. In the 2007 Budget, an additional €4 million was announced to expand the Bioheat Boiler Deployment Programme to include Solar Thermal Systems and Heat Pumps. There is no annual cap to the available funding.

Greener Homes Scheme

The Greener Homes Scheme[71] offers grant funding for domestic RES-H. The scheme is administered by SEI.

Grants are available to homeowners who intend to purchase a new RES-H system for existing homes which were first occupied before 30 June 2008. Phase III of the scheme opened on 22 July 2008 and applications can be made at any time.

The following grants are available for the following technologies:

Solar Thermal Space and or Hot water heating (Evacuated Tube)	€300 per m2(to max 6 m2)
Solar Thermal Space and or Hot water heating (Flat Plate)	€250 per m2 (to max 6 m2)
Heat Pump - Horizontal ground collector	€2,500
Heat Pump - Vertical ground collector	€3,500
Heat Pump - Water (well) to water	€2,500
Heat Pump - Air source	€2,000
Wood Chip/Pellet Stove	€800
Biomass / Wood pellet Stove with integral boiler	€1,400
Wood Chip/Pellet Boiler	€2,500
Wood Gasification Boiler	€2,000

71 http://www.sei.ie/Grants/GreenerHomes/

SEI manages a list of registered installers of RES-H systems.

Biomass CHP/Anaerobic Digestion (AD) CHP Call for Proposals[72]

As part of the 2006 Budget announcements, the Minister of Finance announced an indicative allocation of €11 million for a CHP programme to run in the 2006 to 2010 timeframe.

The Biomass CHP / anaerobic digestion CHP Call for Proposals, administered by SEI, has an indicative budget of €5-8 million (out of the €11 million), and will provide grant support to assist the deployment of CHP systems fuelled by biomass. To qualify, projects must start operation before 31 December 2010.

The Programme provides up to 30% investment grant support to eligible projects, dependent on the size of the project and the technology. The following tables show the maximum eligible cost that can be claimed against:

Table 2: Maximum Eligible Cost limits for Biomass CHP

Plant scale ranges	Maximum Cost/installed electricity generating capacity (Biomass)
≥ 100 kWe and < 500 kWe	€4,500/kWe
≥ 500 kWe and < 1 MWe	€4,000/kWe
≥ 1 MWe and < 5 MWe	€3,000/kWe
≥ 5 MWe	€2,000/kWe

Table 3: Maximum Eligible Costs for Biogas CHP Plant including Digester

Plant size ranges	Maximum Cost/installed electricity generating capacity
≥ 50 kWe and < 100 kWe	€4,500/kWe
≥ 100 kWe and < 500 kWe	€4,000/kWe
≥ 500 kWe and < 1 MWe	€3,500/kWe
≥ 1 MWe	€3,000/kWe

Table 4: Maximum Eligible Costs for Biogas CHP Plant excluding Digester (i.e. CHP at sewage treatment works)

Plant scale ranges	Maximum Cost/installed electricity generating capacity
≥ 50 kWe and < 100 kWe	€2,000/kWe
≥ 100 kWe and < 500 kWe	€1,800/kWe
≥ 500 kWe and < 1 MWe	€1,000/kWe
≥ 1 MWe	€1,000/kWe

SEI states that it reserves the right to update and revise the levels of grant funding available to the various project types and technologies offered under this Call for Proposals.

High efficiency CHP will be supported in the REFIT II scheme[73].

72 http://www.sei.ie/Grants/Biomass_CHP_Anaerobic_Digestion_CHP_Call_for_Proposals/

4 Details RES-Transport Support Policy

Ireland has a number of implemented measures to support the build up of the nascent biofuels industry in the country. A biofuels obligation is also planned for implementation.

Mineral Oil Tax Relief

Administered by the Department of Communications, Energy and Natural Resources[74] (DCENR), the main support for biofuels currently in Ireland is tax relief on certain biofuels. In total, €205 million of Excise Relief was granted to 18 companies following a competitive process. The schemes have resulted in biofuels being mainstreamed in blends of up to 5% at a very large number of existing petrol and diesel pumps, with higher blends being sold to identified vehicle fleets. According to DCENR, uptake on the use of biofuels has seen a dramatic increase to date since the schemes began in 2006.

National Energy Crop Premium

Administered by the Department of Agriculture, Fisheries and Food, Ireland also operates a National Energy Crop Premium worth €80 per hectare to stimulate production of energy crops. The grant scheme is available over the period 2007-2009. The premium is paid in addition to the EU premium of €45 per hectare, which is available under the EU Energy Crops Scheme.

Bioenergy Scheme

The Department of Agriculture, Fisheries and Food also operates the Bioenergy Scheme which offers establishment grants to farmers to grow miscanthus and willow for the production of biomass suitable for use as RES (electricity, heat or transport). The scheme was introduced on a pilot basis in February 2007 and will last until 2009. Eligible costs include those associated with ground preparation, fencing, vegetation control, the purchase of planting stock, planting and first year cutback, and costs associated with other approved operations. Aid is payable on 50% of the approved costs associated with establishing the crop, subject to a maximum payment rate of €1,450 per hectare, with the balance to be invested by the applicant.

Public fleets

The Department of Transport (DoT) has instructed public transport operators to move to a 5% biodiesel blend in the current fleet with a view to ensuring that all new buses, as part of future fleet replacement, can operate on a 30% blend, subject to technical and logistical constraints. The obligation was planned to be implemented in 2009. The DoT will also continue to look at the technical and economic feasibility of buses and heavy goods vehicles (HGV) operating on 100% pure plant oil (PPO), as well as any potential regulation of engine modification or suitable fuels.

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73 Refer to page 5: http://www.dcenr.gov.ie/NR/rdonlyres/3B13ECAA-9351-41E0-8B44-7C02E98E4F50/0/AdditionalREFITcetegories.pdf

74 http://www.dcenr.gov.ie/

Biofuels Obligation Scheme (planned)[75]

In the March 2007 Energy White Paper Ireland, plans were announced introduce a Biofuels Obligation Scheme (BOS) by the end of 2009. The scheme is being designed by DCENR, although they envisage it being administered by another body. They have proposed that a likely body for this could be The National Oil Reserves Agency (NORA). NORA is currently responsible for ensuring that Ireland complies with its EU and international requirements for emergency oil supplies. The agency is funded by a levy on fuel, which it collects from oil suppliers.

In September 2008 DCENR published a stakeholder consultation[76] into the details of the scheme, which was closed in November. This is the latest information available on the DCENR website (as of 12 October 2009).

BOS is proposed to begin “by the end of 2009”. The first obligation level proposed is for 2010. No exact start date is given. It is intended that BOS will be continued as the main instrument to achieve the EU target of 10% renewable transport fuel at least to 2020.

The obligation is intended to be set on suppliers of petrol and auto-diesel, applied at the point at which excise duty is normally applied to Irish transport fuels. Obligated suppliers will be required to apply to the scheme Administrator for a BOS account and provide details of their fuel sales (across the duty point) on a regular basis.

The proposed initial obligation level is 4% (by volume) in 2010, moving to 6% in 2012. A penetration rate of 4% by 2010 (by volume) would result in approximately 220 million litres of biofuels being placed on the market in Ireland in that year. The rate and pace of the increase in obligation level will then be determined following a review of the operation of the BOS in 2012 and EU policy developments and experience in other Member States. The consultation states that, Ireland intends to increase the obligation level gradually over time to the extent that supply and technologies allow, and to ensure that the country meets its 2020 RES-T target set by the EU. However, no firm figures are mentioned and it is clearly stated that any biofuels supplied under BOS will have to meet the EU sustainability requirements from the start. No further details are given on how obligated parties will demonstrate sustainability.

DCENR state that it is likely that the principal biofuels in the near term (to 2010) will include biodiesel, bioethanol and pure plant oil. It is however, the intention that the BOS should include all renewable transport fuels as envisaged by the Biofuels Directive (2003/30/EC), namely all “liquid or gaseous fuel for transport produced from biomass”. Biogas will be treated as a renewable transport fuel for the purposes of the obligation, and will also be eligible for BOS certificates. All biofuels effectively receive the same level of support (per volume) - there is no “banding” concept planned.

No mention is made in the consultation of the treatment of advanced biofuels or biofuels from wastes.

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75 http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/Biofuels+Obligation+Scheme.htm

76 http://www.dcenr.gov.ie/NR/rdonlyres/EC1AD24F-304F-4894-85C1-865715A6DE70/0/BiofuelsObligationScheme.pdf

BOS certificates will be issued by the administrator and will be tradable between any parties that hold a BOS account. No details are given at this stage on further trading rules or conditions, such as banking from one year to the next. There is no price cap proposed for BOS certificates, but obligated parties who do not meet their obligation will be required to pay a levy. DCENR have proposed a levy of €0.40 per litre. No details are given on what will be done with the levy fund. As the scheme has not yet started, no price estimates are available for BOS certificates.

Support for other RES-T options

No specific support is currently available for electric vehicles. However, in February 2008 the DoT launched a Vision for 2020: Sustainable Travel and Transport public consultation[77], which sets out a vision for a sustainable transport system by 2020 trying to reduce discretionary demand for travel and improve energy efficiency.

The need for a Sustainable Travel and Transport Action Plan (STTAP) also emerged during the preparation of the Energy White Paper Delivering a Sustainable Energy Future for Ireland and the revised National Climate Change Strategy (NCCS) 2007-2012, when it was recognised that adverse trends in the transport sector in Ireland had to be addressed. The STTAP will also suggest targets for usage of electric vehicles by 2020.

5 RES-E Grid Integration

At present, the grid operator, Eirgrid, is obliged to grant access to the grid according to non-discriminative criteria. RES-E is not given priority (compared to conventional generators).

Dispatch of plant is initially determined on the basis of an unconstrained merit order of all available plants. RES-E generators are entitled to priority dispatch, subject to system security considerations. Autonomous generation such as wind and hydro below 5 MW is effectively always dispatched.

Connection charges to the distribution network are considered to be "shallow" in that the connecting generator pays for the assets required to connect it to the distribution network. Upstream grid reinforcement costs are paid for by the network operator and split among all network users.

RES-E projects are responsible for forecasting production. Payments are based on uninstructed imbalances and whether the imbalance falls inside or outside of a tolerance band (set annually ex-ante)[78].

Autonomous generators are not required to pay for the balancing of energy.

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77 http://www.sustainabletravel.ie

78 Ireland Country Report, Innovative Electricity Markets to Incorporate Variable Production to IEA – Renewable Energy Technology Deployment, 2008, http://www.iea-retd.org/files/IEMVP_Ireland%20Country%20Report.pdf

6 RES Production, Potential and Market Development

RES-E

Traditionally, hydropower has been by far the most important RES-E source in Ireland. However, in recent years production from wind, primarily onshore but increasingly offshore, has increased significantly and since 2004/2005, represents the dominant RES-E source. Installed wind power capacity now stands at over 1GW, an increase of 26% on 2007. Ireland is now ranked fourth in the world in terms of contribution of wind energy to electricity use, supplying 8.7% of the total electricity demand[79]. Biogas, primarily from landfill projects, contributes a small share of the overall RES-E generation mix.

Wind energy will continue to play a leading role in Ireland's RES-E generation in the coming years. Tidal and wave power is also set to play a future role. The Irish Government has established the Ocean Energy Development Unit[80] to accelerate the development of these technologies, with a specific objective of connecting 500MW by 2020. Co-firing of biomass will soon start to contribute to Ireland's RES-E as a result of a government target (as announced in the Government White Paper) that peat power stations will need to co-fire a minimum of 30% biomass by 2015 (equivalent to around 110MW); additional co-firing at the 915MW coal-fired plant Moneypoint is also expected in the next few years.

RES-H&C

The country's target is to achieve 5% RES-H by 2010 and 12% by 2020. It is estimated therefore that 272 ktoe RES-H will be required in 2010 to meet the target, representing a 47% annual growth over the period 2008 to 2010. The vast majority of RES-H use and potential in Ireland is from biomass, in particular the use of waste wood in industry. The introduction of the Greener Homes Scheme for the domestic sector reversed the overall declining trend in RES-H in households (45 ktoe in 1990 to 15 ktoe in 2003). In 2007, RES-H in homes accounted for 24 ktoe and represented 13% of total RES-H use in Ireland.

RES-T

The year 2005, saw the first biofuels production in Ireland. Biofuels increased sevenfold between 2006 and 2007, albeit from a low base and accounted for 0.5% of petrol and diesel consumption in 200781. In absolute terms, RES-T increased from 1 ktoe in 2005

79 http://www.sei.ie/News_Events/Press_Releases/Ireland_ranked_4th_in_world_in_use_of_electricity_from_wind_energy.html

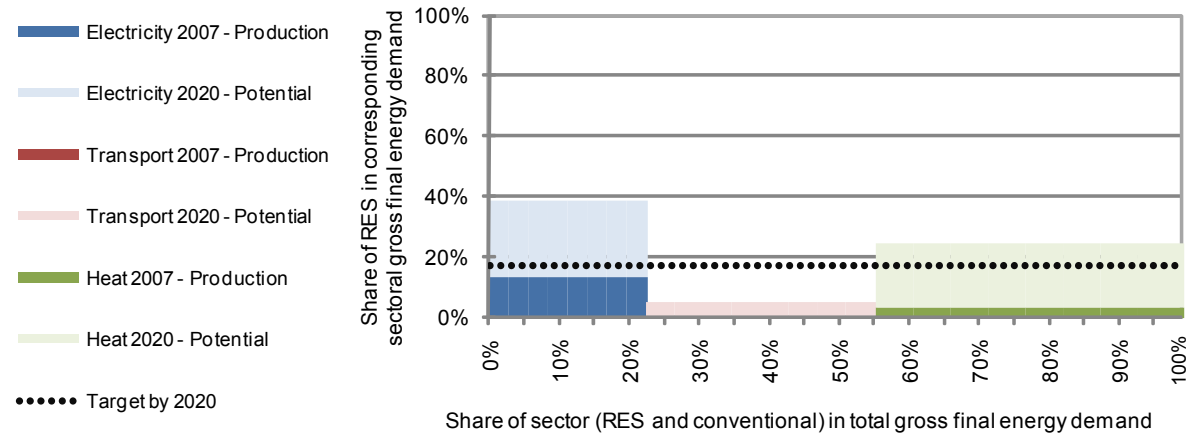
80 http://www.sei.ie/Renewables/Ocean_Energy/Ocean_Energy_Development_Unit/

81 Sustainable Energy Ireland (2008) Energy in Ireland 1990-2007: http://www.sei.ie/Publications/Statistics_Publications/Energy_in_Ireland/Energy_in_Ireland_1990-2007.pdf

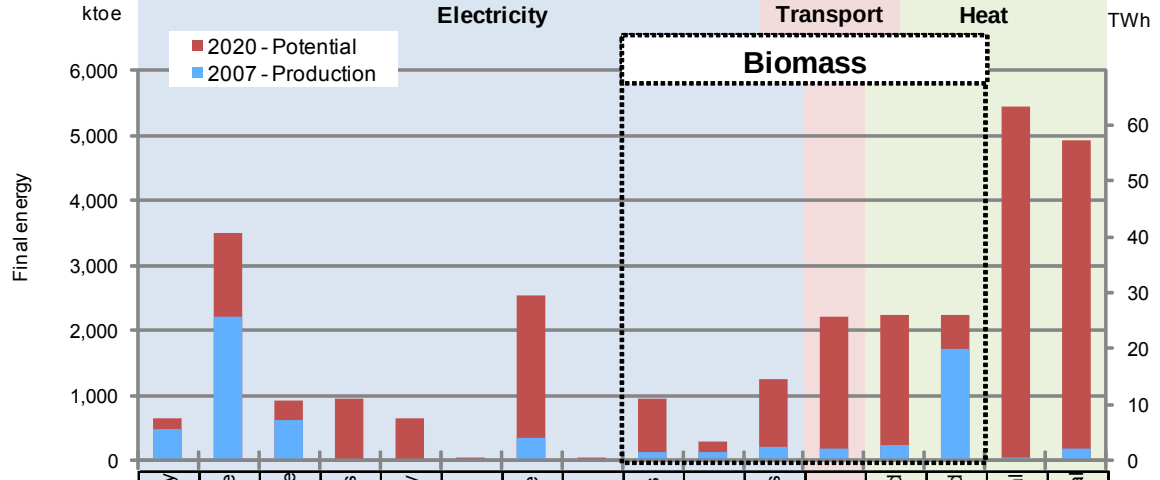
to 3 ktoe in 2006 and 21 ktoe in 2007[82]. Of the 21 ktoe biofuels in 2007, the majority of this (16 ktoe) was biodiesel.

82 Sustainable Energy Ireland (2008) Renewable Energy in Ireland 2008 Report: http://www.sei.ie/Publications/Statistics_Publications/SEI_Renewable_Energy_2008_Update/Renewable%20Energy%20Update%202008.pdf

ITALY - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	13%	0%	4%	5%
Share of total sector consumption in total final energy consumption	22%	33%	45%	100%
Production 2007 [ktoe]	4,103	180	2,194	6,477
Production 2005 [ktoe]	4,166	179	2,029	6,373
Production 1997 [ktoe]	3,983	0	1,508	5,491
Average growth 2005-2007 [%/a]	-1%	0%	4%	1%
Average growth 1997-2007 [%/a]	0%	-	4%	2%
Potential 2020 [ktoe]	11,847	2,218	14,871	28,936
Annual growth of new RES needed to achieve target	-	-	-	37%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	479	2,211	611	3	0	0	347	0	124	130	198	180	230	1,720	52	192
Production 2005 [ktoe]	458	2,447	655	3	0	0	202	0	103	113	186	179	190	1,631	27	181
Production 1997 [ktoe]	336	2,879	699	1	0	0	10	0	29	13	17	0	0	1,288	7	213
Ø annual production growth 2005-2007	2%	-5%	-3%	12%	-	-	31%	-	10%	7%	3%	0%	10%	3%	39%	3%
Ø annual production growth 1997-2007	4%	-3%	-1%	10%	-	-	42%	-	16%	26%	28%	-	-	3%	22%	-1%
Total realisable potential by 2020 [ktoe]	653	3,504	936	957	656	55	2,535	53	959	284	1,255	2,218	2,247	2,248	5,446	4,930

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1. Summary: RES Support Policy

RES-E

The RES-E market is supported by both a TGC system with a mandatory quota for consumers (formerly for importers and producers of electricity), by a technology-specific certificate issuance and by a 15 year feed-in tariff mechanism for plants with a capacity below 1 MW. Recently, a net-metering system for installations below a 200 kW installed capacity was introduced.

RES-H

The main measure to support RES-H in Italy is given by fiscal policy ruled by central government, and by the possibility to qualify RES-H systems to white certificates, or energy efficiency certificates (TEE). Investments in RES-H systems can be deducted from the income tax in the measure of 55% through 3 to 10 years.

RES-T

Incentives for biofuels are mainly represented by fiscal measures; a certain number of tons is exempt from the excise tax of fossil fuels. Such a tax free biofuel amount is set every year, giving a large uncertainty to the market.

2. Details: RES-Electricity Support Policy

Quota Obligation

Italy started supporting renewable electricity generation in 1992, with a scheme known as CIP6/92, which established feed in tariffs for all new RES-E generation, which had been liberalized in 1991. There were so many new proposals, that ENEL, the national electricity board at the time, decided to accept them only after a waiting list had been created excluding de facto all the projects proposed after June 1995. All the projects proposed before that date had the right to sign a contract for the electricity supply to the grid at subsidized prices updated yearly according to the oil prices and the national inflation, for 8 years. The system was so unstable, that it had to be suspended in 1995, when most of the accepted projects had still to be connected to the grid.

With the liberalization of the electricity sector in 1999, given the sanctity of the signed contracts that also remained valid for projects accepted, but not yet built, a new system based on Green Certificates was designed.

Starting from 2001, with the Decree Law 79/99 – Decreto Bersani - the old feed-in CIP6/92 program was initially integrated and then replaced by a TGC system with a mandatory RES-E quota: An obligation was introduced for producers and importers of electricity to supply a growing share of RES-E. The quota had to be achieved with new generation, connected to the grid after March 1999, either under CIP6/92 contracts (in this case the Electricity Services Administrator (GSE) obtained the Certificates and could sell them on the market), or under the Green Certificates scheme. This system was able to guarantee the transition from one incentive scheme to the other incentive scheme.

The quota was initially set at 2% for produced or imported electricity, to be fulfilled with certificates issued for 8 years. High efficiency CHP and RES-E are exempted from the obligation.

In 2006, the duration of TGC was then increased to 12 years for plants online before December 31st 2007 and 15 years for those starting after that date. Banking of TGC is allowed for 3 years.

Since 2008 the TGCs are differentiated according to technologies with coefficients, taking into consideration different generation costs.

With the resolution 280/07, specified by D.L 387/03 and Law 239/04, the electricity regulator AEEG defined the procedures for RES-E purchase for source type and size of the plant as follows:

Programmable RES	< 10 MVA	- Collection by GSE (the body in charge of supporting RES) - Prices defined by AEEG as hourly zonal prices increased by standard losses - Minimum prices guaranteed for the initial 2000 MWh for plants under 1MW
	>= 10 MVA	- Sold on Electricity Market - Market prices
Non Programmable RES	< 10 MVA	- Collection by GSE - Prices defined by AEEG as hourly zonal prices increased by standard losses - Minimum prices guaranteed for the initial 2000 MWh for plants under 1MW
	>= 10 MVA	- Collection by GSE

	- Prices defined by AEEG as hourly zonal prices increased by standard losses

Since 2005, in order to promote all the technologies, other mechanisms have been introduced to support specific RES technologies, slowly introducing a feed-in tariff mechanism in Italy.

With Law 99/09 approved in July 2009, the obligation for producers and importers of electricity to supply a specified share of RES-E was shifted to the electricity suppliers as of 2012, based on the electricity supplied in the previous year. As a consequence, the future obligation has to be redefined on the basis of the new criterion, but the law does not specify it and a new ministerial decree is required.

The quota set for importers and producers in 2009 is 5.3% of the total electricity produced or imported.

Electricity suppliers can fulfill their obligation using tradable Green Certificates, issued by GSE, the body in charge of collecting resources from electricity suppliers and giving them to the producers. Eligible for TGCs are hydro, wind, geothermal, solar, marine, biomass and waste with a production of more than 50 MWh per year and commissioned after March 31st 1999. The certificates can be traded on a specific market managed by GME (Electricity Market Administrator), or exchanged through bilateral contracts (tracked by GME as well).

The quota had an annual increase of 0.35%, from 2004 to 2006, and of 0.75% from 2007 to 2012, even if it has to be redefined after the switch of the obligation from producers to suppliers. The obligation has been always been fulfilled in the past few years, thanks to the role of the green certificates issued to GSE for the production of projects under the previous CIP6/92 scheme, which played a role in the transition.

Table 1: Italy's TCG Quota and duration

	TGC Quota increase	*New RES-e Quota*	*TGC Duration (years)*
2001 – 2003	--	2%	8
2004	+ 0.35%	2.35%	8
2005	+ 0.35%	2.70%	6
2006	+ 0.35%	3.05%	12
2007	+ 0.75%	3.8%	15
2008	+ 0.75%	4.55%	15
2009	+ 0.75%	5.30%	15
2010	+ 0.75%	6.05%	15
2011	+ 0.75%	6.80%	15
2012	+ 0.75%	7.55%	15

The certificate scheme is handled by GSE and AEEG (Regulatory Authority for Electricity and Gas); GSE verifies the amount of certificates handed over by the obligated subjects and, in case of non compliancy, informs AEEG who can impose a sanction. Unfortunately the sanctions have not been specified and remain undefined.

The value of the certificates is regulated by the market, although in case of excess of certificates on the market (long market), GSE must buy them at a published price. In order to give continuity to the system, the GSE selling price is calculated as the average certificates' price in the previous three years, weighted on exchanged volumes, i.e. 98

€/MWh for 2009. In case of shortage of certificates (short market), GSE can sell those certificates coming from the former CIP6 scheme at a published price, calculated as the difference between 180 €/MWh and the annual average market price of electricity in the previous year, which is 88.66 €/MWh in 2009.

TGC Banding and Optional Feed-in Tariff

The 2008 Budget Law (244/2007), updated by law 99/2009, introduced some important incentives, particularly the introduction of a 15 years feed-in tariff for RES-E schemes under 1 MW as alternative to TGCs and a coefficient for banding TGC according to technologies, which is expected to produce a significant effect on the market. Every MWh produced receives k certificates, with k defined in the following table:

PV is not included in the feed-in tariff, because it has a specific program based on a premium.

Table 2: Technology-specific certificate coefficients and Feed-in tariffs for small plants

	Any Plant	Plant capacity < 1MWe
	Green Certificate coefficient K	Optional Feed-in tariff (€/MWh)
Wind on-shore	1.0	220
Wind off-shore	1.1	--
Geothermal	0.9	200
Wave & tide	1.8	340
Hydro	1.0	220
Biodegradable waste, biomass different from that defined below	1.3	220
Biomass and agricultural/forestry biogas	1.8	280
Biomass and biogas used in high yield CHP reusing the heat power produced in agricultural sector	1.8	- -
Other Biogas (including landfill and sewage gas)	0.8	180

PV Premium

PV is supported with a Premium (named Conto Energia), initially introduced in 2005 and then modified again in 2007 (D.M. 28/07/2005, 06/02/2006, 19/02/2007, AEEG deliberation 188/05 and its updates). This defines a premium for PV production differentiated by size and level of architectural integration. The premium is constant for 20 years. The electricity produced remains on the availability of the investor and can be auto consumed, sold or exchanged with the network (net metering up to 200 kW installed capacity). The initial premiums of 2007 have been reduced by 2% per year, and will be reduced by a further 2% for plants beginning production in 2010. Nothing is yet known regarding the premium level for installations commissioned in 2011 or later.

Table 3: PV premiums

	Capacity P	Premium (€/kWh) 2009	Duration (years)
Plant not integrated	1 kW < P <3 kW	0.392	20
	3 kW < P 20 kW	0.372	
	P > 20 kW	0.353	
Plant partially	1 kW < P	0.431	

integrated	<3 kW		
	3 kW < P 20 kW	0.412	
	P > 20 kW	0.392	
Plant fully integrated	1 kW < P <3 kW	0.480	
	3 kW < P 20 kW	0.451	
	P > 20 kW	0.431	

From January 1st 2009, the AEEG Deliberation n. 74/08 has evolved the existing net-metering, introducing the so called "scambio sul posto" (net metering or exchange on the spot) for:

- RES plants with a capacity up to 20 kW
- RES plants with a capacity up to 200 kW which started production after 31.12.2007
- high-efficiency CHP plants with power up to 200 kW

The mechanism allows the auto producer to compensate the value of energy consumed with the value of the energy produced in different periods, in addition to the premium, thus reducing the producer's electricity bill.

The producer has a contract with GSE, who pays the amount due quarterly; the amount due is the sum of the energy share (minimum equivalent value between electricity produced and electricity consumed - if the electricity produced is more, the amount is written to credit for the following periods) and the service share, the charge due for the use of the grid, calculated by the amount of electricity exchanged. The amount due for the use of the grid is not very high, with 30 € of fixed cost and a variable cost function of different parameters of the exchange patterns.

PV in Building Obligation

In 2007, starting from January 1st, 2009, an obligation has been introduced to install PV on new buildings: A minimum of 1 kW for each residential unit has to be covered by RES and 5 kW in industrial buildings larger than 100 m^2. With DL 207/08 converted in Law 14/09 the starting date was postponed to January 1st, 2010.

3. Details: RES-Heating and Cooling Support Policy

Tax Rebate

The 2007 Budget Law (296/2006) introduced a tax rebate in Italy of 55% for building renovation, aimed at improving energy efficiency, including installation of RES-H systems such as condensing boilers or solar thermal collectors, up to an overall ceiling for each activity, carried out until the pre determined national budget is reached. The ceiling was set at 15 Meuro per year in 2007 – 2009. In 2008 Budget Law, the tax rebate was confirmed to be in effect until 2010. The rebate is available to businesses, as well as residential users. This was connected to the mandatory certification of the energy performance of the building.

Building Obligation

In the 2008 Budget Law, the obligation for new buildings to have a RES-H system for the production of hot water was also introduced. Nevertheless, this was designed as a rule to be implemented in the local municipalities building regulations, and throughout most of the country it has not yet been adopted.

White Certificate System

Another support policy is represented by the white certificate system (TEE), introduced by D.M. 24.04.2001 and updated by D.M. 20.06.2004 and D.M. 21.12.2007, now in its third year of enforcement, based on an obligation on electricity and gas distributors to achieve a minimum level of energy savings, growing from 1.2 Mtoe in 2008 up to 6 Mtoe in 2012.

TEE certificates are issued to energy saving investments obtained through technologies and efficiency systems, according to an AEEG regulation. The certificates are issued by the Electricity Market Administrator (GME) to energy distributors, their companies or any ESCo registered in the AEEG website. A TEE corresponds to the saving of 1 toe and can be either traded on the market or exchanged through bilateral contracts. The mandatory quota set for suppliers of electricity and gas can be also reached through projects involving final users. The savings are verified by AEEG and documented in annual reports.

The mechanism now appears to be evolving in the right direction, contributing to the reduction of energy consumption and to the development of an energy service market, although it was initially affected by some issues, such as:

- excess of TEE due to high energy savings obtained at the beginning of the system (investments cumulated in the previous 5 years could account);
- price reduction on the exchange market;
- imbalance between gas and electricity TEE;
- extensive bilateral exchange with consequent lack of transparency of the market.

Several measures were also adopted at regional level, often based on funds assigned with tenders, mainly coming from EU convergence programs.

4. Details: RES-Transport Support Policy

Quota Obligation and Tax Relief

Budget Law 2007 introduced a quota of 250,000 tons of biodiesel with a reduced tax excise, in the measure of 20% of the corresponding excise for diesel fuel. The quota is split among accredited producers; the program is valid until the end of 2010, with quota and excise reduction redefined each year, to avoid overcompensation.

In the same year an obligation to mix biofuel with traditional fuel for consumption was introduced, in the attempt to stimulate the production and use of biofuels.

The quotas are set as follows:

- 1% from 1st January 2007
- 2% from 1st January 2008
- 3% from 1st January 2009;

The percentage is calculated on the entire volume of fuel consumed the previous year, measured on energy content.

Fulfillment of the obligation is verified by a certificate, one per each 10 Gcal put on the market, a certificate that can be sold or bought either on a market regulated by the Ministry of Agriculture or with bilateral contracts.

2007 Budget Law states that the production of electricity or heat through biofuels by farmers is to be considered part of agricultural activity, and is therefore subject to a reduced fiscal regime. The same law defines the excise applied to biodiesel to be 20% of the excise normally applied to traditional fuels.

With Law 99/2009, all biofuels used to produce electricity are included in a feed-in tariff of 0.18 cent (0.28 under 1 MW), with the possibility to qualify for other National or local support measures.

The targets defined with 2008 Budget Law, which comply with 2003/30/EC Directive should give a new drive to the market.

5. RES-E Grid Integration

There is no grid connection priority for RES producers, although they are granted priority in transmission. If there are more offers of electricity at the same price, the transmission priority will be granted, as long as grid security can be maintained. Electricity generated from fluctuating and non-dispatchable sources, namely wind, solar and geothermal energy, run-of-the-river water and biogas, have the highest priority, and controllable sources (CHP and other renewables) have the second-highest priority. The present transmission regulation, as issued by TERNA, the Italian grid operator, says that if a renewable plant can not be dispatched for grid security reasons even if available, it is remunerated as if it were producing.

For national security reasons, a local capacity limit could be imposed by the grid operator.

Costs associated with grid usage are borne by the electricity producer and in areas where new installations are concentrated, TERNA is required to share connection between different investors. This negotiated procedure sometimes delays investments.

The grid user is entitled to a grid expansion or reinforcement, if this is required to satisfy the demand for grid connection; costs are distributed between grid operator and grid user: The applicant will pay for the expansion and get part of the costs refunded according to grid code (AEEG 281/05, Art. 13).

6. RES Production, Potential and Market Development

RES-E

RES-E production is still below 20% of total production and after a decrease before 2007, it has increased from 16% in 2007 to 19% in 2008, attributable to the good hydraulic year (2008 data are provisional values from Terna's statistical data on electricity in Italy). Total generation amounts to about 59 TWh in 2008 (49.4 TWh in 2007) with large hydropower stations covering about 50% of the production. When large hydro is excluded, the largest share of generation is given by biomass/waste and small hydro, each one with nearly 30% of the total. Geothermal is more or less stable at 23% while wind on-shore has reached in 2007 a share of 17% of the RES-E production, showing the highest average annual growth of all technologies.Installed PV in 2008 reached the capacity of 432 MW and the present growth is expected to lead to some 800 MW installed in December 2009. It is significant, that while the growth trend for geothermal and biomass is slowly decreasing, wind and especially solar are rising sharply after a period of low growth.Considering the installed power and the number of plants in the period, it appears that the growth rate is negligible for hydropower and geothermal. PV shows a different trend: the introduction of the feed-in tariff in 2005 led to the sharp increase in the number of plants and installed power, a trend that is expected to continue.

RES-H

The production of heat from RES in Italy is covered primarily by biomass, with nearly 80% of the total, while solar heat is far behind other EU countries. Nevertheless, in 2008, solar heat had a good growth with a 28% increase to reach 295 MW_{th} of installed capacity (Assolterm 2008).Geothermal heat has a relatively stable position, and solar heat and CHP show a clear increase in market penetration. A study carried out by Assolterm and ESTIF, demonstrates the remarkable growth of solar thermal in the past two years in terms of installed capacity: nearly 100% in the period 2006-2008, with 295 MWth installed in 2008, for a total of over 1 GWth. In spite of the significant growth, the capacity per inhabitant is still very low: only 18 kW_{th} per 1000 inhabitants against a EU average of 38 kW_{th} per 1000 inhabitants. (Assolterm and ESTIF data 2008/2009).

RES-T

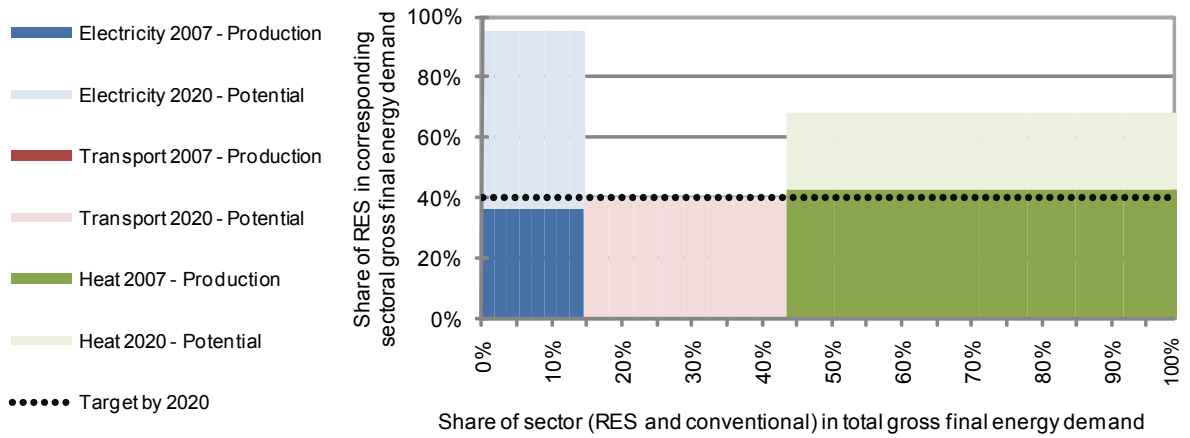
Biofuels still have a rather low penetration, with much scope for growth, although Italy was the third biodiesel producer in Europe after Germany and France in 2008 (European Biodiesel Board 2008) and is fourth for production capacity in 2009 (Assocostieri 2008-2009).

Table 3: Biodiesel production and capacity

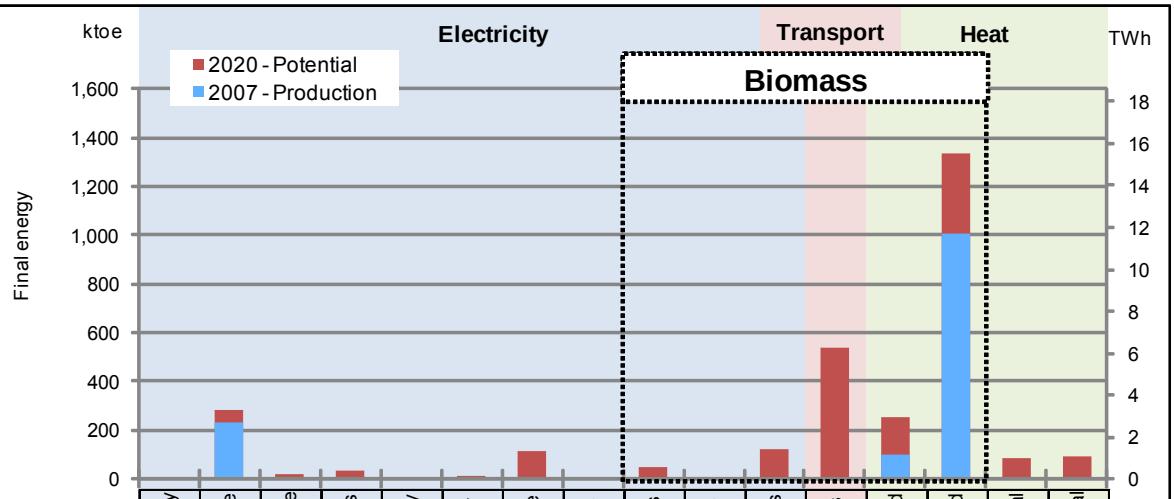
Biodiesel Production (kton)		Production Capacity (kton)
2007	***2008***	***2009***
469.7	668.3	2257.1

Considering the quantity of biodiesel consumed in the domestic market (Ministry of Economic Development, 2009; Assocostieri 2008-2009), it is easy to notice how there has been a clear shift towards the use in transportation rather than heating (Figure 9).

LATVIA - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	36%	0%	43%	29%
Share of total sector consumption in total final energy consumption	15%	29%	56%	100%
Production 2007 [ktoe]	243	2	1,107	1,352
Production 2005 [ktoe]	294	2	1,124	1,420
Production 1997 [ktoe]	254	0	998	1,252
Average growth 2005-2007 [%/a]	-9%	0%	-1%	-2%
Average growth 1997-2007 [%/a]	0%	-	1%	1%
Potential 2020 [ktoe]	636	537	1,769	2,942
Annual growth of RES needed to achieve target	-	-	-	4%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	229	6	0	0	0	5	0	3	0	0	2	103	1,004	0	0
Production 2005 [ktoe]	0	281	5	0	0	0	4	0	3	0	1	3	103	1,021	0	0
Production 1997 [ktoe]	0	253	1	0	0	0	0	0	0	0	0	0	127	871	0	0
Ø annual production growth 2005-2007	-	-10%	5%	-	-	-	6%	-	3%	-	-9%	-18%	0%	-1%	-	-
Ø annual production growth 1997-2007	-	-1%	26%	-	-	-	49%	-	-	-	-	-	-2%	1%	-	-
Total realisable potential by 2020 [ktoe]	1	284	21	31	0	9	112	6	45	2	123	537	256	1,335	85	92

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

A feed-in tariff is the main instrument currently used. However, some Latvian taxes are favorable to RES–E as well as the availability of support from EU structural funds. Until the end of December 2008, a tendering scheme was applied for wind farms with an installed capacity of more than 0.25 MW. However, the tendering scheme has been canceled by the new RES-E regulation adopted in 2009. Frequent policy changes and short duration of guaranteed feed-in tariff result in high investment uncertainty. Moreover, there are changes in permitting and planning procedures.

RES-H&C

Financial incentives (direct grants and soft loans) are the main category of support available in Latvia for the promotion of RES-H.

RES-T

Biofuel market development in Latvia is mainly promoted by a quota obligation. Fixed direct governmental support for each unit of biofuel produced is provided to manufacturers who participate in the quota obligation. Biofuels are also supported by fiscal measures, such as excise duty on biofuel.

2 Details RES-Electricity Support Policy

Feed-in tariff

The feed-in tariff system has been amended in 2009 through regulation No. 198 on Electricity Generation from RES and the Price Regulation [1]. The new feed-in system came into force on 14 March 2009 and provides support for wind, biomass, biogas (without capacity limitations), small hydro (<5 MW) and solar.

Calculation of feed-in tariff is based on a formula (see Table 1). The level of feed-in tariff is calculated as the end user natural gas price multiplied by the exchange rate between the LVL and the Euro, and a certain coefficient depending on the RES-E installed capacity. The feed-in tariffs will be reduced after 10 years of plant operation as presented in table 1. All RES technologies receive support for 20 years.

C – purchase price of RES-E (without VAT);

e – exchange rate of Latvian LVL and Euro on the date of electricity bill;

Tg – end user natural gas price approved by the Regulatory Authority (without VAT);

k – certain coefficient depending on the installed capacity of PP (see Table 2).

Table 1. Support level for RES-E production differentiated according to the technologies

Resource	Technology	**Support level 1:** For the first 10 years	**Support level 2:** For 10 years after the end of support level 1
Wind	Installed capacity < 0.25 MW	*C=147*e*k* 116,85-128,11 €/MWh	*C=147*e*k*0,6* 70.11-76.86 €/MWh
	Other	*C=120*e*k* 67,47-95,38 €/MWh	*C=120*e*k*0,6* 40.48-57.23 €/MWh
Biomass, biogas	Installed capacity of biomass PP < 4 MW Installed capacity of biogas PP > 2 MW	$C = \frac{T_g * k}{9,3} * 4,5$ **Biomass** At a price 130 LVL/thous. Nm3 91.05-116.99 €/MWh At a price 230 LVL/thous. Nm3 137.74-176.99 €/MWh **Biogas** At a price 130 LVL/thous. Nm3 75.48-93.60 €/MWh At a price 230 LVL/thous. Nm3 114.19-141.60 €/MWh	$C = \frac{T_g * k}{9,3} * 3,4$ **Biomass** At a price 130 LVL/thous. Nm3 68.79-88.40 €/MWh At a price 230 LVL/thous. Nm3 104.07-133.73 €/MWh **Biogas** At a price 130 LVL/thous. Nm3 57.03-70.72 €/MWh At a price 230 LVL/thous. Nm3 86.28-106.98 €/MWh
Biomass	Installed capacity > 4 MW	$C = \frac{T_g * k}{9,3} * 3,6$ At a price 130 LVL/thous. Nm3 60.38-72.84 €/MWh	$C = \frac{T_g * k}{9,3} * 3,0$ At a price 130 LVL/thous. Nm3

		At a price 230 LVL/thous. Nm3 91.35-110.19 €/MWh	50.32-60.70 €/MWh At a price 230 LVL/thous. Nm3 76.13-91.83 €/MWh
Biogas	Installed capacity < 2 MW	*C=188*e*k* 133.18-163.84 €/MWh	*C=188*e*k*0,8* 106.55-131.07 €/MWh
Hydro	Installed capacity < 5 MW	*C=159*e*k* 107.83-138.56 €/MWh	*C=159*e*k*0,8* 86.27-110.85 €/MWh
Solar	-	C=427*e 330.10 €/MWh	

Source: Regulation No. 198 on Electricity Generation from RES and the Price Regulation http://www.likumi.lv/doc.php?id=189066

Table 2. Coefficient *k* according to the installed capacity of plants

Installed capacity	k
Not exceeding 0.08 MW	1,240
Greater than 0.08 MW but not exceeding 0,15 MW	1,231
Greater than 0.15 MW but not exceeding 0,20 MW	1,202
Greater than 0.20 MW but not exceeding 0,40 MW	1,131
Greater than 0.40 MW but not exceeding 0,60 MW	1,086
Greater than 0.60 MW but not exceeding 0,80 MW	1,072
Greater than 0.80 MW but not exceeding 1,00 MW	1,055
Greater than 1.00 MW but not exceeding 1,50 MW	1,035
Greater than 1.50 MW but not exceeding 2,00 MW	1,008
Greater than 2.00 MW but not exceeding 2,50 MW	0,992
Greater than 2.50 MW but not exceeding 3,00 MW	0,982
Greater than 3.00 MW but not exceeding 3,50 MW	0,974
Greater than 3.50 MW but not exceeding 10,0 MW	0,965
Greater than 10 MW but not exceeding 20 MW	0,950
Greater than 20 MW but not exceeding 40 MW	0,920
Greater than 40 MW but not exceeding 60 MW	0,890
Greater than 60 MW but not exceeding 80 MW	0,860
Greater than 80 MW but not exceeding 100 MW	0,830
Higher than the 100 MW	0,800

Source: Regulation No. 198 on Electricity Generation from RES and the Price Regulation http://www.likumi.lv/doc.php?id=189066

Latvia has introduced a cap on the total volume of RES-E, which refers to mandatory procurement according to regulation No. 198 [1]. This cap is determined as a percentage ratio of RES-E in the total electricity consumption differentiated according RES technologies until 2010 and over the next 10 years (as presented in Table 3). Electricity producers have a right to sell their electricity at a fixed price until the share of RES-E, set by the government of Latvia, is reached.

Table 3. Share of RES-E in final electricity consumption and RES-E production

RES	2009		2010 and for next 10 years	
	%	MWh	%	MWh
Hydropower plants (>5 MW_e)	36.35	2,300.987	34.31	2,107,401
Hydropower plants (<5 MW_e)	1.88	119,006	1.98	121,616
Wind power plants	4.08	258,267	5.37	329,838
Biogas power plants	6.90	436,776	7,93	487,079
Biomass power plants	3.46	219,021	4,97	305,269
Solar power plant	0.00	0.00	0.01	614
TOTAL	***52.67***	**3,334,057**	***54.57***	**3,351,817**

Source: Regulation No. 198 on Electricity Generation from RES and the Price Regulation http://www.likumi.lv/doc.php?id=189066

Regulation No. 198 set the amount of electricity which will be purchased from each power plant. This annual quantity of electricity is calculated multiplying installed capacity by operation time: hydro power – 5,000 h/yr, wind – 3,500 h/yr, and other (biomass, biogas) – 8,000 h/yr.

The Ministry of Economics is responsible for the monitoring of RES-E production and acquisition.

Tendering system

The tendering system was initiated on 22 August 2007 (Regulation No. 503 on Electricity Generation from RES), but was canceled on 14 March 2009 (Regulation No. 198 on Electricity Generation from RES and the Price Regulation) [1, 2]. Wind plants with an installed capacity of more than 0.25 MW were specified eligible.

Guaranteed capacity payment system in Latvia

According to Regulation No. 198 on Electricity Generation from RES and the Price Regulation, biomass or biogas plants with installed capacity above 1 MW and with an operational time of more than 8,000 hours per year are not subject to the feed-in tariff system described above. Instead, plant operators may claim a guaranteed payment for the installed electrical capacity.

The fee for the installed capacity per month is calculated in such a way: $M = \frac{157750 * P}{12}$

Here: P is the installed brutto capacity (MW) of biomass and biogas plants.

For example, if installed capacity of biomass or biogas plant is 1 MW and operational time is 8.000 hours per year, then guaranteed capacity payment per month will be about 13,15 LVL/kW (18,50 €/kW/month[83]).

Guaranteed fee for installed capacity in plants is paid on the basis of an agreement between the operator of plants and the Transmission System Operator (TSO) for 15 years from the date of entry the agreement was enforced.

83 Exchange rate 1 EUR=0.71095 LVL

According to Regulation No. 221 on Electricity Production and the Price Regulation in Cogeneration (2009), TSO can pay a guaranteed payment for installed capacity of cogeneration plants [3]. A cogeneration plant is eligible for guaranteed fee if the installed capacity of CHP is greater than 20 MW and is based on the following technologies: combined cycle gas turbine, condensing steam turbine, backpressure steam turbine, gas turbine and other CHP technologies.

TSO ceases to pay guaranteed payment for cogeneration plants if it is not operational for more than six months.

Financial support

According to the Law on Electricity Tax, electricity supplied to the end user is taxable [4]. The tax rate for electricity during the period 2007-2009 grew from 0.35 LVL/MWh (0.49 €/MWh) till 0.55 LVL/MWh (0.77 €/MWh) by 0.10 LVL/MWh (0.14 €/MWh) annually and from January 2010 it shall be 0.71 LVL/MWh (0.99 €/MWh). Electricity from RES and effective CHP is exempted from this tax.

According to the Law on Natural Resources Tax, water use in waterworks, including hydropower plants and reservoirs, is exempt from natural resources tax [5].

Latvia's RES investment project can also get support from EU structural funds, Environment Protection Fund (grants up to 30,000 LVL (42,197 €)), Environment Investment fund (soft loans), EEA Financial Mechanism and Norwegian Financial Mechanism and Green Investment Scheme.

The Law on State Aid Control (2002) foresees state aid for RES-E production projects. Support may cover up to 40% of the costs [6].

Available amount of aid from EU Structural Funds in 2007-2013 for wind power development is expected to be 7.03 million LVL (9.89 million €). The minimum level of support per project application will be 500,000 LVL (703,284 €), and the maximum 3,000,000 LVL (4,219,706 €).

The Ministry of Environment has elaborated a Green Investment Scheme which is a long term financing system that transfers revenues from the sale of greenhouse gas emission assigned amount units to environmental and energy efficiency measures with the focus on climate benefits. Some of those measures are promotion of biomass (including CHP plants), biogas and biofuels use.

It is possible for the same project to be supported by more than one support measure. However, in the instance where a project is assisted with EU funds, it is required that bonuses for SMEs were not provided.

The support instruments are revised from time to time but not periodically. The revision depends on the overall situation of the market.

3 Details RES-Heat and Cooling Support Policy

Latvia is promoting the use of RES by a few financial support measures, but there is no direct support for RES-H.

Financial support

Latvia participates in an EU regional aid scheme that supports investment projects, which aims to substantially increase the RES-E and RES-H production. The scheme is part of Latvia's Operational Programme and is based on Regulations No.165 on Development of CHP Utilizing RES (approved on 17 February 2009) [7]. Projects are financed through the EU structural funds in 2007-2013. The aid is provided in the form of direct grants. Resources from the national budget are not foreseen. In all cases the beneficiary will provide a contribution of at least 25% of the amount of the total eligible cost. The minimum allowed financing amount for one project is 100,000 LVL (140,657 €) and the maximum amount is 4 million LVL (5.6 million €) with a foreseen number of beneficiaries between 11 and 50. The total budget of the scheme is 17,345,202 LVL (24.4 million €). According to this scheme, investments in construction of new CHP utilizing RES and investments in reconstruction of existing boiler houses into CHP utilizing RES can be supported. In general, utilization of biomass and biogas will be supported. The Ministry of Economics and State Agency of Construction, Energy and Housing ensures the implementation of this scheme.

Every year the Latvian Environment Protection Fund Administration announces project tenders for the funding. The main goal of the Fund is to promote sustainable economic development integrating the requirements of environmental protection in all sectors of the economy. In 2008 the fund supported projects, under which research studies in the field of RES policy development in Latvia were performed. Proposals for the project tender were submitted from 28 January 2008 till 8 February 2008.

More information about the measure can be found on websites of State Agency of Construction, Energy & Housing (http://www.bema.gov.lv) and Latvian Environment Protection Fund Administration (http://www.lvaf.gov.lv).

Building obligations

There are no building obligations that require the use of RES.

Support for the use of district heating and cooling using RES

4 Details RES-Transport Support Policy

According to the Law on Biofuel (2005), biofuels in total fuel consumption should sum up to 5.75% by 2010 and 10% by 2016 [9].

In order to promote the biofuel quota obligation, direct government support and fiscal measures (tax reductions and exemption from tax) are used.

The quota system will be in place until 31 December 2010 and fiscal measures are not terminated before that. The conditions, which applicants have to satisfy in order to get support for biofuel production, are determined in the Rules No. 280 on Financially Eligible Quotas for Biofuels [10]. Beneficiaries of this support are producers of biofuel from rapeseed grains, rapeseed oil and grains.

The financially eligible quotas of biofuels in 2008-2010 are presented in Table 4.

Table 4. Financially eligible quotas of biofuels in 2008-2010

Biofuels	2008	2009	2010
Bioethanol, thousand t	22	27	32
Biodiesel, thousand t	28	35	43
Share of biofuels,%	4.25	5.00	5.75
Total biofuels, thousand t	50	62	75

Source: Rules No. 280 on Financially Eligible Quotas for Biofuels

Direct governmental support is provided in the form of subsidy for each unit of biofuel produced under quota obligation. There is a differentiation on the support according to fuel produced. Different subsidies for biodiesel and bioethanol production are set. Based on information provided by biofuel manufacturers, the Ministry of Economics calculates the amount of direct support for biofuels. Compensation for bioethanol producer of 2008 second half was 0.38 LVL per liter (0.53 € per liter). During this same period, compensation for the biodiesel producer was 0.41 LVL per liter (0.58 € per liter).

According to the Law on Excise Tax, reduced excise tax is applied for biodiesel produced from rapeseed oil. Reduced excise tax is in a range from 164 LVL (229 €) to 223 LVL (314 €) depending on the quantity of additives. If biodiesel is fully derived from rapeseed oil, the excise tax is at a rate of 0 LVL [11].

5 RES-E Grid Integration

RES projects do not have priority in grid connection. The RES project is entitled to non-discriminating treatment [12]. The cost of grid expansion is determined in pursuance of the general provisions of Law on Energy. According to the Ministry of Economics, the grid operator has to bear the costs of a grid expansion as long as this expansion is part of his general obligation. The cost of a grid expansion is borne by the RES project if the expansion is necessary to connect and operate its system.

Each electricity producer participating in the market is required to have a contract with the relevant system operator regarding the supply of the balancing electricity.

6 Production, Potential and Market Development

RES-E

Overall, large-scale hydropower is the dominant source of electricity generation in Latvia, generating 2,665 GWh in 2007. Electricity production at small-scale hydropower amounted to 68 GWh in 2007. RES-E production from wind increased slightly to 53 GWh in 2007. Electricity production from solid biomass amounted to 5 GWh and from biogas to 38 GWh in 2007.

The contribution of RES to the overall electricity consumption in Latvia was 46.7% in 1997 and 36.4% in 2007. The RES-E share reduction has been influenced by hydro power fluctuation.

RES-H&C

In 2007 42.6% of the total heat demand was covered based on renewable sources with a total RES-H&C generation of 1,107 ktoe.

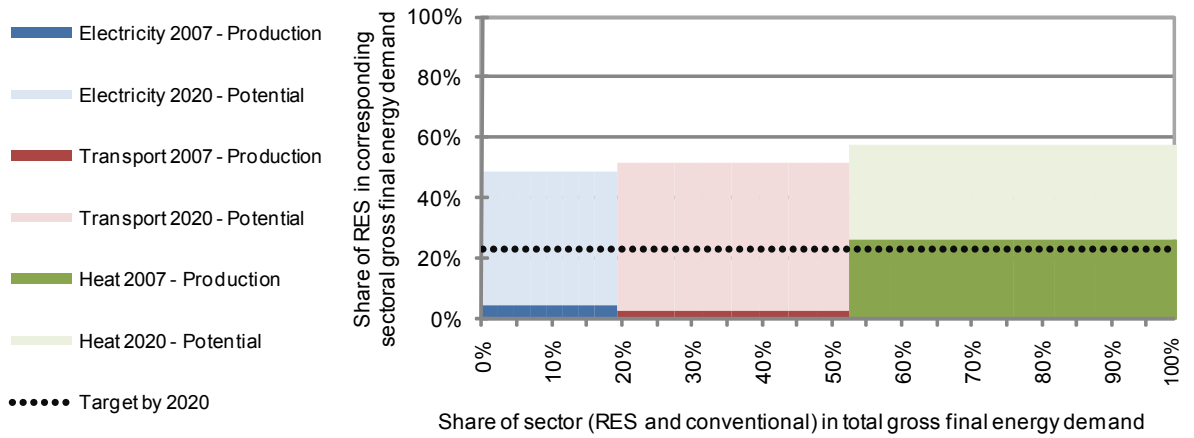
Biomass is still mostly fired in small boilers of low efficiency in private households. But it is also used in district heating, which is widely used in Latvia, as around 70% of its households are connected to a heat grid.

In total, biomass covers over 50% of private household energy consumption due to its high share in heat production.

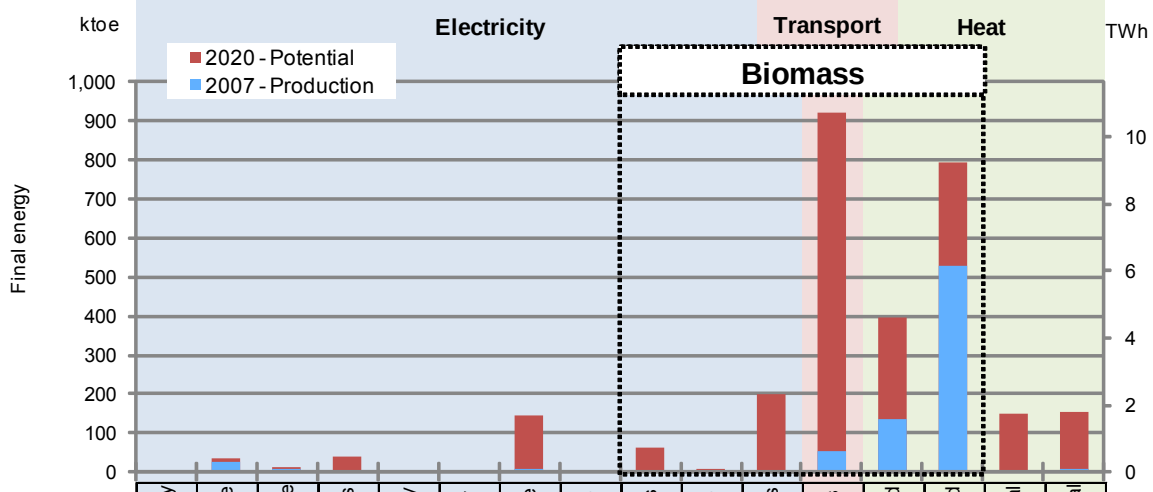
RES-T

In 2007, biodiesel consumption in Latvia was only 2 ktoe. However, during 2007-2008, biodiesel production in Latvia tripled. The sharp increase in biodiesel production caused a stipulation by the state subsidy, that the producer receives directly for each litre of biodiesel produced.

LITHUANIA - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	5%	3%	26%	14%
Share of total sector consumption in total final energy consumption	19%	33%	48%	100%
Production 2007 [ktoe]	50	52	674	775
Production 2005 [ktoe]	40	3	695	737
Production 1997 [ktoe]	25	0	515	540
Average growth 2005-2007 [%/a]	12%	316%	-2%	3%
Average growth 1997-2007 [%/a]	7%	-	3%	4%
Potential 2020 [ktoe]	507	922	1,487	2,917
Annual growth of RES needed to achieve target	-	-	-	4%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	28	8	0	0	0	9	0	0	0	4	53	135	530	0	9
Production 2005 [ktoe]	0	33	6	0	0	0	0	0	0	0	0	4	115	571	0	9
Production 1997 [ktoe]	0	24	2	0	0	0	0	0	0	0	0	0	17	498	0	0
Ø annual production growth 2005-2007	-	-8%	20%	-	-	-	628%	-	12%	0%	300%	264%	8%	-4%	-	0%
Ø annual production growth 1997-2007	-	2%	18%	-	-	-	-	-	-	-	-	-	23%	1%	-	-
Total realisable potential by 2020 [ktoe]	1	34	11	38	0	3	144	4	64	9	198	922	394	794	148	152

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The key support instrument for RES-E production is a feed-in tariff with purchase obligation at the national level. This instrument was applied in 2002. In 2008 and 2009 the level of feed-in tariffs was increased. However, according to the RES-E producers, the main barriers for an adequate development are a long lead-time for the authorisation procedure, a long EIA procedure and a long lasting change of the legal status of land.

In March 2009, the Committee on Environmental Protection of the Seimas of the Republic of Lithuania established the working group for the preparation of a new Law on RES. It is foreseen to prepare a draft of this Law on RES by December 2009. The adoption of this Law on RES could have direct impacts in the RES-E, RES-H and RES-T deployment in the future.

RES-H&C

There are a few financial measures which could be considered as support instruments for RES-H production: exemption from pollution taxes, EU structural funds and the Lithuanian Environmental Investment Fund (LEIF). LEIF provides support for RES-H project in the form of interest subsidies and soft loans. However, since the second quarter of 2009 the acceptance of investment projects has been suspended.

RES-T

There are a few financial measures for RES-T production: excise tax relief, exemption from pollution taxes and compensation for raw materials sold for production of biofuels (for rapeseed grains – 160 LTL/tonne (46 EUR/tonne), for cereal grains – 114 LTL/tonne (33 EUR/tonne)).

2 Details RES-Electricity Support Policy

Feed-in tariff

Since 1st April 2002, Lithuania has a feed-in tariff with purchase obligation.

The Law on Electricity, adopted on July 2004 by decision No. IX-2307, dictates that the National Control Commission for Prices and Energy must ensure that network connection conditions and tariffs for new electricity producers are objective, transparent and non-discriminatory, while taking into account all costs and benefits derived from RES. The wording of this Law and all other related acts can be found, mostly in Lithuanian language, in the legal text database (http://www3.lrs.lt/dokpaieska/forma_e.htm) [1].

The feed-in tariff system is managed by the National Control Commission for Prices and Energy (www.regula.lt). In accordance with the Law on Electricity, the National Control Commission for Prices and Energy approved the average purchase prices of electricity produced from RES in 2002 by Decree No. 7 of the"Prices for Public Service Obligations in the Power Sector" [2]. On 21 February 2008, the National Control Commission for Prices and Energy approved an amendment on the purchase price of electricity produced from wind energy (Decree No. O3-27 on partial amendment of decree on Prices for Public Service Obligations in Power Sector) and on 2 October 2008, an amendment on the purchase price of electricity produced from biomass and hydro energy (Decree No. O3-142 on partial amendment of decree on Prices for Public Service Obligations in Power Sector) [3, 4]. On 4th September 2009, the National Control Commission for Prices and Energy approved the purchase price of electricity produced at PV installations (Decree No. O3-117 on partial amendment of decree on Prices for Public Service Obligations in Power Sector) [5].

These new purchase prices have been introduced from 1st January 2009, except for PV (as presented in Table 1). Purchase price of electricity produced from PV installations will be introduced from 1st January 2010. New commissioned plants benefit from the feed-in tariff for 10 years.

Table 1: Feed-in tariff level in Lithuania since 1st January 2009

RES technology	Support level		Duration
	LTL/MWh	€/MWh	years
Hydro	260	75,3	10
Wind	300	86,9	
Biomass	300	86,9	
PV (up to 100 kW)*	1630	472,1	
PV (from 100 kW to 1 MW)*	1560	451,8	
PV (from 1 MW)*	1510	437,3	
* Feed-in tariff for electricity produced at PV installations will be introduced from 1st January 2010			

The level of feed-in tariffs is not periodically revised. Since 2002, feed-in tariffs were revised in 2007 and 2009 taking into account the inflation rate and other factors.

According to the order of approval of legal acts necessary for implementation of the Law on Electricity, the Ministry of Energy is responsible for the monitoring of RES-E production and purchase.

Energy suppliers are obligated to purchase RES-E from the involved producers at these guaranteed prices (Order No. 380 on approval of legal acts necessary for implementation of the Law on Electricity and its amendments) [6].

Lithuania has introduced an annual maximum quota of RES-E to be purchased at the guaranteed price for period 2004-2010, differentiated according to RES technologies (Order No. 1474 on approval of legal acts necessary for implementation of the Law on Electricity and its amendments) [7]. The maximum quota of RES-E to be purchased withfeed-in tariffs for 2009 and 2010, and the related installed capacities of RES are presented in Table 2.

Table 2. Maximum quota of RES-E to be purchased with feed-in tariffs for 2009 and 2010

RES technology	2009		2010	
	Installed capacity, MW	A maximum quota, GWh	Installed capacity, MW	A maximum quota, GWh
Wind	173	259,6	203,5	320,4
Hydro	30	118	31	122
Biomass	30,8	103,1	32,8	127,1
Solar and geothermal	0,6	1,4	1,6	3,2
Total	234,4	482,1	268,4	572,7

If one year's production of RES-E exceeds the annual maximum quota, this surplus is not entitled to the guaranteed price, but can be sold on the free market or by auction. However, market participants are requested to annually submit a forecast on the amount of electricity they expect to generate in the following year (every year by 15th July) to the Ministry of Energy. These forecasts will be the basis on which the Ministry calculates the amounts of electricity eligible in the following year. The Ministry shall publish the amounts by 1st September of the current year if the amounts of electricity forecasted for the following year are expected to exceed the amounts stipulated for the current year.

Existing national regulations require the usage of certified equipment.

Financial Support for Investment

The Lithuanian Environmental Investment Fund (LEIF) supports investment projects in the form of interest subsidies and soft loans. The main goal of this fund is to support public and private entities in realization of environmental projects. The amount of subsidy to one beneficiary may not exceed 690.000 Litas (199.838 EUR) over three years or 70% of the total amount of the environmental investment project. 60% of the subsidy is paid to the beneficiary after the plant has been commissioned, and all required documents have been submitted. The remaining 40% is paid to the beneficiary after specific environmental targets have been reached.

There are biannual updates about the situation of this financial support fund via the media or the following website: http://www.laaif.lt. However, acceptance of investment projects is currently suspended because of the amendment of the Law on financial indicators of the state budget and municipal budgets for 2009 [8]. This amendment

states that 7 million Litas (2 million EUR) from LEIF will be used for state budget purposes. Due to this reason, LEIF between the second and the fourth quarters of 2009 will not accept new applications for investment projects.

Ongoing Significant Policy Changes at National Level

In March 2009, the Committee on Environmental Protection of the Seimas of the Republic of Lithuania established the working group for the preparation of the new Law on RES. Based on experiences from other EU countries, this working group will prepare a draft of the Law on RES and provide proposals for amendments of various related legal acts. It is estimated that a draft of the Law on RES will be completed by December 2009. Adoption of the Law on RES could have direct impacts on RES-E, RES-H and RES-T deployment in the future.

3 Details RES-Heating and Cooling Support Policy

Lithuania is promoting the use of RES-H by only a few financial measures and there is no direct support for RES-H.

Heat Law

The Law on Heat adopted on May 2003 by decision No. IX-1565, regulates state control of the heat sector, activities of heat units, their relations with heat consumers and responsibilities [9]. One of the main purposes of this Law is to promote the use of domestic resources, biofuels and RES for heat production. Article 4 of this Law promotes combined heat and power (CHP) production, heat production from biofuels as well as RES within this sector. This article states that CHP production is a public service obligation and the government, or its authorized institutions, determines the amount and method of electricity purchases from CHP producers. Moreover, the State (through its municipalities) encourages purchases of heat produced from biomass, waste, geothermal energy and other RES.

The “Order on Heat Purchase from Independent Producer” was approved by decision No. 982 in July 2003 [10]. According to this order, in the instances when independent heat producers are offering the same heat price, the heat supplier should purchase heat in the following order:

1. from CHP plants using RES
2. heat produced from renewableand geothermal energy sources
3. industrial waste heat
4. from efficient CHP plants
5. from fossil fuel biomass boilers

Financial support

According to the amendment of the Law on Pollution Taxes, adopted on March 2005 by decision No. X-152, natural and legal persons who submit evidence on biofuels consumption are exempt from taxes on pollution from stationary sources [11].

It is possible to get support for RES-H investment projects in the form of interest subsidies and soft loans from the LEIF. This fund does not finance projects that are related to wood use in heat production within towns and regions where is possible to use natural gas. However, as described in the RES-E section, the acceptance of investment projects is currently suspended.

Investment support from EU structural funds, related to RES deployment, is dedicated only to heat production projects using biomass during 2007-2013. Heat supply companies can get support from the Economy Development Action and Cohesion Promotion Action Program. The support is provided according to the measure "Utilization of RES for energy production". Under this measure the following activities are supported:

- modernization of boiler-houses that supply heat to district heating systems by changing the used fossil fuel type to biomass
- modernization of CHP plants that supply heat to district heating systems by changing the used fossil fuel type to biomass
- building of new boiler houses using RES
- building of new CHP using RES.

It is planned to support 35 projects with a projected capacity of up to 100 MW. It is planned to provide total support of 127 million Litas (36,78 million EUR).

Building obligations

There are no building obligations that require the use of RES.

4 Details RES-Transport Support Policy

The main target is 10% for energy from RES-T by 2020 (5,75% by 2010). There is no specific yearly target on RES-T technologies.

Financial support

The Law on Excise Taxes provides an excise tax relief for energy products from material of biological origin, i.e. rate of excise tax is reduced in proportion to the percentage of biomass in a tonne of the concerned product [12]. The relief is applicable to bioethanol, biodiesel, bio-ETBE and pre-vegetable oil.

The Law on Pollution Tax provides a pollution tax exemption for vehicles which use biofuel. This is based on a set of defined standards and on evidence documentation of biofuel consumption.

According to the Rules on funding for biofuel production development within the RES-T sector, adopted on 9 September 2009 by the Minister of Agriculture, compensation is granted for raw materials sold for production of biofuels: for rapeseed grains – 160 LTL/tonne (46 EUR/tonne), for cereal grains – 114 LTL/tonne (33 EUR/tonne) [13].However, for 2009 there is a cap for compensation on the total amount of grains: 66 816 tonnes of rapeseed grains and 46 569 tonnes of cereal grains. Beneficiaries of this compensation are producers of rapeseed oil, used for production of rapeseed methyl ester, of rapeseed methyl (ethyl) ester and of dehydrated ethanol.

There is no specific support for electric vehicles that use renewable electricity.

5 RES-E Grid Integration

Grid access, balancing responsibility and associated costs for RES-E projects

RES-E projects do not have priority in grid connection. According to the provisions of Law on Electricity, plants generating RES-E should be connected to the grid in compliance with the principle of non-discrimination.

The charges on connection of RES-E plants are reduced by 40%. This charge also includes the grid expansion (if necessary). The grid operators shall guarantee the preferential transmission of RES-E. However, they are not obligated to expand their grids by statutory law. When expanding their grids, the grid operators are obliged to comply with the general provisions of Law on Electricity. If the grid capacity is insufficient, the grid operators shall guarantee the preferential transmission of RES-E.

According to the Law on Electricity, TSO must forecast long-term capacity balance and provide information to market participants about the forecasted shortage or limitations of the generation and/or transmission capacity.

6 RES Production, Potential and Market Development

RES-E

Current RES-E production is fully dominated by hydropower, generating 420 GWh in 2007. The growth in RES-E production from wind is remarkable: from 2 GWh in 2005, its contribution rose to 106 GWh in 2007. Electricity production from solid biomass increased to 48 GWh and from biogas to 5 GWh in 2007. The contribution of RES to the overall electricity consumption in Lithuania was 2.7% in 1997 and 4.8% in 2007.

Currently the main barriers to RES-E in Lithuania are a long lead-time for the authorisation procedure, long EIA procedures and a long lasting change of the legal status of land.

RES-H&C

Renewable heat satisfied 26.1% of the total Lithuanian heat demand in 2007.

Biomass has been traditionally used for heat production in private households were 529 ktoe worth of biomass were burnt in boilers of mostly low efficiency during 2007. A growing 135 ktoe worth of biomass were used, during the same year, in district heating, a technology reaching 75% of all Lithuanian residential buildings. A geothermal heat plant supplies the district heating grid of the city of Klaipeda. It produced 8.7 ktoe worth of heat in 2007.

RES-T

Biofuel penetration has almost doubled between 2006 and 2007. Such a significant increase in biofuel penetration has been enabled by existing support measures. In 2007, biodiesel consumption was 42 ktoe and bioethanol consumption – 11 ktoe. Roughly 80%

of biofuel use in Lithuania is biodiesel, the rest being bioethanol. In 2007, Lithuania exported 5.1 ktoe of biodiesel and 0.2 ktoe of bioethanol.

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10. Order on Heat Purchase from Independent Producer // http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=215911&p_query=&p_tr2=
11. Law on pollution taxes // http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=253492&p_query=&p_tr2=
12. Law on Excise Taxes // http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=226951&p_query=&p_tr2=

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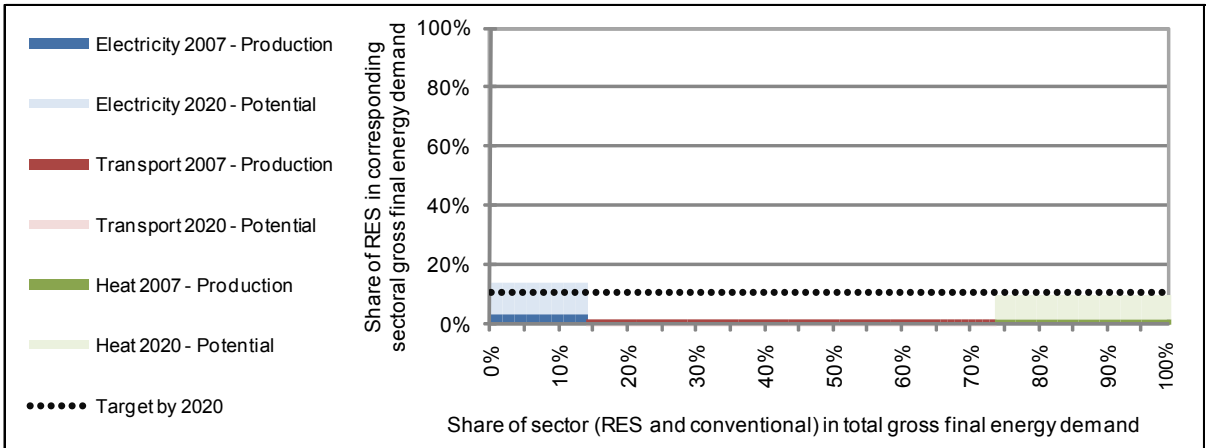
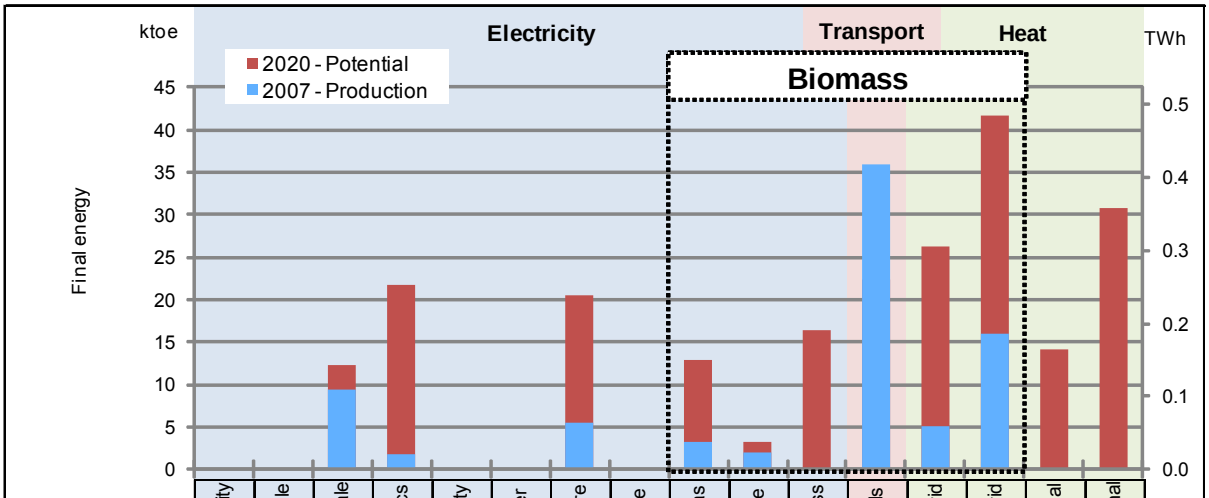
LUXEMBOURG - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	4%	1%	2%	2%
Share of total sector consumption in total final energy consumption	14%	60%	26%	100%
Production 2007 [ktoe]	22	36	21	79
Production 2005 [ktoe]	18	1	18	37
Production 1997 [ktoe]	9	0	15	24
Average growth 2005-2007 [%/a]	10%	500%	8%	46%
Average growth 1997-2007 [%/a]	9%	-	3%	12%
Potential 2020 [ktoe]	87	22	113	222
Annual growth of RES needed to achieve target	-	-	-	15%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	0	9	2	0	0	6	0	3	2	0	36	5	16	0	0
Production 2005 [ktoe]	0	0	8	2	0	0	5	0	2	2	0	1	3	15	0	0
Production 1997 [ktoe]	0	0	8	0	0	0	0	0	0	1	0	0	0	15	0	0
Ø annual production growth 2005-2007	-	-	10%	8%	-	-	10%	-	17%	7%	-	500%	29%	3%	-	-
Ø annual production growth 1997-2007	-	-	2%	-	-	-	36%	-	-	4%	-	-	-	1%	-	-
Total realisable potential by 2020 [ktoe]	0	0	12	22	0	0	21	0	13	3	16	22	26	42	14	31

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The main support instrument for RES-E in Luxembourg is a feed-in tariff which was introduced in 1993 and amended in February 2008. The new tariffs are valid for installations starting after the beginning of 2008. The tariffs are declining for new installations, according to a fixed calculation method. Beneficent technologies are wind, solar, hydro, sewage and biogas, solid biomass and waste wood. In addition, solar PV in buildings is supported through subsidies. On a regional level, there is some minor support for renewables in general, including RES-E, but these schemes do not contribute substantially to the deployment of RES-E.

RES-H&C

The key support instruments for RES-H are investment incentives for the use of renewables in buildings. In the past, this instrument changed with regard to who is eligible for support. Thus, the full potential for RES-H could not be deployed.

RES-T

The key support instruments for RES-T are a biofuels quota and a tax deduction. The quota was introduced in 2007 because the tax deduction did not lead to the amount of biofuels used that was expected.

2 Details RES-Electricity Support Policy

Feed-in Tariff[84]

The most significant support instrument for RES-E is a feed-in tariff based on the "Règlement grand-ducal du 8 février 2008 relatif à la production d'électricité base sur les sources d'énergie renouvelables" which amends the 1993 framework law for the feed-in tariff. The Ministry of Economy and Foreign Trade is in charge of implementing and executing the law.

The currently implemented feed-in tariff scheme can be characterized as follows:

- There is no end date set for this support instrument; it will be in place until further notice.
- The support is guaranteed for a fixed timeframe: Installations using wind, solar, hydro and biomass as energy sources receive the fixed feed-in tariff for 15 years; renewed or extended biogas stations receive it for 20 years. In both cases, the tariff stays constant over the whole support period.
- The feed-in tariff can be combined with a subsidy for PV installations (described as next support instrument).
- The payment of the feed-in tariff is not subject to certain, certified equipment.
- The tariff depends on the type of technology and the size of the plant (see table 1). The tariffs for new installations for all technologies will decline annually by a certain percentage. The calculation of the tariff is included in the current law (RGD 08.02.2008) and differs also between technologies.

Table 1: Feed-in tariffs for RES-E in 2009 and 2010

Technology		2009	2010
Wind		82.49	82,27
solar	≤ 30 kW	407.4	394.8
	> 30 kW; ≤ 1 MW	358.9	347.8
hydro	≤ 1 MW	104.74	104.48
	> 1 MW; ≤ 6 MW	84.79	84.58
biogas	≤ 150 kW	149.63	149.25
	> 150 kW; ≤ 300 kW	139.7	139.3
	> 300 kW; ≤ 500 kW	129.68	129.35
	> 500 kW; ≤ 2500 kW	119.7	119.4
Sewage gas		64.84	64.68
Solid biomass	≤ 1 MW	144.64	144.28
	> 1 MW; ≤ 5 MW	124.69	124.38
Waste wood	≤ 1 MW	129.68	129.35
	> 1 MW; ≤ 5 MW	109.73	109.45

84 More information about the feed-in tariff can be obtained from the Ministry's website (http://www.environnement.public.lu/energies_renouvelables/) and directly at the "Administration de l'environnement", Service des Economies d'Energie, telephone +352 - 26 84 78-400.

Subsidies

The second support instrument for RES-E in Luxembourg are subsidies, defined in the "Règlement grand-ducal du 20 avril 2009 instituant un régime d'aides pour la promotion de l'utilisation rationelle de l'énergie et la mise en valeur des energies renouvelables". The focus of this support is measures regarding energy efficiency and the use of renewable energies in buildings. Primarily, renewable energies used for heating purposes are addressed; PV is the only eligible RES-E technology. The maximum size of the roof-mounted or façade-integrated PV installation is 30 kW_{peak}.

It is possible to combine these subsidies with the above-mentioned feed-in tariff. The payment of the subsidies is not linked to the use of certified equipment or installers.

Beneficiaries of this support instrument are private persons, non-profit enterprises and private and public building promoters, as long as the premises do not belong to the state. Only projects on the territory of Luxembourg are eligible. The scheme is limited to a maximum amount and / or maximum supported size per project. Up to 30% of the project's cost are subsidised with a maximum of 1650 €/kW_{peak}. There is no cap indicated in the RGD, neither annually nor in total. Further detailed information about the subsidy is given in the next section on RES-H.

3 Details RES-Heating and Cooling Support Policy

Investment incentives

The most important support instrument for RES-H in Luxembourg is the provision of investment incentives, defined in the "Règlement grand-ducal du 20 avril 2009 instituant un régime d'aides pour la promotion de l'utilisation rationelle de l'énergie et la mise en valeur des energies renouvelables". The focus of this support is measures regarding energy efficiency and the use of renewable energies in buildings, mainly for heating purposes.

The Ministry of Environment and the Ministry of Finance are responsible for the execution of this instrument. Applications are to be addressed at the "Admisitration de l'environnement".

Further information about the subsidies can be found at the ministry of environment's website: http://www.environnement.public.lu/energies_renouvelables/index.html

Here, the legal document can also be found. In addition, the forms for requesting the subsidies are published: http://www.environnement.public.lu/guichet_virtuel/energie/formulaires_RGD_2008/index.html Applications can be handed in continuously.

No periodical revision is foreseen, and the amount that is to be subsidized is fixed in the current RGD. The grants are for investments that are invoiced between January 1, 2008 and December 31, 2012. It is possible to combine these grants with the above-mentioned feed-in tariff.

The grant is paid irrespectively of certified equipment or installers. However, the installed technology has to meet certain technical requirements, specified in Annex II of RGD 20.04.2009.

Beneficiaries of this support instrument are private persons, non-profit enterprises and private and public building promoters, as long as they do not belong to the state. Only projects on the territory of Luxembourg are eligible.

The scheme is limited to a maximum amount and / or maximum supported size per project, depending on the technology used (see table 2).

Table 2: Investment incentives for RES-H.

Technology	Specification	Max. % of total costs	Max. amount in €
Solar thermal	DHW	50	3000 (3000 / 15000)*
	DHW and heating	50	5000 (5000 / 15000)*
Heat pump	Ground source	40	6000 (4000 / 20000)*
	Air	40	3000 (2000 / 10000)*
Biomass	Central heating; pellets or wood chips	30	4000 (4000 / 20000)*
	Furnace; pellets	30	2500
	Central heating; log wood	25	2500 (2000 / 10000)*

* if used in multifamily houses: number in front of the slash: amount to be multiplied by the number of apartments; number after the slash: maximum amount per house

There is no cap indicated in the RGD, neither annually nor in total.

Subsidies for CHP

The subsidy support scheme for RES-E and RES-H encourages the use of micro-CHP, to the extent that micro-CHP with a combustion or Stirling engine using renewable sources can claim a subsidy of 25% of investment costs but no more than 3000€. This applies to CHP in the range of 1 – 6 kW.

Heating grids connecting at least two residential buildings can be supported with subsidies adding totaling 30% of the investment costs with a maximum of 7500€.

The connection to a heating grid can be supported with a subsidy of 50 €/kW for single family homes and 15 €/kW for multi family homes. The heat supplied to the grid has to be at least 75% from renewable sources.

The maximum eligible thermal capacity is:

- for existing buildings: 20 kW for single family homes, 12 kW for one apartment in a multi family home
- for new buildings: 15 kW for single family homes, 8 kW for one apartment in a multi family home

Premium for Heat from CHP (part of RES-E feed-in tariff)

Within the regulations for the feed-in tariff, an additional premium for the use of heat (prime de chaleur) is introduced. This premium is paid for each MWh_{th} of commercialised heat which originates from cogeneration using pure biogas or solid biomass. This is valid for both new installations and extended ones. In order to be eligible for this premium,

certain conditions (specified in Article 10.5 and Article 12.4 of RGD 08.02.2008) have to be fulfilled. The premium amounts to 30 €/MWh_{th} (commercialized heat).

There are no special support schemes for RES-H&C in industrial applications.

4 Details RES-Transport Support Policy

Since the beginning of 2007, a quota for biofuels is set which has to be fulfilled by those operators who provide transport fuels for consumption. The quota is set in the budget law, which is the responsibility of the entire government. The respective budgetary law can be found here: http://www.legilux.public.lu/leg/a/archives/2008/0200/a200.pdf

The annually renewed law can be found via the search function of http://www.legilux.public.lu/

In addition to the quota, biofuels can benefit from a tax deduction which can be obtained regardless of the fulfilment of the quota. This tax deduction only applies when the share of biofuels adds up to at least 2.93% vol in petrol and 2.17% vol. in diesel. The deduction may not exceed 23€/1000 litres for unleaded petrol and 10€/1000 litres for diesel.

The budget law is revised annually; in the last three years, the quota has not changed.

Since 2007, the quota is set at 2%. In case the quota is not fulfilled, a penalty called “pollution tax” has to be paid. The penalty amounts to 1200 €/1000 litres that have not fulfilled the quota.

There is no differentiation according to fuel types or technologies. There is no specific support for biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material. There is no specific support for electric vehicles using renewable electricity.

5 RES-E Grid Integration

RES-E projects do not have priority in grid connection. The access to the grid is intended to be objective, transparent and non-discriminatory towards all types of electricity production. Generally, there is no grid priority for RES-E. However, in case of a discrepancy between supply and demand, the transmission grid operator is required to preferentially use RES-E, electricity from waste and CHP. At the moment, Luxembourg has a deep connection charging: costs for the grid expansion are carried by the producer of electricity, who requests connection to the grid. Law 01.08.2007 on the organisation of the electricity market includes the possibility for further regulation to be introduced on the allocation of grid expansion costs. So far, however, no further regulation is in place.

According to the same law, all producers, including RES-E, when connected to the grid for the first time or after a change in the installation, are required to indicate their foreseen annual production. However, no payment for balancing costs is foreseen.

6 RES Production, Potential and Market Development

RES-E

The share of RES-E in the total electricity demand amounted to about 3.6% in 2007 compared to 2.1% in 1997.

The largest amount of RES-E is produced using hydropower. The highest annual growth rate, 36%, can be observed in the use of onshore wind: from 3 GWh in 1997 to 64 GWh in 2007. Electricity produced from biogas did not exist in 1997, but accounted for 37 GWh in 2007. Although support is high, progress of PV is limited so far.

RES-H&C

RES-H in Luxembourg originates mainly from biomass (186 TJ in 2006) and to a very small extent from solar thermal (8 TJ in 2007). The support for RES-H changed several times in the past. In some years, only households were supported. Currently non-profit companies and private and public building promotors can also apply. This might have caused uncertainty and an unstable investment climate in the past. If the support scheme stabilises, the deployment of RES-H might grow.

RES-T

Biofuels deployed in Luxembourg are mainly biodiesel (35 ktoe in 2007) and, very in very small quanitites, bioethanol, with 1 ktoe in 2007. The use of biofuels did not start before 2006. In Luxembourg, biofuels encounter quite strong resentment from the general public and from environmental organisations. However, in summer 2007, the government signed a contract to support a biofules factory in Luxembourg which is intended to start production in 2009.

Resources

Website of the ministry of the environment:
http://www.environnement.public.lu/energies_renouvelables/index.html

Website of the Energy Agency of Luxembourg:
http://www.energieagence.lu/fr

Rapport en execution de l'article 4, paragraphe 1, de la directive 2003/30/CE visant à promouvoir l'utilisation de biocarburants ou autres carburants renouvelables dans les transports:
http://ec.europa.eu/energy/renewables/biofuels/ms_reports_dir_2003_30_en.htm

Rapport d'activité 2006 de Ministre de l'économie et du commerce extérieur du grand-duché de Luxembourg (2007)
http://www.eco.public.lu/documentation/rapports/rapport_ministere/rapport2006.pdf

Website of the Ministry for economy and foreign trade:
http://www.eco.public.lu/index.html

Règlement grand-ducal du 20 avril 2009 instituant un régime d'aides pour la promotion de l'utilisation rationelle de l'énergie et la mise en valeur des energies renouvelables: http://www.legilux.public.lu/leg/a/archives/2009/0083/a083.pdf

Règlement grand-ducal du 8 février 2008 relatif à la production d'électricité base sur les sources d'énergie renouvelables: http://www.eco.public.lu/documentation/legislation/reglements/2008/02/energies.pdf

Loi du 01.08.2007: Organisation du marché de l'électricité http://www.legilux.public.lu/leg/a/archives/2007/0152/a152.pdf#page=2

STATEC (2008) Annuaire statistique 2008: http://www.statistiques.public.lu/fr/publications/horizontales/annuaireStatLux/C.pdf

IEA Energy statistics Luxembourg: http://iea.org/stats/countryresults.asp?COUNTRY_CODE=LU&Submit=Submit

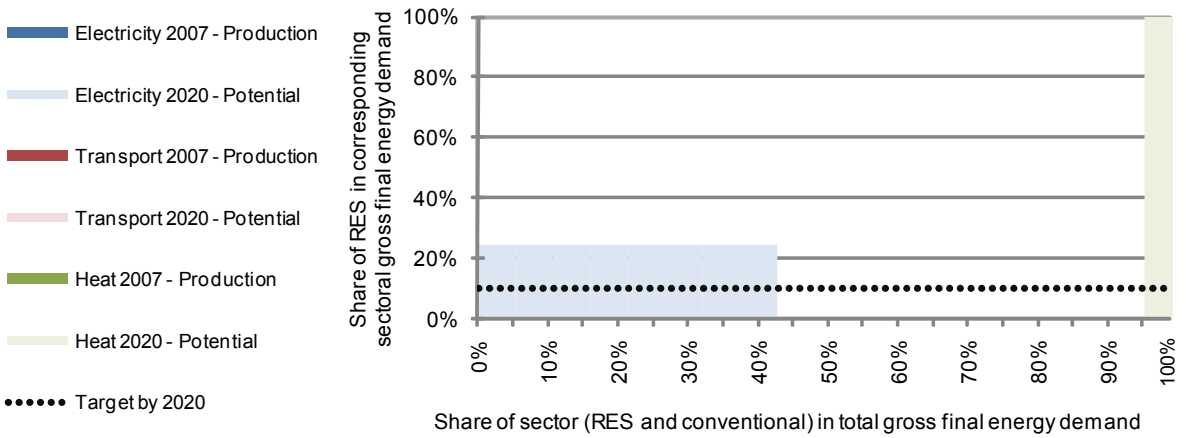
Ministry of Economy and Foreign Trade: Le bilan énergétique du Luxembourg en 2007 et 2006: http://www.eco.public.lu/documentation/rapports/Statistiques_energie_2007.pdf

Loi de 19.12.2008, Budget de l'Etat 2009: http://www.legilux.public.lu/leg/a/archives/2008/0200/a200.pdf

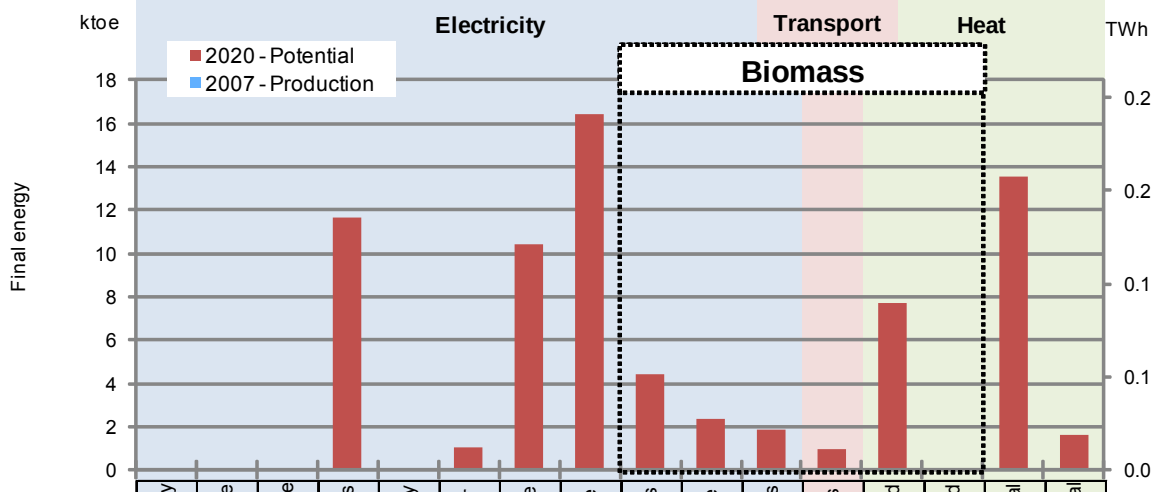
Loi de 23.12.2005, Budget de l'Etat 2006: http://www.legilux.public.lu/leg/a/archives/2005/0217/a217.pdf

Loi de 22.12.2005, Budget de l'Etat 2007: http://www.legilux.public.lu/leg/a/archives/2006/0236/a236.pdf

MALTA - Summary RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	0%	0%	0%	0%
Share of total sector consumption in total final energy consumption	43%	53%	5%	100%
Production 2007 [ktoe]	0	0	0	0
Production 2005 [ktoe]	0	0	0	0
Production 1997 [ktoe]	0	0	0	0
Average growth 2005-2007 [%/a]	-	-	-	-
Average growth 1997-2007 [%/a]	-	-	-	-
Potential 2020 [ktoe]	48	1	23	72
Annual growth of RES needed to achieve target	-	-	-	-



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	0	0	0	0	0	0	0	0	0	0	-	0	-	-	-
Production 2005 [ktoe]	0	0	0	0	0	0	0	0	0	0	0	-	0	-	-	-
Production 1997 [ktoe]	0	0	0	0	0	0	0	0	0	0	0	-	0	-	-	-
Ø annual production growth 2005-2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ø annual production growth 1997-2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total realisable potential by 2020 [ktoe]	0	0	0	12	0	1	10	16	4	2	2	1	8	0	14	2

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

Support for RES-E is primarily aimed at households. Key support instruments for RES-E are soft loans and grants for PV and small-scale wind for households. Small PV installations also receive a guaranteed tariff of € 0.07 based on net metering for every kWh of solar electricity that is fed back into the grid. Support schemes for non-domestic investors/producers are currently not in place. Because the schemes may be terminated at any time, the investment climate in Malta for both households and private investors (including suppliers of installations) is highly insecure and therefore risky.

The government is looking into the possibilities of establishing feed-in tariffs or relevant support schemes for other technologies and circumstances to promote investments, and to then extend these schemes to include large-scale producers of RES (electricity, but also heating and cooling)[85].

RES-H&C

Key policy instruments for RES-H are grants for domestic solar water heaters and soft loans. Support schemes for non-domestic investors/producers are not in place.

There are concrete plans to promote co-generation, leading to distributed generation of electricity. The first industrial zone is to be studied in 2009[86].

RES-T

The key support policy for RES-T is a tax exemption on the biomass content in biodiesel and a biofuels quota obligation: The *compulsory* target for 2010 is set at 5.75%. In accordance with the new Renewable Energy Directive 2009/28/EG, the government has set a binding target of 10 % renewable energy in road transport by 2020.

85 A proposal for an energy policy for Malta. Ministry of Resources and Rural Affairs. April 2009. www.mra.gov.mt

86 A proposal for an energy policy for Malta. Ministry of Resources and Rural Affairs. April 2009. www.mra.gov.mt

2 Details RES-Electricity Support Policy

Capital Grants (Once-Only Grant) for PV and Wind

The Maltese Ministry of Finance grants once-only investment subsidies for small wind and solar photovoltaic (PV) systems to domestic investors within Malta[87]. The grants on capital investment aim at promoting an increase in domestic electricity generation from small-scale solar - and wind energy. The instrument was previously controlled by the Ministry of Finance, but since 1 January 2008 it is managed by the Ministry of Resources and Rural Affairs. It is implemented and administered by the Malta Resource and Infrastructure Authority (Directorate for Energy Resources Regulation).

- http://www.mra.org.mt/Support%20Schemes.shtml
- Telephone: +356 2295 5143

The party entitled to subsidies for wind and solar energy systems are land owners who have installed a wind or solar power system for domestic use that is connected to the grid. A development permit is required prior to application.

PV

50% of eligible costs are funded up to a maximum of Euro 3,000 per family/installation[88]. There is a cap on the budget and up to 200 families can benefit from the scheme.

For PV, the old scheme that ran from 2006 until 2009 has been terminated with effect from 15 February 2009, in accordance with Government Notice 81 of 2009[89]. From 16 February 2009 until 28 February 2009, new applications for PV systems with an installed capacity of more than 0.5kW were received.

The scheme can be modified or terminated at any time by means of a Notice in the official government Gazette. The scheme may be renewed as deemed necessary by the Minister responsible for Resources and Rural Affairs upon consultation with the Minister of Finance, Economy and Investment by means of a notice in the Gazette. There are no start or end dates set for a follow-up of the scheme.

The scheme is regulated through Government notice No. 81 – 'A Grant on the Purchase of Systems for Domestic Use that Reduce the Use of Energy, or Use Renewable Sources of Energy'[90]. The former regulation GN_135_2006 can be found here

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87 A communal home (e.g. a convent) may be considered as a residence and hence are eligible under the scheme.

88 The old scheme: Solar power. The grant for solar energy systems amounts to 20% of the purchase price of a photovoltaic system (panels, inverters, cabling) with a minimum installed size of 1 kWp (+/- 5%), with a maximum grant of 1160 €. Furthermore, the state grants an additional 580€ for every additional kilowatt above the minimum capacity up to a maximum capacity of 3.7 kWp. Fractions of an additionally installed kWp are treated pro rata (par. 5 OGPS).

89 http://www.mra.org.mt/Downloads/Grants/2009%20Schemes/GN_81-2009.pdf

90 Government notice No 81 (GN_81_2009). Ministry of Resources and Rural Affairs. http://www.mra.org.mt/Downloads/Grants/2009%20Schemes/GN_81-2009.pdf

http://www.mra.org.mt/Downloads/Grants/GN2006_135%20pv%20and%20roof%20insulation%20grant.pdf.

The support is conditional to certified equipment and installers that have to be registered with the Malta Resources Authority (MRA). The list of participating retailers and qualified models can be found on the website of the MRA.[91]

Wind

Micro wind turbines installed on domestic premises may qualify for a grant of 25% on the purchase price of micro wind systems (with a maximum generation capacity of 3.7 kW) and are eligible to a maximum of € 232.94 (100 Maltese Liri). The Once-only grant scheme has been effective since 2006. It is renewed for further periods of one year unless a Notice to the contrary is published in the Gazette. The scheme may be terminated at any time by a Notice in the Government Gazette. The overall budget is not capped.

The scheme is regulated through GN_136_2006 – 'A Once-Only Grant on the Purchase of Wind Energy Systems for Domestic Use'[92]. The support is not conditional to certified equipment and installers.

Feed-in Tariff (net metering)

Since 2004, Malta has promoted the generation of electricity by domestic PV systems through a net-metering system[93]. A metering device measures the electricity consumed by the plant operator and the amount that is fed into the grid. If the production exceeds the customer's total electricity consumption, the grid operator (Enemalta) pays € 0.06988 for every kWh of solar electricity that is fed back into the grid. This spill-off tariff is credited at a lower feed-in tariff rate than the market value. Hence, any consumer will size the PV capacity based on the consumption so that there is no cheap spill-off gain, but only an exchange of kWh consumed, with kWh sent to the grid, at the market price.

The instrument is controlled by the Ministery of Resources and Rural Affairs. It is implemented and administered by the Malta Resource and Infrastructure Authority (Directorate for Energy Resources Regulation) in cooperation with Enemalta.

Malta Resource and Infrastructure Authority

- http://www.mra.org.mt/Support%20Schemes.shtml
- Telephone: +356 2295 5143

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91 http://www.mra.org.mt/Downloads/Grants/2009%20Schemes/Eligible%20Products-Photovoltaics-110909.pdf

92 Promotion directive of the Ministry of Finance. Government notice No. 136. http://www.mra.org.mt/Downloads/Grants/GN2006_136%20wind%20grant.pdf

93 Reg. 7 (7) Promotion of Electricity produced from Renewable Energy Sources (PRESR).

http://docs.justice.gov.mt/lom/Legislation/English/SubLeg/423/19.pdf

Enemalta

- http://www.enemalta.com.mt
- Telephone: +356 21 224600

The scheme is regulated through 'Subsidiary Legislation 423.19. Promotion of Electricity produced from Renewable Energy Sources Regulations, 30th April, 2004, Legal Notice 186 of 2004.[94].

It is not specified by the government that the policy of net metering is changed to a feed-in tariff, and they are in favour of having tariffs relative to the technology used to generate the electrical power[95].

The tariff may be combined with the once-only grant.

Soft Loans

One of the local banks offers a beneficial loan for residential installations paid over a 10 year period, at discount rate of 2.5%. This loan ranges between 500 EUR and 60,000 EUR. Loans for non-residential systems amount to between. 25,000 and 200,000 EUR. For industry, the Maltese government also offers a tax credit on the investment.

3 Details RES-Heating and Cooling

Capital Grant (Once-only grant) for Solar Water Heaters

The Maltese Ministry of Finance grants once-only investment subsidies for solar water heaters (SWH) for domestic use. 66% of eligible costs are funded up to a maximum of Euro 460 per family/installation[96]. There is no more than one grant available per technology, but families are eligible to receive subsidy for more than one technology. There is no cap on the budget.

The instrument was previously controlled by the Ministry of Finance, but since 1 January 2008, it has been controlled by the Ministry of Resources and Rural Affairs. It is implemented and administered by the Malta Resource and Infrastructure Authority (Directorate for Energy Resources Regulation).

- http://www.mra.org.mt/Support%20Schemes.shtml
- Telephone: +356 2295 5143

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94 Reg. 7 (1), (7) PRESR http://docs.justice.gov.mt/lom/Legislation/English/SubLeg/423/19.pdf

95 http://www.mra.org.mt/Downloads/Publications/Analysis%20of%20Cogeneration%20Potential%20Report.pdf June 2009.

96 The old scheme: **Solar power.** The grant for solar energy systems amounts to 20% of the purchase price of a photovoltaic system (panels, inverters, cabling) with a minimum installed size of 1 kWp (+/- 5%), with a maximum grant of 1160 €. Furthermore, the state grants an additional 580€ for every additional kilowatt above the minimum capacity up to a maximum capacity of 3.7 kWp. Fractions of an additionally installed kWp are treated pro rata (par. 5 OGPS).

The previous scheme that ran from 2006 until 2009 has been terminated with effect from 15 February 2009 in accordance with Government Notice 81 of 2009[97]. From 16 February 2009 until 28 February 2009, new applications for solar water heaters were received. The scheme can be modified or terminated at any time by means of a Notice in the official government Gazette. The scheme may be renewed as deemed necessary by the Minister responsible for Resources and Rural Affairs upon consultation with the Minister of Finance, Economy and Investment by means of a notice in the Gazette. There are no start or end dates set for a follow-up of the scheme.

Applicants who have installed equipment before 15 February 2009 will be eligible to apply under the terms of the 2006 scheme (Government Notice 135 of 2006 for PVs and roof thermal insulation and government notice 55 of 2006 and 203 of 2005 for solar water heaters) up to 15 May 2009. No applications under the 2006 schemes will be accepted after 15 May 2009.

The scheme is regulated through Government notice No. 81 – 'A Grant on the Purchase of Systems for Domestic Use that Reduce the Use of Energy, or Use Renewable Sources of Energy'[98]. The former scheme was regulated through Government Notice 55 of 2006, and Government Notice 203 of 2005.

The support is conditional to certified equipment and installers that have to be registered with the Malta Resources Authority (MRA). The list of participating retailers and qualified models can be found on the website of the MRA.

Building Obligations

There are no building obligations regarding heating and cooling in Malta.

4 Details RES-Transport Support Policy

In line with the EU Biofuels Directive 2003/30/EC (promotion of the use of biofuels or other renewable fuels for transport), the Maltese Government has set an *indicative* target for the use of biofuels in 2005 of 0.3% of all fuel sold for road transport. In 2010 the *compulsory* target is set at 5.75%. The expectation is that this target will be easily met[99].

In accordance with the new Renewable Energy Directive 2009/28/EG, the government has set a binding target of 10 percent renewable energy in road transport by 2020.

There is specific support for biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material. Biofuels from these sources count double towards the target.

Since 2005, excise taxes no longer apply to the biomass content in biodiesel.

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97 http://www.mra.org.mt/Downloads/Grants/2009%20Schemes/GN_81-2009.pdf

98 Government notice No 81 (GN_81_2009). Ministry of Resources and Rural Affairs. http://www.mra.org.mt/Downloads/Grants/2009%20Schemes/GN_81-2009.pdf

99 A proposal for an Energy Policy for Malta. April 2009
. http://www.mrra.gov.mt/htdocs/docs/Energy%20Policy%20for%20Malta.pdf

Capital Grant (Once-only grant) for Electric Cars

Since 2005, the Maltese Ministry of Finance grants once-only investment subsidies for electric cars. The instrument was previously controlled by the Ministry of Finance, but since 1 January 2008, it has been controlled by the Ministry of Resources and Rural Affairs. It is implemented and administered by the Malta Resource and Infrastructure Authority (Directorate for Energy Resources Regulation). [100]

Electric-powered cars may qualify for a once-only grant of 15.25% on the purchase price of the car, and is eligible for a maximum grant of € 1164.69. This Scheme shall remain in implementation for a period of one year from the effective date, unless terminated beforehand by a Government Notice in the Gazette, and shall be renewed for further periods of one year unless a Government Notice to the contrary is published in the Gazette.

The scheme is regulated through Government notice No. 203 2005[101]. There is no cap on the budget.

5 RES-E Grid Integration

Plants generating electricity from renewable energy sources are entitled to preferential connection to the grid (Reg. 7 (2) PRESR). The plant operator is contractually entitled to the conclusion of an agreement of connection with the grid operator Enemalta. The contractual terms shall comply with the network code[102].

RES-E sources are also granted priority in dispatch[103].

The costs of a connection to the grid are borne by the plant operator, but some authorities may require the grid operator to bear the full or partial costs for grid extensions and upstream grid reinforcements[104]. There is a relatively shallow level of connection sharing. Due to the low penetration of RES-E, the legal framework does not currently provide for special regulations on the distribution of the costs arising from the promotion system. The plant operator is entitled to the expansion of the upstream grid as specified by the agreement of connection[105]. All other costs arising from the preferential treatment of RES-E (e.g. forecast of production and balancing) are borne by the grid operator.

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100 http://www.mra.org.mt/Support%20Schemes.shtml

101 http://www.mra.org.mt/Downloads/Grants/GN2005_0203%20grant%20for%20energy-friendly%20measures.pdf .

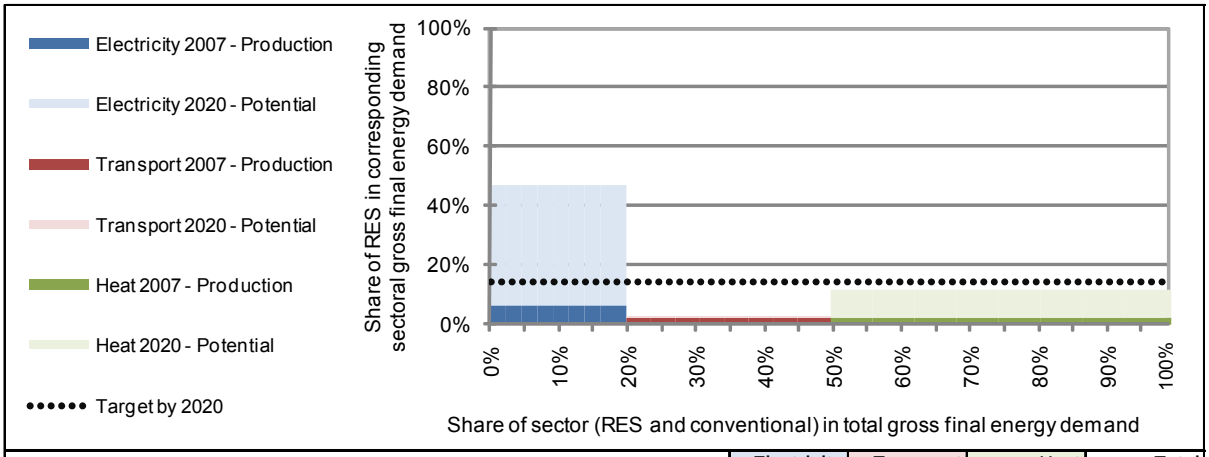
102 Reg. 17 (1) ER in connection with. NC. Subsidiary Legislation 423.22, Electricity Regulations (ER), 16th December, 2004, Legal Notice 511 of 2004, as amended by Legal Notice 17 of 2007. http://docs.justice.gov.mt/lom/Legislation/English/SubLeg/423/22.pdf

103 Reg 7 (1), (2) Promotion of Electricity produced from Renewable Energy Sources (PRESR). http://docs.justice.gov.mt/lom/Legislation/English/SubLeg/423/19.pdf

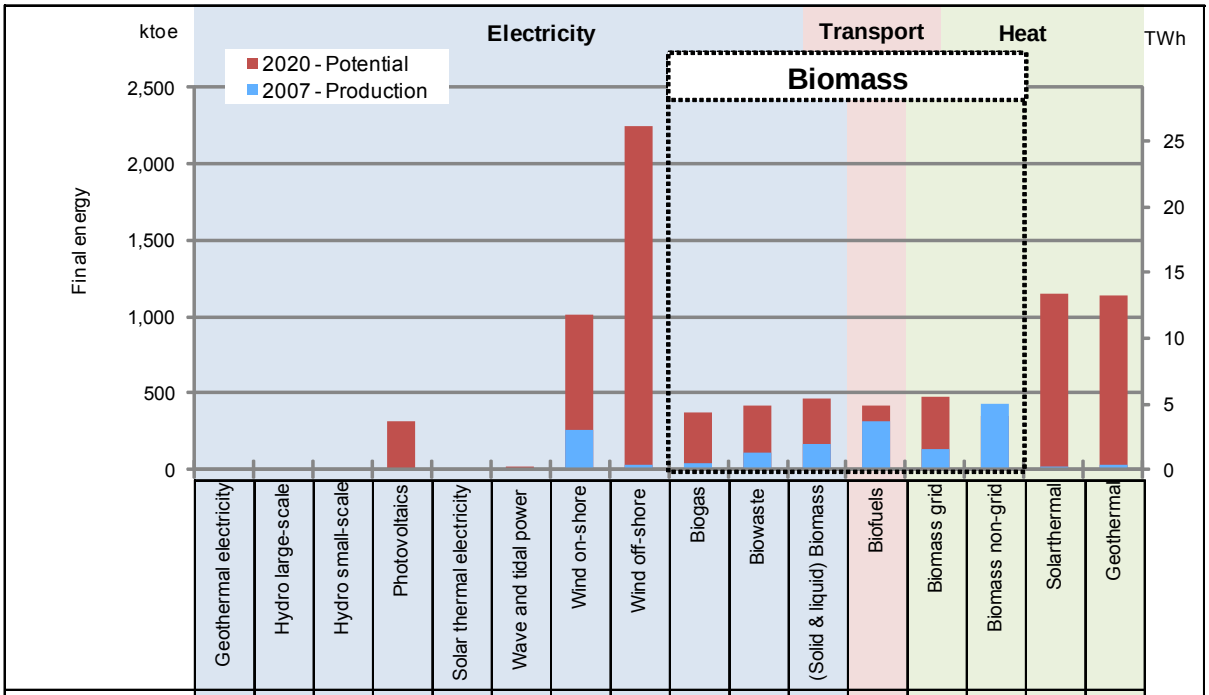
104 Reg 7 (6) PRESR http://docs.justice.gov.mt/lom/Legislation/English/SubLeg/423/19.pdf

105 Reg. 13 (2), (7) ER in conjunction with. Reg. 14 ESR in conjunction with GR 1.2, DCC 1.4, DPC 2.1 NC. Subsidiary Legislation 423.22, Electricity Regulations (ER) 16th December, 2004, Legal Notice 511 of 2004, as amended by Legal Notice 17 of 2007. http://docs.justice.gov.mt/lom/Legislation/English/SubLeg/423/22.pdf

NETHERLANDS - Summary RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	6%	2%	2%	3%
Share of total sector consumption in total final energy consumption	20%	30%	50%	100%
Production 2007 [ktoe]	634	311	604	1,549
Production 2005 [ktoe]	517	0	544	1,062
Production 1997 [ktoe]	186	0	462	648
Average growth 2005-2007 [%/a]	11%	-	5%	21%
Average growth 1997-2007 [%/a]	13%	-	3%	9%
Potential 2020 [ktoe]	4,862	420	3,130	8,412
Annual growth of RES needed to achieve target	-	-	-	12%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	9	0	3	0	0	260	36	44	113	169	311	130	427	20	27
Production 2005 [ktoe]	0	8	0	3	0	0	170	8	25	111	193	0	115	393	19	17
Production 1997 [ktoe]	0	8	0	0	0	0	33	8	25	113	0	0	88	367	7	0
Ø annual production growth 2005-2007	-	10%	-	3%	-	-	24%	114%	32%	1%	-6%	-	6%	4%	3%	24%
Ø annual production growth 1997-2007	-	2%	-100%	34%	-	-	23%	16%	6%	0%	-	-	4%	2%	11%	-
Total realisable potential by 2020 [ktoe]	7	9	5	311	0	18	1,016	2,245	372	417	464	420	480	356	1,155	1,139

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The key support instrument for RES-E is the feed-in premium scheme SDE which came into effect on 1 April 2008. There are several problems and uncertainties that remain that might be problematic, particularly for project developers:

- For new projects, the total available budget and the premium level are established relatively late every year. Project developers have to deal with this uncertainty.
- There will be a guaranteed budget for new projects up to 2014. Discussions about financing in the period afterwards are ongoing.

For companies investing in RES-E, a tax relief (EIA) exists, which contributes substantially to the project's economic viability. Annual budgets are limited and regularly exploited before the end of the year.

Currently, the premiums are paid from the government budget, but plans have been published suggesting a change towards socializing the costs through electricity consumer tariffs, therefore making the scheme more robust.

RES-H&C

RES-H&C from biogas is included in the SDE described above. The use of waste-heat from digestion and combustion of biomass (cogeneration) is rewarded with a higher feed-in premium (CHP bonus). Apart from the 'Subsidieregeling Duurzame warmte' (Subsidy programme renewable heat), that subsidizes the investment of solar thermal heat, heat pumps and micro-CHP installations, there is also the possibility to deduct investments from taxable income (EIA). In 2009 two subsidy programmes contributed to investments: "UKR" and "renewable heat for households and housing corporations". The level of support for RES H&C through these schemes is significantly higher than in previous years when these schemes did not exist. It is not certain whether these programmes will be prolonged, which causes uncertainty for investors.

RES-T

The key support instrument for RES-T is the quota obligation for biofuels. Targets for the years 2008 and 2009 have been lowered in the past due to concerns regarding the sustainable origin of the biomass feedstock. In accordance with the Renewable Energy Directive, the Dutch government has set a binding target of 10 percent renewable energy in road transport by 2020.

2 Details RES-Electricity Support Policy

Feed-in Premium – SDE

In September 2007, the feed-in premium for RES-E, the SDE (Stimulering Duurzame Energieproductie - stimulation renewable energy production) was announced[106]. SDE replaces the old feed-in premium, MEP (Milieukwaliteit Elektriciteitsproductie) which was abolished in August 2006. SDE will run from December 2007 until December 2014.

The instrument is controlled by the ministry of Economic Affairs (Ministerie van EZ), but is administered and monitored by the ministry's agency SenterNovem

- SDE website: http://www.senternovem.nl/sde/
- SenterNovem SDE Helpdesk: + 31 (0) 38 455 34 50.

The instrument is periodically revised.

The feed-in premium is paid from the government budget. At the moment, the availability of annual budgets for new projects is guaranteed up to 2014.

There is a cap on the available budget for new installations. The total overall budget and technology category specific budgets are established at the beginning of each year. Categories may change every year.

The level of the feed-in premium depends on the technology (base price) and the wholesale price for electricity (price adjustment): **Feed-in premium = Base price - price adjustment.** Base prices are guaranteed over the full support period of a project, but the feed-in premium will vary annually depending on wholesale electricity price of developments. For new projects, the total budget and technology category budgets will be established at the beginning of each year. The base price (i.e. average production costs – depending on investment costs and O&M) that lays at the basis of feed-in premiums for new projects (and new years) are established at the end of the year.

The conditions to become eligible for the tariff/premium are as follows[107]:

- The premium is for households, and profit as well as non-profit organizations that produce electricity within the technology categories as in the table below.
- Except for PV, all the required permits (e.g. environmental and building permits) as well as an agreement of the grid operator, have to be in place, before applying.
- The installation can start operating only after receiving the grant.

106 Initial decision - AMvB 30 October 2007 (Regeling aanwijzing categorieën duurzame energieproductie 2008).
http://www.ez.nl/Onderwerpen/Voldoende_energie/Duurzame_energie/SDE/Introductie/Algemene_Maatregel_van_Bestuur_SDE

107 http://www.senternovem.nl/mmfiles/Algemene%20uitvoeringsregeling%20SDE%202009_tcm24-298489.pdf

- The installation has to be taken into operation within 4 years after the subsidy has been granted for all eligible technology categories, except for solar-PV which is 18 months.
- A certified meter has to be placed.
- Registration must be made with CertiQ in order to obtain renewable certificates (RECS certificates). The SDE subsidy is paid out on the basis of these certificates.

Below is a table presenting the premium per technology for installations that received a grant in 2009 (to start operation within 4 years / 18 months for PV). The premium is calculated based on the difference between them.

Table 1: Feed-in tariffs

Technology category	Base price 2009 in €/MWh	Feed-in premium 2009 in €/MWh (base price – price adjustment)	FLH (max.)
Onshore wind	118	69	1760
Small Solar-PV-installations (0.6 - 15 kWp)	526	324	
Large Solar-PV installations (15-100 kWp)	459	406	
Hydro power <5 meters	125	81	
Hydro power >5 meters	73	29	
Biomass electricity [1]			
- Combustion (10-50 MW)	115-156	71-112	
- Fermentation of bio-degradable waste	129-149	85-105	
- Co-fermentation and small-scale combustion (top-up) (</= 10 MW)	152-177	108-133	
- Other fermentation (liquid biomass)	158	114	
Electricity production from landfills and sewage treatment (for power stations)	59	15	
Electricity production in waste incineration plants (efficiency of the installation > 22%)	117-140	25-48	

[1] The more heat per kWh is used effectively, the more subsidy installations receive.

Sustainability criteria for biomass have not yet been established, but project developers have the obligation to report on the origin. Other criteria on which the tariffs depend are presented in the above table.

The period for receiving the premium is different for each technology category: 15 years for onshore wind, solar PV, hydro and electricity from waste incineration plants, and 12 years from other biomass sources, biogas included.

2009 is the first year that offshore wind is eligible for feed-in premiums under the SDE. Projects are chosen in a tendering procedure. By the end of the year (November 2009, latest), the tender procedure will open. The maximum size of the 2009 tender procedure

is 950 MW. There will be only one tender. It is uncertain whether in 2010 there will be a new tender-round. The tender is not integrated with grid development.

Detailed information on the SDE: (technology categories, feed-in premiums, criteria etc.) can be found here:

- http://www.senternovem.nl/mmfiles/Regeling%20aanwijzing%20categorie%C3%ABn%20duurzame%20energieproductie%20-%2028-02-08_tcm24-254253.pdf (2008)
- http://www.senternovem.nl/mmfiles/Aanwijzingsregeling%20categorie%C3%ABn%20SDE%202009_tcm24-298432.pdf (2009)

Tax Deduction Scheme EIA

The scheme is intended for tax-paying entrepreneurs who are required to pay income tax or corporate taxes. Renewable energy projects can deduct 44% of the total investment costs from annual profit in the year of installation considered by the corporate tax up to a maximum of 110 million € per installation[108]. Roughly 11% of the total investment costs can be subsidized in this way. The EIA can be seen as a reduction in investment costs. It runs from 1997 to date.

The EIA is controlled by the ministry of Economic Affairs (Ministerie van EZ), but it is administered and monitored by the ministry's agency SenterNovem

- EIA website: http://www.0073enternovem.nl/eia/
- SenterNovem EIA Helpdesk: Phone: +31 (0)38 455 34 30.

The government budget for the EIA is revised annually. The total budget in 2009 is €145 million, €6 million more than in 2008. If the available EIA budget threatens to be insufficient, the Minister of Finance can limit the scheme or stop it temporarily.

Applications are continuously received. Applications have to be submitted no later than three months after the investment has been made.

For wind turbines (>25 kW), the maximum investment amount eligible under the EIA scheme (2009) is 600 €/kW for onshore wind and 1000 €/kW for offshore wind. For wind turbines (<25 kW), the maximum amount is 3 €/MW. For solar-PV of at least 90 Wp, the maximum amount is 3000 €/kW.

The EIA may be combined with the SDE premium. In some cases investments are eligible to apply for the EIA as well as VAMIL (liquidity and interest tax benefits)[109].

The regulation does not make support conditional to the use of certified equipment and/or certified installers.

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[108] Wet Inkomstenbelasting 2001 (Law income tax 2001)[108].

[109] http://www.senternovem.nl/Vamil_MIA/

Low Interest Loans

There are several low-interest loans available through green funds, which are exempt from income tax.

Interest or dividends derived from funds investing for more than 70% in renewable energy or other 'green' projects are exempt from income tax and are thus attractive for investors. This results in loans at interest rates which are on average 1% below usual market interest rates. The funds are established and managed by banks and various conditions apply.

Projects are eligible for a green fund only if they have received a *green statement* from the responsible authority. The minimum loan sum is 22 thousand € and the maximum is 34 M€. The maximum loan period is 10 years. Most renewable energy projects are eligible, amongst others PV and onshore wind, but not offshore wind. Biomass is restricted to clean wood and energy crops. Information about green funds is provided by SenterNovem http://www.senternovem.nl/groenbeleggen/index.asp.

3 Details RES-Heating and Cooling Support Policy

Feed-in Premium – SDE

The production of gas is included in the feed-in premium SDE. See details of the SDE above in the electricity section. Biogas quality needs to be enhanced, as it has to meet the quality standards of the natural gas network. Production of gas is eligible from:

- bio degradable waste and manure co-fermentation;
- landfills and sewage treatment.
- fermentation of (liquid) biomass from the food, drink and tobacco industry.

Due to sustainability concerns related to biomass and the non-existence of an established certification system, liquid biomass is not (yet) eligible. However, liquid biomass from the food, drink and tobacco industry is eligible.

Table 2: Biogas feed-in premiums

Technology category	Base price 2009 in €/Nm^3
Fermentation of bio-degradable waste	0.465
Other fermentation (liquid biomass, mainly from the food and tobacco industry)	0.583
Biogas production from landfills and sewage treatment	0.218

There is a CHP bonus within the SDE. The use of waste-heat from digestion and combustion of biomass (cogeneration) is rewarded with a higher feed-in premium.

Building Obligations

Building obligations do not require the use of RES-H&C.

Tax Deduction Scheme EIA

The tax deduction scheme, EIA (introduced in electricity section) applies also for RES-H&C:

Corporate assets that reduce energy consumption and meet the required energy-performance criteria are eligible for EIA support. An energy-performance criterion may, for example, be a savings norm for each euro invested, a specific efficiency criterion, an improved energy label, etc. There are five application areas, each with its own energy-performance requirement:

- Corporate buildings;
- Processes;
- Transport resources;
- Renewable energy;
- Energy advice.

There are no maximum or minimum sizes of plants that are eligible. All investments that meet the energy performance criteria are eligible for EIA support.

Subsidy Programme Renewable Heat

The subsidieregeling Duurzame warmte (Subsidy programme renewable heat), subsidizes the investment of solar thermal heat, heat pumps and micro-CHP installations for exiting dwellings (built before 1 January 2008) for households and housing corporations.

It is controlled by the ministry of Economic Affairs (Ministerie van EZ), but administered and monitored by the ministry's agency SenterNovem :

- SenterNovem website: http://www.senternovem.nl/duurzamewarmte/index.asp
- SenterNovem Helpdesk: Phone: + 31 (0) 38 455 33 22.

The instrument is periodically revised. There is an overall budget of 66 million euro for the years 2008–2011 which are split into several rounds of calls. The first round of calls runs from September 2008 until December 2009. At the end of 2009, the available amount for round two will be determined. The programme is regulated by the national legislation: 'tijdelijke energieregeling markt en innovatie' (temporary energy measure market and innovation)[110]. The budget is capped and annually established. There is an overall budget of 66 million euro between 2008 and 2011. The budget for the first round (September 2008 to December 2009) is 20 million euro (16 million euro for solar thermal heat installations and heat pumps, 2 million for air/water – heat pumps and 2 million for micro-CHP).

110 Regeling van de Minister van Economische Zaken van 2 september 2008, nr. WJZ / 8123674, houdende regels inzake de verstrekking van subsidies ten behoeve van verduurzaming van de energiehuishouding

Applications are granted continuously, and the instrument is not limited to certain project volumes.

There is a list of typical installations that contains an indication of the maximum or minimum sizes of plants, but this list is not exhaustive and is reviewed annually. http://www.senternovem.nl/duurzamewarmte/productenlijst/index.asp

No special incentives are given for combined heat and power production based on biomass and accordingly, this combination is only rarely realized in the Netherlands. Some biomass power plants use a small part of heat production for treatment of the biomass feedstock. 'Regular' CHP is however covered via the SDE. Small-scale heating is encouraged by the 'subsidieregeling Duurzame Warmte (above).

The support schemes in place to stimulate the use of district heating are EIA and tax exemptions[111]. The SDE feed-in premiums are linked to the electricity production and do not have incentives for optimal use of (RES) heat.

Heating and cooling from RES in industrial applications is not stimulated in a continuous manner. In 2009, a call for tenders has been published that aims to support research and development, feasibility studies for novel technologies or control techniques for decreasing heat or cold demand from industrial processes, as well as the production of heat and cooling from RES using near-to-market technologies. For 2009, a budget of 2.45 million euro has been made available[112].

UKR Subsidy

As part of the EOS subsidy programme, the UKR (Unieke Kansen Regeling) aims at stimulating cooperation projects between private and non-private parties. The emphasis is on speeding up the market introduction of technologies that contribute to the transition towards a sustainable energy supply.

There is a cap on the budget and calls are published (and determined) periodically, with the focus shifting to different sub-themes with each call. The 2009 round of calls focuses on subsidizing investments in novel renewable heating and cooling technologies, or novel non-technological aspects (i.e. non-technological barriers, novel approaches and demonstration). The 2009 round of calls is open from August until the fifth of November. The total budget for this round is €10,000,000. It is yet uncertain whether or when a new round of calls opens.

Eligible themes are:

- Renewable heat and cooling from bioenergy;
- Geothermal heat;

111 Installations that produce electricity do not have to pay energy tax on their fuel consumption if the power efficiency is higher than 30% and the power capacity is higher than 60 kilowatts (kW).This tax exemption also applies to DH/CHP installations (heat only boilers are liable to pay the tax). Electricity produced in a DH/CHP plant for its own consumption is also exempt from the tax.

112 http://www.senternovem.nl/mmfiles/SBIR%20Verduurzaming%20van%20warmte%20en%20of%20koude%20in%20de%20industrie_tcm24-313529.pdf

- Large-scale solar thermal energy;
- Usage of renewable heat and/or cooling in the built environment for communities or offices;
- Usage of waste heat and/or cooling in the built environment for communities or offices.

The URK is controlled by the ministry of Economic Affairs (Ministerie van EZ), but it is administered and monitored by the ministry's agency SenterNovem

- UKR website: http://www.senternovem.nl/eos/subsidies/ukp/2009/aanvragen_ukp_verduurzaming_warmte_en_koude_2009.asp
- SenterNovem UKR: Phone:
- Mr. Harry Schreurs + 31 (0) 46 420 2314
- Mr. Ivo van Luxemborg +31 (0) 46 420 2359

The UKR contributes up to a maximum of 40% of the total extra investment costs. These costs are the investment costs minus the reference cost, minus the savings or revenues in the five years after operation has started, and minus the support received from other instruments (e.g. EIA and SDE).

SMEs are entitled to 10 percent more subsidy over their share of the costs. The maximum subsidy a project may receive is €800,000.

4 Details RES-Transport Support Policy

Following the old EU Biofuels Directive 2003/30/EG, from 1 January 2007, parties that supply the Dutch market with diesel or gasoline, are obliged to deliver a certain percentage of their supply in the form of biofuels (i.e. a quota obligation)[113]. The target for 2009 is 3.75 percent biofuels use in road transport; in 2010 the target is set at 4%. The target is split: A minimum share of biofuels in both gasoline and diesel has to be achieved, but beyond that minimum share obliged parties are free to choose whether they blend biofuels with gasoline or diesel.

In accordance with the new Renewable Energy Directive 2009/28/EG, the Dutch government has set a binding target of 10% renewable energy in road transport by 2020. Intermediate targets have not yet been set.

There are no tax exemptions for biofuels in place, apart from pure vegetable oil in certain projects up to 2010[114].

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113 Besluitvorming biobrandstoffen wegverkeer, Staatsblad 2006 (p.542 & Aanpassing biobrandstoffendoelstelling DGM 2008099192.

114 http://www.mvo.nl/Portals/0/duurzaamheid/biobrandstoffen/wetgeving/Wet-belastingen-op-milieugrondslag-2006.pdf

http://www.mvo.nl/LinkClick.aspx?link=352&tabid=353

Electric vehicles are exempted from vehicle tax, whether they use RES-E or not.

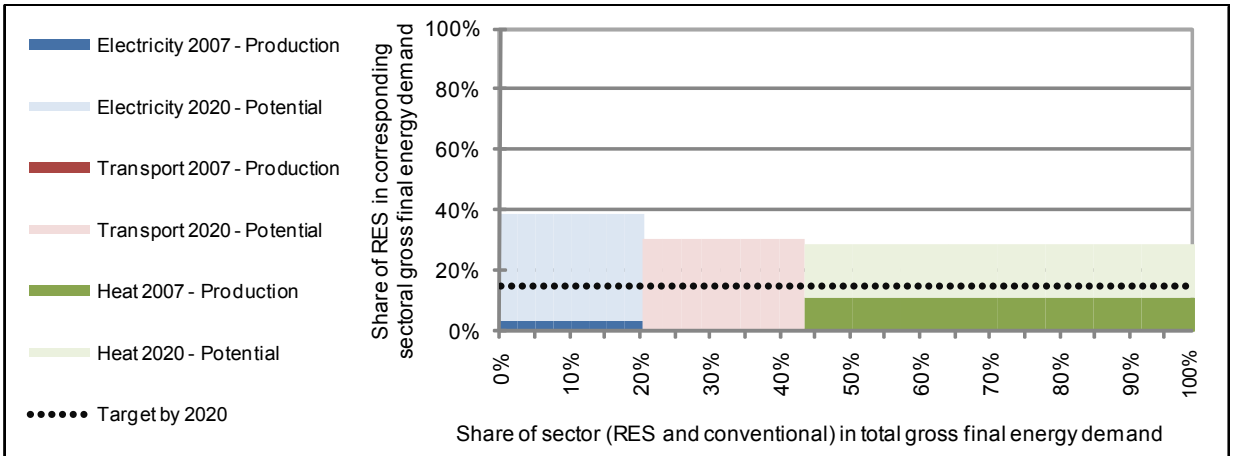
5 RES-E Grid Integration

There are no privileges for RES-E plants in terms of priority grid connection. The network operator is however, obliged to offer each electricity producer (and consumer) access to the grid. RES-E projects are not given priority in the situation of grid congestions.

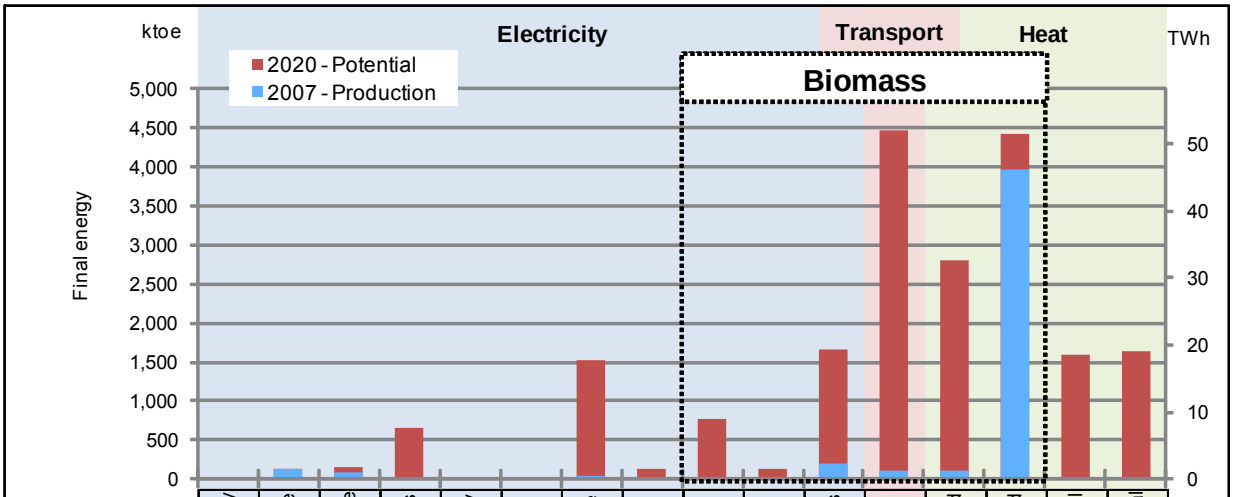
The Dutch system is based on “shallow” grid connection charging, where the investment costs of the physical connection to the nearest grid connection point are carried by the RES-E project developer, but they do not have to pay for upstream grid reinforcement.

In the situation that the grid operator has to adapt the network in order to connect the producer (upstream grid reinforcement), the costs (i.e. deep costs) are socialized among all connected producers and consumers. The RES-E project is responsible for forecasting its production, and does have to pay for grid balancing.

POLAND - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	4%	1%	11%	7%
Share of total sector consumption in total final energy consumption	20%	23%	57%	100%
Production 2007 [ktoe]	467	96	4,097	4,659
Production 2005 [ktoe]	358	48	3,873	4,279
Production 1997 [ktoe]	231	0	3,675	3,906
Average growth 2005-2007 [%/a]	14%	41%	3%	4%
Average growth 1997-2007 [%/a]	7%	-	1%	2%
Potential 2020 [ktoe]	5,139	4,479	10,473	20,091
Annual growth of RES needed to achieve target	-	-	-	6%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	119	83	0	0	0	45	0	17	0	203	97	113	3,973	0	11
Production 2005 [ktoe]	0	115	74	0	0	0	12	0	10	0	148	48	88	3,776	0	9
Production 1997 [ktoe]	0	168	49	0	0	0	0	0	0	0	14	0	41	3,616	0	18
Ø annual production growth 2005-2007	-	2%	6%	-	-	-	97%	-	33%	-	17%	42%	13%	3%	-	9%
Ø annual production growth 1997-2007	-	-3%	5%	-	-	-	74%	-	-	-	31%	-	11%	1%	-	-5%
Total realisable potential by 2020 [ktoe]	10	121	150	645	0	19	1,518	118	763	135	1,660	4,479	2,812	4,431	1,597	1,633

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

RES-E is promoted primarily through a quota system. Electricity suppliers are obliged to fulfill a specified quota of origin/green certificates, issued for the generation of RES-E. Besides, an obligation is established to purchase the whole amount of RES-E at an average market price of "conventional electricity" from the previous year. This obligation shall be satisfied by those electricity suppliers that supply households with low-voltage electricity (main providers). Accordingly, producers of RES-E have two kinds of income: from sales of electricity at the market price and from sales of property rights from the certificates of origin (quota obligation) at the power exchange.

Additionally, RES-E is also promoted through loans and fiscal privileges.

No change of the support scheme occurred throughout 2008/09 and no important policy changes at national level are expected in the near future.

RES-H&C

There is still no effective support scheme for RES-H in Poland. Special funding is available for RES-H projects (thermal power generation using biomass, CHP). However, the implementation programme of Poland's Energy Policy to 2030 foresees to introduce additional support mechanisms that promote the generation of renewable heating and cooling at a larger scale.

RES-T

Polish authorities apply three financial instruments to support biofuel production: excise duty reduction, reduction in fuel charges and reduction in company income taxes.

The new excise tax rebates for biofuels used in a blend with petrol and diesel and used as pure fuels were introduced in 2009. The new reduced rate for biofuels used as pure fuels is 10 PLN (2.3 EUR) per 1000 liter. Each liter of biofuels added to fossil fuels is fully exempted from excise duty. However, the minimum excise rate of the final product is 10 PLN (2.3 EUR) per 1000 liter.

2 Details RES-Electricity Support Policy

Quota/Obligation System

In Poland, the main means of RES-E promotion is a quota system, in essence, a quota obligation, which is then combined with a certificate trading system. The Energy Law obliges electricity generators and suppliers that provide electricity to customers within Poland to fulfill a specified quota of certificates of origin/ green certificates [1].These certificates are awarded to the producers of RES-E.

This instrument is regulated by the Energy Law and the Order of the Polish Minister of Economy as of 14th August 2008 [2]. This order provides detailed provisions on the obligation to acquire certificates of origin/ green certificates and submit them for collection. There is also the obligation to pay a compensation fee, the obligation to purchase electricity and heat generated from RES and the obligation to prove that the amount of energy generated from the respective source of energy stated is accurate.

The Energy Regulatory Office (URE http://www.ure.gov.pl/portal/en) is responsible for supervising compliance with the quota system. The energy companies are obliged to provide all necessary information to assist URE in carrying out these supervising tasks. Companies may take legal action over the URE's decisions.

There is no cap on available budget or the volume of new installations, only the quota of RES-E, which should be purchased that year.

Amount of Quota per Year

The amount of the quota does not depend on the technology used. In pursuance of Order of 14/08/2008 [2], the quota is as follows (% of the annual amount of energy sold by the obligated party):

- 7,0% in 2008
- 8,7% in 2009
- 10,4% from 2010 to 2012
- 10,9% in 2013
- 11,4% in 2014
- 11,9% in 2015
- 12,4% in 2016
- 12,9% in 2017.

All technologies used in the generation of RES-E are promoted through price regulation. All energy companies that sell electricity to final consumers connected to the Polish grid are obliged to obtain the certificates of origin.

As an alternative to the certificates, the companies may pay a substitution fee or penalty. The amount of the substitution fee is calculated according to a statutorily set formula and published every year. If a company fails to present certificates of origin/ green certificates or does not pay the fee, the Energy Regulatory Office (URE) charges a

penalty in size of 130% of the substitution fee. Funds from substitution fees constitute a revenue for the National Fund for Environmental Protection and Water Management that only supports RES development. Green certificates can be traded on the Warsaw Commodity Exchange as from 1 October 2005.

Electricity supply companies that are licensed to supply electricity to those domestic customers that have not exercised their right to choose a supplier are obliged to purchase at a guaranteed price, all RES-E from electricity generators within their area of responsibility. The guaranteed price corresponds to the average electricity price of the previous year, which is calculated by the regulatory authority (table 1).

Producers of RES-E have two kinds of income: from sales of electricity at the market price and from sales of property rights from the certificates of origin (quota obligation) at the power exchange.

Table 1. The prices of electricity and green certificates during the last years.

	2006	2007	2008	2009
Electricity price PLN/MWh (EUR/MWh)	117,49 (30,12)	119,70 (31,6)	128,80 (36,6)	-
Max. TGC price (substitution fee)	240 (61,5)	242,4 (64,2)	248,46 (70,6)	258,89 (59,4)
Penalty	130% of substitution fee			
Penalty (EUR / MWh)	92	96	107	-
Exchange rate	3,9	3,78	3,52	4,36

Loans (National Fund for Environmental Protection and Water Management)

The National Fund for Environmental Protection and Water Management (NFOSiGW) awards low interest loans to environmentally sustainable projects. This definition also covers projects that involve the generation of RES-E (in this case, the RES-E is additionaly supported through quota/obligation system). More information about this instrument is available on the fund website: http://www.nfosigw.gov.pl/site/index_en.php

The legal basis for fund activities is constituted by the Environmental Protection Law [3]. In general, all technologies are eligible for the promotion in terms of low interest loans. Regarding wind plants and solar PV, only projects involving the construction of new plants are eligible. Regarding other renewable sources, projects involving the construction of new plants as well as those involving the modernization of old plants are eligible.

Loans, grants and other forms of financing used by the National Fund are mostly allocated to the co-financing of large national and superregional projects concerning the elimination of water, air and soil pollution. Recently, it is the investments using renewable sources of energy that have been given special priority.

Applications could be received continuously. Interested companies have to apply for a loan. Companies that have successfully concluded the application procedure are contractually entitled to a low interest loan. The loan amounts to a minimum of 2.000.000 PLN (459 thousand EUR) and may amount to up to 80% of the project costs. The amount of the interest rate depends on the reference rate set up by the National Bank of

Poland (central bank). Loans for projects in the field of renewable energy are subject to an interest rate of at least 2.12%; small and medium-sized enterprises shall pay interest of at least 1.75%.

Since 2009, the NFOSiGW has made available special funding up to 1,5 billion EUR to support investment and the construction of renewable energy and high efficiency cogeneration facilities.

The fund classifies projects according to categories. 40% of the budget is reserved for biomass projects, comprising: thermal power generation using biomass (below 20 MW thermal), CHP production under 3 MWe, or CHP using sewage or other waste sources. 25% of the budget will be allocated to wind power projects under 10 MWe, 20% for geothermal projects or hydroelectric projects under 5 MWe, and the remaining 15% for high efficiency CHP.

The programme will offer low interest loans for projects with a minimum total cost of 10 million EUR. Loan amounts can range from 4 to 50 million EUR, up to 75% of the project's eligible costs, with a fixed 6% interest rate. Funding can be offered for up to 15 months following the first disbursement amount. A grace period up to 18 months following project completion can be provided under certain circumstances. Under certain conditions, portions of the loan can be provided as grants.

Exemption from Consumption Tax

In Poland, the electricity consumption is subject to a tax. The tax is collected from the electricity producer as soon as he provides the electricity. Registered producers of RES-E are exempt from the tax. This is regulated by the Tax Act [4]. All technologies used for the generation of RES-E are eligible for tax exemption.

The amount of subsidy equals the amount of taxes that entitled persons are exempt from. In 2008, the consumption tax on electricity amounted to 22,20 PLN (ca. 5,44 €) per MWh.

3 Details RES-Heating and Cooling Support Policy

There is no effective support scheme for RES-H in Poland. In theory, heat companies are obliged to purchase all RES-H fed into the heat grid (unless RES-H production exceeds heat demand), but under assumption it will not cause a big increase in a heat price (regulator will not accept much higher heat costs). In practice this mechanism is usually useless. However, the implementation programme of Poland’s Energy Policy to 2030 predicts the introduction of additional support mechanisms that promote the generation of renewable heat and cold on a larger scale.

The National Fund for Environmental Protection and Water Management (NFOSiGW) presented above for RES-E has made available special funding for renewable energy projects, including biomass projects (thermal power generation using biomass (below 20 MW thermal), CHP production under 3 MWe, CHP using sewage or other waste sources, as well as for high efficiency CHP. The programme will offer low interest loans for such projects. More information about this fund is presented in chapter 3 (RES-E support).

Since January 2009, every new building with a use area more than 1000 m2 will need to have an energy certificate. However, there is still no obligation to use RES in large new buildings.

Poland has a quota obligation for electricity from high efficiency co-generation. This obligation has a general character (all cogeneration units excluding small (< 1MW) gas units) and requires that electricity sold to the end-user is to consist of a certain proportion of electricity from cogeneration: 19% in 2008, 20,6% - 2009, 21,3% - 2010, 22,2% - 2011, 23,2% - 2012. For small gas units it is: 2,7% in 2008, 2,9% in 2009, 3,1% in 2010, 3,3% I 2011 and 3,5% in 2012.

4 Details RES-Transport Support Policy

Polish authorities apply three financial support mechanisms to support biofuel production: excise duty reduction, reduction in fuel charges and reduction in company income taxes.

In 2007, the Polish government established indicative targets for biofuels as a portion of energy content of total transportation fuels. Based on the availability of raw materials and production capacity, the potential of the fuel industry and the relevant European Union regulations, the Regulation on National Indicative Targets for 2008-2013 was adopted by the Council of Ministers in June 2007. The targets have been set as follows:

- 3,45% in 2008,
- 4,60% in 2009,
- 5,75% in 2010,
- 6,20% in 2011,
- 6,65% in 2012,
- 7,10% in 2013.

According to the Act on the Biocomponents and Liquid Biofuels (2006), targets should be reviewed and set every three years [5].

Excise Duty Rebate

As of 1 January 2007, biofuels blended with petrol and diesel as well as those used as pure fuels for transport will benefit from excise tax reductions in the form of rebates. Blended end products comprise petrol blends with ethanol, bioethanol derivatives ETBE (ethyl-tertio-butyl-ether) and TAEE (tertiary-amyl-ethyl-ether), and diesel blends with esters. Petrol and diesel blends must contain at least 2% biofuel to benefit from the excise tax rebate. Biofuels sold to producers of biofuel blends are fully exempt from excise tax.

The new (since 2009) excise tax rebates for petrol and diesel blended with biofuels and for biofuels used as pure fuels are as follows:

Table 2. Excise tax rebates

Fuels	Normal rate	New rebate per litre of bio-part
Biofuels blends with:	PLN/1000 litre (EUR/1000 l)	
Petrol	1565 (359)	1565 (359)*
Diesel zero sulphur (≤0.001%)	1048 (240)	1048 (240)*
Biofuels used as pure fuels	10 (2,3)	0*

*The new reduced rate for biofuels used as pure fuels is 10 PLN (2,3 EUR) per 1000 litre.

Each litre of biofuels added to fossil fuels is fully exempted from excise duty. However, the minimum excise rate of the final product is 10 PLN (2,3 EUR) per 1000 litre [4].

The rebates are granted per litre of biofuel added to the blend. For bioethanol derivates ETBE and TAEE, are granted only for the portions derived from biomass (47% and 40% respectively).

Exemption from the Fuel Charge

Under the current scheme, Poland notified full exemption of the fuel charge for biofuels, which constitute pure fuels.

Rebate in Company Income Tax

The Act of 23 August 2007 amending the Corporate Income Tax Act allows producers of biofuels to deduct from their income tax, an amount no greater than 19% of the difference between the value of the biofuels produced and the value of the liquid, fossil fuels produced with the same calorific value, calculated according to the average prices. This deduction may be effected in monthly or quarterly installments, depending on the arrangements for paying income tax installments applied by the taxpayer [6].

5 RES-E Grid Integration

Grid operators are obligated to connect systems that generate RES-E to their grids without discriminating against certain plant operators. In contrast to this, grid operators are also obligated to transfer electricity generated from RES at a priority.

Deep connection charging is applied in Poland. The cost of connecting a system to the grid shall be borne by the plant operator. Plants that generate electricity from RES and whose capacity does not exceed 5 MW are subject to reduced connection charges. Until the end of 2010, these reduced charges also apply to renewable plants whose capacity exceeds 5 MW.

6 RES Production, Potential and Market Development

RES-E

The total green electricity production in 2007 was 5,429 GWh. Solid biomass became the largest contributor to RES-E. A large part of this is co-firing with coal. Electricity from

solid biomass accounted for 44% of RES-E production in Poland in 2007. Hydropower in 2007 has contributed to 43% in RES-E production. Biogas still has a relatively small contribution (195 GWh in 2007). The contribution of onshore wind in Poland is growing significantly, it accounted for almost 10% (522 GWh) of RES-E generation in 2007. In the last few years, the overall RES-E production has been steadily growing. However, Poland is still behind on reaching its target for the share of RES-E in national electricity consumption.

The Green Certificates system applied in Poland is not that favourable to small capital intensive installations, such as PV, because it does not make any differentiation between the size of different technologies.

The target for wind power announced in the "Poland's Energy Policy until 2025" discussed planned connection of approximately 2000 MW by 2010. In the first half of 2009, installed capacity in wind turbines amounted to approximately 540 MW, which is 27% of the planned amount.

RES-H&C

There is no effective support scheme for RES-H in Poland.

RES-T

In 2007, the Polish Parliament approved a program which was intended to encourage biofuel use. However, local and national governments are failing to make progress in implementing this program.

The penetration of the biofuels in the market was so far much lower than adopted indicative targets. The consumption and production of biodiesel actually dropped in 2007 compared to 2006. In 2006, 42 ktoe of biodiesel and 53 ktoe of bioethanol were produced and in 2007 only 25 ktoe of biodiesel and 72 ktoe of bioethanol were produced. It is because of the lack of stable legal and fiscal enforcements. It is expected that the new (since 2009) excise tax rebates for petrol and diesel blended with biofuels will support an increase in biofuel production.

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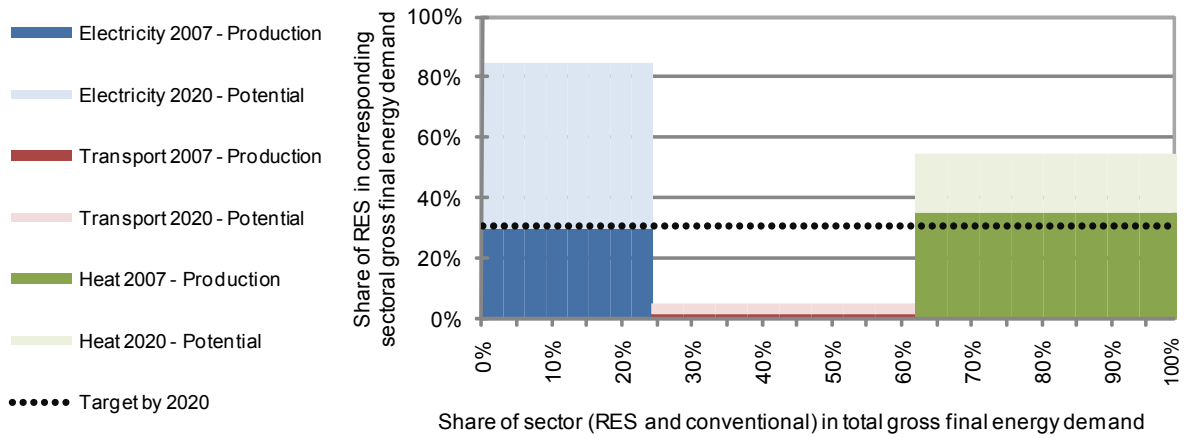
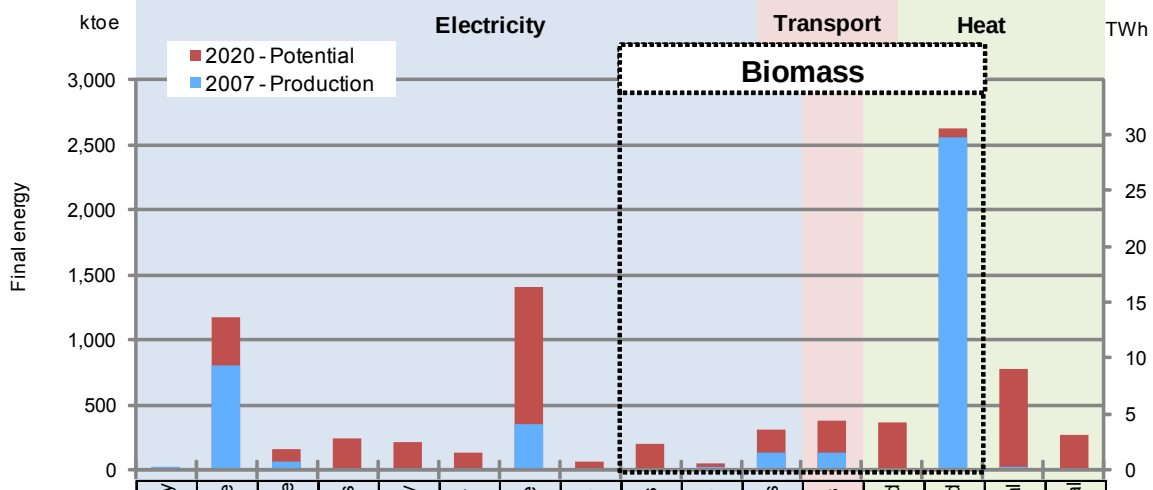
PORTUGAL - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	30%	2%	35%	21%
Share of total sector consumption in total final energy consumption	24%	37%	38%	100%
Production 2007 [ktoe]	1,395	135	2,598	4,129
Production 2005 [ktoe]	710	0	2,536	3,246
Production 1997 [ktoe]	1,224	0	2,411	3,635
Average growth 2005-2007 [%/a]	40%	-	1%	13%
Average growth 1997-2007 [%/a]	1%	-	1%	1%
Potential 2020 [ktoe]	3,973	383	4,039	8,394
Annual growth of RES needed to achieve target	-	-	-	3%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	17	801	67	2	0	0	347	0	6	24	132	136	0	2,563	26	9
Production 2005 [ktoe]	6	364	43	0	0	0	152	0	3	25	116	0	0	2,505	22	9
Production 1997 [ktoe]	4	1,072	55	0	0	0	3	0	0	0	89	0	0	2,394	16	1
Ø annual production growth 2005-2007	68%	48%	25%	183%	-	-	51%	-	36%	-3%	6%	-	-	1%	9%	0%
Ø annual production growth 1997-2007	15%	-3%	2%	37%	-	-	60%	-	52%	-	4%	-	-	1%	5%	25%
Total realisable potential by 2020 [ktoe]	27	1,177	165	246	208	127	1,404	67	199	47	305	383	362	2,625	780	272

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

Feed-in tariffs are available for almost all RES-E producers and have, in combination with tendering schemes forwind and biomass, proved to be very effective. They have lead to a very steep growth of both installed capacity and produced electricity over the last few years.

The scheme is not expected to change much in the coming period. Both the scheme and the tariffs are continuously monitored against results and level of maturity of the market.

In Portugal there have recently been political elections in September 2009, with socialist party being reelected. Nothing has changed in the recent month.

RES-H&C

A strong initiative for solar thermal water heating, and a support scheme for SME's to invest in all renewable energy technologies, give quite a good coverage for RES-H&C support. RES-C in particular could be more strongly supported for residential users. At the moment installations can only benefit from a tax deduction up to 755€.

RES-T

Portugal has transposed the directive European Directive 30/2003, and supports the ambitious target of 10% with tax exemptions. Nevertheless, road diesel must comply with European standard EN 590 and thus, until such time as this standard is altered, the maximum percentage of diesel that may be added is only 5%.

2 Details RES-Electricity Support Policy

Feed-in Tariff

With decree 189/88 (Decreto-Lei n.° 189/88 de 27 de Maio), Portugal introduced a legislative framework to regulate the production of renewable electricity.

The scheme has been reviewed several times since then, following the evolution of the electricity market and its liberalization. The scheme is commonly known as “Tarifa Verde”, or green tariff. The scheme applies to all production of renewable electricity, except hydropower plants larger than 10 MW.

Production of electricity from renewable energy sources is included in the regulation PRE, Produçao en Regime Especial (Special Regime).

One of the most important changes has been the differentiation of the rewarding tariff by technology, introduced by decree 339-C/2001 (Decreto-Lei n.° 339-C/2001 de 29 de Dezembro).

Decree 33-A/2005 (Decreto-Lei nº 33-A/2005, de 16 de Fevereiro) established a cap to the maximum energy production per installation which can receive the feed-in tariff for certain technologies (see column ‘Notes’ on Table 1).

The most recent amendment of the decree, with a complete republication of its Annex II, where tariffs are re-defined, is decree 225/2007 (Decreto-Lei n.° 225/2007 de 31 de Maio).

The scheme is controlled, monitored and reviewed by the DGEG (Direcção Geral de Energia e Geologia), the official governmental entity for Energy and Geology, a general directorate from the Ministry of Economics, Innovation and Development.

The feed-in tariffs, comprehensive of both the physical electricity and the green value together, are defined on a monthly basis for both existing and new installations, according to a rather complicated formula, introduced first in 1999 and then more recently modified, which currently depends on:

- peak/off-peak production factor: for each month it reflects how much the plant has produced during the day or during the night;
- capacity of the plant;
- cost of conventional production;
- cost of avoided CO2 emissions, weighted by a technology factor, called factor “Z”;
- inflation;
- cost of avoided losses on the grid.

On the DGEG website[115], detailed information about the average value of the tariffs since the last changes of 225/2007 is available. ERSE also publishes monthly reports on the electricity produced within a special regime.

115 www.dgge.pt

Table 1: Indicative average tariffs and support periods.

Technology	Indicative average tariffs (€/MWh)	Coefficient Z	Notes
Wind	74-75	4,6	Paid for 33 GWh/MW or 15 years
Hydro up to 10 MW	75-77	4,5	52 GWh/MW or 20 years. In exceptional cases 25 years.
PV > 5 kW	310-317	35	21 GWh/MW or 15 years
PV <= 5 kW	450	52	
Solar thermoelectric <= 10 MW	267-273	29,3	
PV microgeneration <= 5 kW	470	55	When installed in residential, commercial, services or industrial buildings. 15 years
PV microgeneration > 5 kW e <=150 kW	355	40	
Forestry biomass	107-109	8,2	25 years
Forestry biomass	102-104	7,5	
Biogas anaerobic digestion RSU, ETAR etc.	115-117	9,2	When limits on power installed at National level are achieved, Z becomes 3,8. 15 years
Landfill gas	102-104	7,5	
Unsorted urban waste (RSU)	53-54	1	15 years
Sorted/prepared urban waste (CdR)	74-76	3,8	
Waves (Demonstration up to 4 MW)	260	28,4	15 years
Waves (Pre-commercial up to 20 MW)	191	16-22	Factor Z is fixed through a decision of the government between 16 e 22 depending on the project value.
Waves (Commercial)			Factor Z is fixed through a decision of the government between lower and upper limit depending on the project value. 15 years
first 100 MW	131	8-16	
next 150 MW	101	6-10	
next	76	4,6	

Moreover, statistics on new capacity, electricity produced by each technology are available on a specific section of DGEG website, and updated every month.

The scheme is monitored, and changes to the legislative framework are evaluated based on the evolution of the expected results.

Recently, with an official act called 'Portaria' (Portaria 865/2009 de 13 de Agosto), high enthalpy geothermal energy has been added to the list of supported renewables, up to a limit of 3 MW per project and entity, and to the first 6 MW at a National level. The "Z" factor for this source is 29,4. For the remaining projects, and up to 10 MW in total at a National level, "Z" factor is fixed between the two values of 16,3 and 26,2 by a specific official act on a project basis.

Since the promotion of renewable energies did fulfill the government's expactations, tendering schemes were launched additionally in order to support wind and biomass power plants. The tenders launched for new wind - and forestry biomass power sites (see next paragraph), successfully resulted in a price for wind and forestry biomass that was lower than the previous equivalent tariff. On the other hand, the tariff could even now be too low for those technologies, to a point that most of the latest contracted power has not been built yet because similar projects are not showing good pay-back figures at those tariffs.

Off-shore wind energy is granted the same feed-in tariff as wind onshore, which means that no off-shore project has been developed so far (due to the higher investment needed). For this reason, project developers are currently putting pressure on the Government to define a new specific tariff for wind off shore.

Tendering Scheme for Wind and Biomass

Portugal has strongly supported the development of new wind energy capacity with a tendering scheme, organized in three phases (A, B and C) for a total of 1800 MW new power, from 2005 till 2008 (Phase A – 1200 MW, Phase B – 400 MW, Phase C – 200 MW).

The responsible organization is DGEG (www.dgeg.pt). Tendering procedure was on price and on implementation timing. Companies had to match pre-requirements.

Tendering schemes had a very positive impact on the licensing of new RES-E capacity in Portugal. But there was also a positive impact on the number of new jobs and the industrial development resulting from the construction of the new parks, mostly as a direct consequence of characteristics of the tendering procedures.

Another 15 tenders were launched starting from 2007 to assign a total of 100MW of new power generation capacity using forest biomass as a source. This is seen as a strategic development, which also reduces the risk of fires in the summer period, historically a dramatic problem for Portugal.

There is also criticism on the scheme from the market. Much of the biomass tendering and the last phase of the wind tendering, was based on a minimum discount of 4% compared to feed-in tariffs. The discount was so big that the biomass power plant now cannot be built because it is not economically viable.

Almost all the biomass with Portuguese origin used for energetic purposes is now exported to countries were the tariff is higher (e.g. UK). Project owners are putting pressure on the government to change tariffs to correct this market distortion. Running

plants are those authorized with a higher tariff or those plants like pulp mills which burn bark or the by-products of other processes.

A similar situation happened for wind, where other problems are reported on the financial viability not only because of the tariff which was discounted in order to win the tenders, but also because of the direct link between the project owner and the industry supplying wind turbines (requirement of the tender to create business coalitions to have new jobs created), which gave the turbine producers a monopoly.

The first two phase's plants have been built because the winning parties have a very high capitalization.

Note on NIMBY

Such a steep growth on the installation of new wind parks initially caused an increasing amount of opposition by people living in the areas where wind parks were to be installed.

To limit this opposition, the Portuguese government introduced a very smart rule: 2,5% of the monthly payment by the entity which receives the electricity, goes to the municipality hosting the wind park. When the wind park overlaps more than one municipality, this 2,5% is divided in proportion to the power quota installed over the different municipalities. In detail, the provision is included in number 27 of annex II to Decree 189/88, as republished in Art. 13 and Annex I to Decree 225/2007.

Small-scale RES-E

In addition to the special regime production defined by the feed-in tariff, a specific decree has defined the support incentives for small-scale generation of electricity (Decreto-Lei n.° 363/2007 de 2 Novembro). The scheme defines two different incentive levels:

- "Regime General": for connected power up to 5,75 kW, the tariff is the same as the regulated tariff.
- "Regime Bonificado": for connected power up to 3,68 kW

Plants which can access Regime bonificado can benefit from a base tariff of €650/MWh; a specific ratio of this amount is applied depending on the technology:

- Solar Energy Systems: 100%
- Wind Power Stations: 70%
- Hydro: 30%
- Biomass Fuelled CHP: 30%
- Fuel Cells Hydrogen coming from one of the above: same as above

In order to access the Bonificado regime, systems need to be installed in combination with a solar water heater with a total surface of at least 2 m2.

The tariff is limited to the first 10 MW of applications (applied for the first year and the following 5 years). After the first 10 MW, the tariff is reduced by 5% for each of the following 10 MW of capacity.

There is a cap on the maximum amount of electricity from RES-E:

- 2,4 MWh/year per (kW installed) for solar

- MWh/year per kW installed for other technologies
-

The application to install the 3,68 kW plants can be obtained on-line by signing-in to a dedicated register.

For more information see http://www.renovaveisnahora.pt/ (in Portuguese).

3 Details RES-Heating and Cooling Support Policy

Small-scale RES-H Generation

Solar water heating and biomass heating are supported through the law on small-scale generation, which obliges producers of electricity use a solar water heater in order to get access to the “regime bonificado” tariffs, with the exception of biomass CHP (that already produce hot water).

Solar thermal: Investment Support, Low Interest Loan & Building Obligation

For 2009, the Portuguese government launched a special programme to promote the installation of solar thermal panels on homes and buildings. The programme applies to the purchase of a solar thermal "kit", comprising panels and ancillary equipment, installation, yearly maintenance for six years, and a six year guarantee. The kit is acquired at a competitive cost, firstly due to large-scale negotiations between the government and manufacturers, which also facilitated competition, allowing for a quick reduction of prices (all producers participating are publicized on the dedicated scheme’s web site).
The government provides an immediate rebate of EUR 1,641.70 for the purchase of a solar thermal kit. Four banks (Banco Popular, Montepio, Banif, Crédito Agrícola, Caixa Geral de Depositos, BES, Millenium bcp, Santander Totta and BPI) have preferential rate financing programmes for those wishing to take a credit to cover the remaining cost of the solar thermal system. In addition, the incentive scheme can be combined with existing tax credit provisions for the installation of such systems (IRS deduction scheme, 30% with limit a limit of 796€ per installation).

Individuals can apply for the scheme up to 31 December 2009, or until the exhaustion of state funds provided for the scheme (EUR 100 million). It is not possible for one household to apply for subsidy for more than one system.

The government defined the objective for 2009 for the installation of 250.000 m^2 of solar thermal panels, for more than 65.000 households, which would represent a cap four times higher than those for 2006 and 2007. The total investment involved is estimated by the government to be 225 M€.

The system is deliberately limited to existing buildings, as new buildings are obliged to install solar systems by another existing decree, 80/2006 (Decreto-Lei n.° 80/2006 de 4 de Abril) which transposes the EPBD for large commercial buildings and small commercial building with air conditioning.

In addition, a reduced VAT rate of 12 % for the purchased equipment applicable to all renewable energy products, according to the specific decree (Decreto-Lei nº 109-B/2001, de 27 de Dezembro) is eligible.

There is a dedicated scheme's web site with all possible information (in Portuguese): www.paineissolares.gov.pt

Subsidies and Loans for SMEs

Portaria 1463/2007 of November 15th, defines incentives applicable to SMEs for investments to buy equipment for energy efficiency or sustainable energy production.

The Portaria includes a broad range of potentially financeable solutions.

Access to this financing is made available via the publication of specific tenders.

According to this first version, all renewable energy equipment, but more broadly, sustainable solutions, can receive an investment subsidy up to 35% of the eligible expenses (the percentage can be higher in particular situations, such as for small enterprises), with an upper limit of € 250,000 per project in case of a single SME. Higher amounts can be obtained when the request is presented by a consortium of SMEs.

If the investment is higher, the remaining part can be financed with a loan up to € 750,000.

Due to the particular situation caused by the global financial crisis and its national consequences, the initial framework has been temporarily modified (Portaria n.º 353-A/2009). According to the last version, valid until the end of 2010, all renewable energy equipment, but more broadly sustainable solutions, can be financed up to 40% of the eligible expenses, with an upper limit of € 400.000,00 per project in case of a single SME. Higher amounts can be obtained when the request is presented by a consortium of SMEs.

Stakeholders have reported some difficulties in obtaining access to this mechanism, particularly due to the fact that no money is being made available to run this scheme. It has not been properly enforced.

Solar Cooling

Solar cooling is still an expensive technology. In Portugal, very few installations exist, and the only activity is a training activity in the framework of the 'Solarit' IEE project. Diffusion of those systems, despite the very convenient irradiation of the Country, is scarce.

The only support for private persons to finance solar cooling plants in Portugal at the moment, is a tax reduction 30% of the investment or up to a limit of €766 (valid in general for all the renewable energy investment).

Building Obligations

EPBD directive has been transposed into Portuguese legislation through decree 80/2009 (Decreto-Lei n.° 80/2006 de 4 de Abril). The implementation of the directive is the overall responsibility of the Ministry of Economy together with the Ministry of Environment.

Since July 2007, Portugal has adopted a certification of energy efficiency for buildings. The responsible entity is ADENE (Agency for Energy) which also coordinates the training of qualified experts and is responsible for the Energy Certification module in all training courses related to the Directive on Energy Performance of Buildings. The

Portuguese Environmental Agency (APA) is responsible for monitoring energy efficiency and interior air quality under the System for Energy Certification in Buildings.

Decree 80/2006 revises Regulations on the Characteristics of the Thermal Performance of Buildings (RCCTE).

The decree is applicable to all buildings which are:

- new buildings for residential use
- new office buildings without central climatization system
- not new but subject to major refurbishments or changes on the structures or on the sanitary hot water systems (major refurbishments: changes to structures or system costing > 25% of the building value)
- all enlargements of existing buildings, with respect to the new portion.

Exceptions are made for:

- buildings which for their nature or have frequently managed open-air and are not heated or conditioned
- churches or cultural buildings
- industrial buildings dedicated to production processes
- garages, warehouses, workshops, agricultural buildings not for residential use
- refurbishment of buildings in historical sites where there is a demonstrable incompatibility with the regulation
- classified or security buildings, military buildings

Art. 7 of Decree 80/2006 introduces the obligation for buildings under the RCCTE to install at least 1m^2 of solar thermal panels for each conventional inhabitant of the building (limited to 50% of total available top surface) for the production of sanitary hot water.

The obligation is only applicable when the following conditions persist:

- there is availability of inclined surface in the range of 90° between South-East and South-West,
- the surface is not affected by shadowing effect between two hours after sunrise and two hours before sunset.

As an alternative to solar thermal panels, any other renewable energy source producing the same amount of thermal energy on an annual basis is accepted.

CHP

In general, legislation encourages the use of CHP in Portugal, and electricity produced by high-efficiency co-generation is subject to the Special Remuneration Regime as well as electricity produced from renewable energy sources.

Small-scale generation of electricity from renewable energy obliges the use of the heat produced for co-generation installations.

For more information about co-generation in Portugal, see: http://www.cogenportugal.com/general_content/showInformation.aspx?mt=1&ml=2&type=2

4 Details RES-Transport Support Policy

Quota Obligation

With Decree 62/2006, Portugal transposed the European Directive 30/2003, on the promotion of the use of biofuels or other renewable fuels for transport, into its legislation, establishing a target for the share of biofuels in total fuel consumption in the transport sector of 5,75% until 31st December 2010.

In September 2008, the Council of Ministers approved a rule extending the existing tax exemptions for small biofuel producers to municipalities. The rule will allow municipalities and companies to produce biofuels with the final product to be used exclusively for the producers' own transport fleets or in the fleets of non-profit entities.

A further decree (Decreto-Lei n.° 49/2009 de 26 de Fevreiro) establishs a minimum quota for the incorporation of biofuels into diesel for road transport. According to this decree, oil companies are obliged to include 6% of biodiesel into diesel in 2009, and 10% in 2010.

Nevertheless, road diesel must comply with European standard EN 590 and until such time as this standard is altered, the maximum percentage of diesel that may be added is only 5%.

The new rules, approved by the Council of Ministry day 23rd of December 2008, are addressed to producers of bio-fuels for road transport and to whatever entity is commercializing diesel for road transport. Small producers are excluded from these provisions. Sanctions between €500 and €3.470 for 'single persons' and between €2.500 and €44.891 for 'collective persons' are established in case of violation of minimum percentages.

Voluntary agreements are set to adopt biofuels with 10% minimum amount of biodiesel vs diesel for public fleets for transport of passengers or goods.

The entity responsible for the implementation and monitoring of the scheme is DEGE[116] (Direcção Geral de Energia e Geologia).

Tax Exemptions

Through decree 66 of 2006, Portugal introduced tax exemption for 5 years for small producers up to maximum 15000 tons, and in a range of 0,38 and 0,30 €/litre for larger producers.

116 www.dgge.pt

5 RES-E Grid Integration

Last resort supplier (the supplier obliged to provide public service in case no private supplier is available) has the obligation to buy all electricity generated in special regime (all renewable energy sources, CHP, etc.).

Sites for new wind and forestry biomass power plants are tendered and located where they allow an efficient and consistent development of the grid.

Priority in grid connection is established according to the National Energy Strategy Plan.

Independent small producers have more difficulties, due to the low capacity of the grid to absorb all requests for new connections.

Limited capacity of the grid, in some areas (although this apparently is manageable) together with limited electricity storage capacity (depending on authorization of some large hydro plant) are two of the most important obstacles that Portugal needs to resolve, in order to manage the ambitious targets of renewable energy penetration.

There is only one single operator for the national grid. Distribution at high and medium voltage is operated by EDP Distribuição in exclusive concession. Transmission activity is carried out by REN Rede Eléctrica. Connection processes are normally completed in an acceptable time.

In the case of grid extensions / upstream grid reinforcements when new capacity for renewable energy is installed, the "shallow" mode applies, meaning that costs for the physical connection to the nearest grid connection point are paid by the project owner, while the upstream reinforcement costs are paid by the network operator and split among all network users. Costs for connections are reported (unofficial sources) to be quite high when compared to those in other European countries.

As explained before, in Portugal generation is divided in two blocks:

1. PRO - Ordinary Regime Production, which makes offers on the market; includes plants like fuel/coal fired conventional thermal, combined cycle gas turbines and hydro;

2. PRE - Special Regime Production, with feed-in-tariffs; this group includes all the RES-E (wind, hydro, renewable cogeneration, waste, biogas, biomass, solar) plus some non-renewable fuel fired cogeneration plants

As previously stated, PRE has priority in case of grid congestions. PRE production cannot be restricted except when only that specific production can solve those congestions. Currently, in Portugal the project owner has no obligation or responsibility to forecast its production.

6 RES Production, Potential and Market Development

Total installed capacity of renewable energy reached at the end of august 2009, 8.878 MW, according to DGEG. Total licensed capacity same date was 10.210 MW.

Tendering schemes and feed-in tariffs allowed steep growth rates for Wind, Biomass, Biogas and PV.

At the end of August 2009, the total wind power installed was 3,430 MW, distributed between 191 wind parks and 1826 wind turbines. Before the end of the year, the total installed power will be around 3,800 MW. Until August, total licensed power was 4,242 MW.

Given the high rate of equivalent hours for wind (in 2008 average continental Portugal was of 2,273 hours for wind energy), this immediately resulted in a strong increase of the penetration of RES-E,

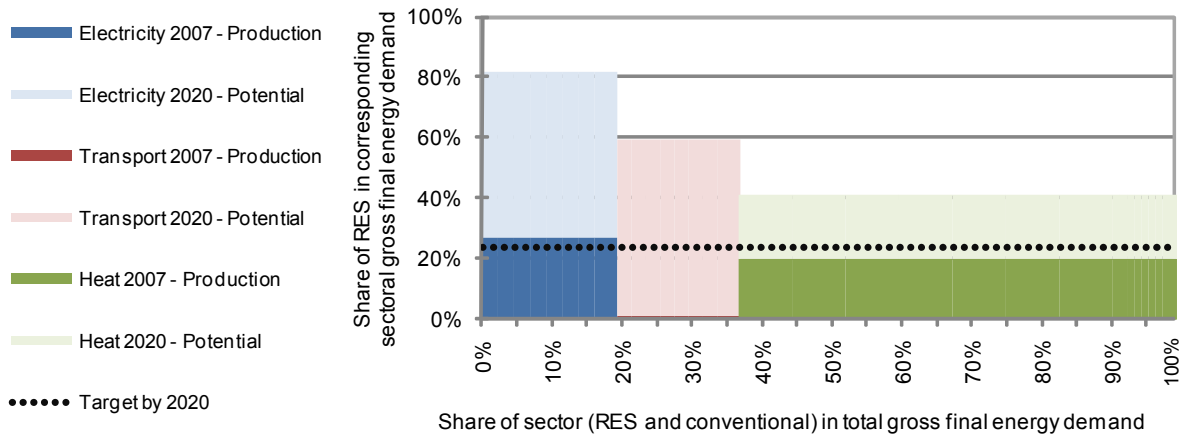
Wind energy production alone is primarily responsible for the high growth rate since 2002 till today. PV energy starts to be apparent this year, after the construction of the new large PV parks.

We can see in any case very favourable results of the last year's developments, resulting in a harmonized increase of all significant contributions, with priority given to sources with larger production potentials.

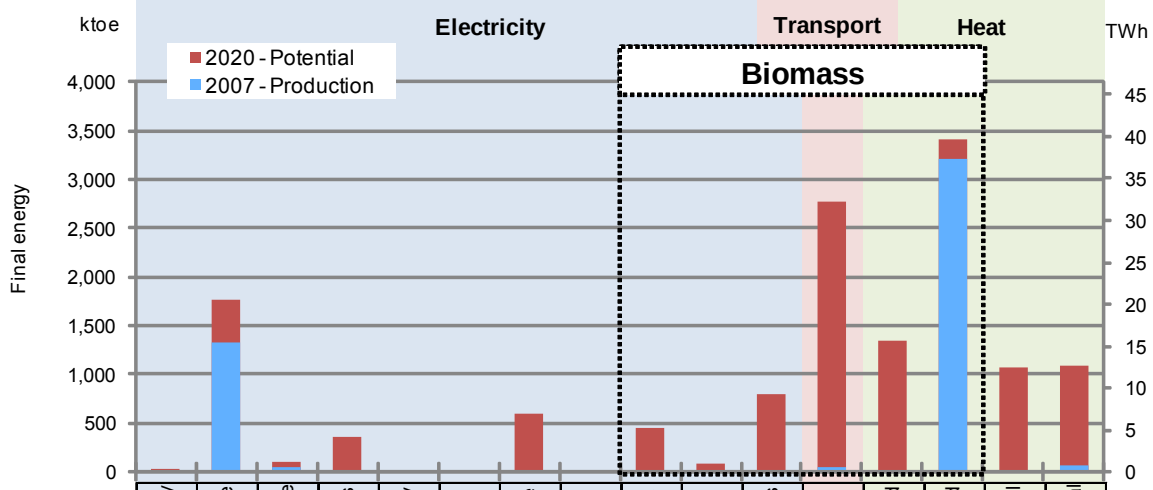
According to the new building certification obligations, and considering the large amount of solar irradiation, PV is expected to continue the strong growth of the last years both in installed capacity and in GWh produced (+300% in 2009 vs 2008).

Portugal is preparing the National Action Plan to reach the EU 2020 targets. According to a business source, if all the actions being planned will actually be implemented, Portugal could reach the impressive amount of 70% of electricity consumption by renewable energy sources. A barrier in licensing the projects (special large and small hydro and wind) could be caused by local opposition. Pump storage is said to be crucial in order to have the chance to exploit such a large amount of fluctuating production.

ROMANIA - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	27%	1%	20%	18%
Share of total sector consumption in total final energy consumption	19%	18%	63%	100%
Production 2007 [ktoe]	1,376	40	3,301	4,717
Production 2005 [ktoe]	1,745	0	3,252	4,997
Production 1997 [ktoe]	1,546	0	3,363	4,909
Average growth 2005-2007 [%/a]	-11%	-	1%	-3%
Average growth 1997-2007 [%/a]	-1%	-	0%	0%
Potential 2020 [ktoe]	4,193	2,781	6,924	13,898
Annual growth of RES needed to achieve target	-	-	-	4%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	1,321	52	0	0	0	0	0	0	0	3	40	18	3,215	0	68
Production 2005 [ktoe]	0	1,680	65	0	0	0	0	0	0	0	1	0	17	3,167	0	68
Production 1997 [ktoe]	0	1,506	40	0	0	0	0	0	0	0	1	0	0	3,296	0	67
Ø annual production growth 2005-2007	-	-11%	-10%	-	-	-	-	-	-	-	138%	-	3%	1%	-	0%
Ø annual production growth 1997-2007	-	-1%	3%	-	-	-	-	-	-	-	12%	-	-	0%	-	0%
Total realisable potential by 2020 [ktoe]	39	1,764	106	355	0	5	604	4	451	77	789	2,781	1,352	3,408	1,073	1,091

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The key support policy instrument at the national level is the Quota obligation based on Trade of Green Certificates (GCs). A change occurred in 2009, when a new Law (no.220/2008), the minimal and maximal values of GCs were established at 27 €/MWh and 55 €/MWh respectively. Additionally, a penalty level for not compliance with the target is set at 79 €/MWh. Other provisions of the Law which did not yet enter into force and may be postponed included setting 2 GCs per MWh from hydro until 2030 and 2 GCs for wind only until 2015 whereas beyond wind energy is only eligible for 1 GC, 3 GCs per MWh from biomass and 4 GCs per MWh from PV until 2030. The instrument, as it is today, is correctly organized but not sufficiently attractive: too low values of GCs and no guarantee on long term stability.

The policy changes are expected in connection to the NREAP to be prepared for the European Commission. Hydro, wind and CHP biomass are expected to be the main contributors to the RES target for 2020. 4,000 MW of wind power projects are said to be in the pipeline.

RES-H&C

There is no specific mechanism to promote RES-H&C, except for the existence of co-financing of some projects within programs such as European Structural Funds or the Environment Fund. The biomass potential is large, relying on forestry and agricultural waste but also on the use of available land (2-3 millions ha) for energy crops.

Some support schemes for CHP biomass are expected to be announced within the NREAP.

RES-T

The support mechanisms to promote biofuels are a quota system and the exemption of excise tax for biofuels. Romania is a country with a large agriculture sector and available agricultural land will probably produce sufficient biofuels to meet its target and also to export biofuels.

2 Details RES-Electricity Support Policy

Romania adopted a quota system based on Green Certificates (GC) trading in 2005. In 2008, the Law 220, to establish a promotion system for production of energy from renewable energy sources, stated important improvements on the existing GC regulations, but no secondary legislation has yet been approved by the Government in order to make the law operational, although the regulatory body ANRE prepared a draft for a Governmental Decision (www.anre.ro/download.php?id=2373). Most probably the economic recession caused a postponing of the law 220 entering into force only in 2010. The RES-E associations are constantly lobbying for the implementation of the law 220.

Below the present GC mechanism conditions are described, but also the new conditions foreseen by Law 220.

RES-E projects may receive additional other grants, besides the GC mechanism, as co-financing by European structural funds (see Governmental Decision 750 dated 9 July 2008) or by the national Environment Fund (www.afm.ro). These facilities are given on a selection basis, not as general scheme for all RES-E projects

Green Certificates Support Mechanism

The instrument states mandatory RES-E quotas combined with tradable green certificates.

The instrument is managed by:

- the National Energy Regulatory Authority ANRE - controls quota fulfillment and applies penalties
- -E-SRE Producers -sell GC
- Electricity Suppliers -buy GC
- Electricity Market Operator OPCOM, trades GC
- the Transport and System Operator TRANSELECTRICA (and Distribution Operators) – issues GC, collects and redistributes to the producers the amount of money from the penalties

More information about the instrument is available on: www.opcom.ro and OPCOM GC department: Constantin VASILEVSCHI , tel. : 021 3071.448, constantin.vasilevschi@opcom.ro, Gherghina Dida VLADESCU, tel. :021 3071.456, gherghina.vladescu@opcom.ro

A report on the GC market operation in 2008 is available on (www.anre.ro/download.php?id=2582).

The primary legislation on the instrument is:

- GD (Governmental Decision) 443 / 2004 on promoting renewable energy sources
- GD 1535 / 2003 on approving the Strategy for using renewable energy sources
- GD 1892 / 2004 on establishing the promotion system for electricity produced from renewable energy sources

- GD 958 / 2005 in order to modify GD no 443 / 2003 and to modify and complete GD no. 1892 / 2004
- GD no. 1429 / 2004 regarding the approval of the Regulation for guaranteeing the origin of electricity produced from renewable energy sources

As second regulation is relevant ANRE Ordinance 40 /2005 for the RES market - Regulation for Green Certificates Market Organization and Functioning.

The instrument has been operational since 2005. In August 2005, the first GCs were issued and in November 2005 the first transaction on the centralized GC market took place. No end date has been set.

Because there is a large imbalance between the offer and the demand, the GC quota is reduced yearly (at the end of year) by ANRE to the amount of offered GCs. Therefore almost no penalties are given. The design of the procedure is to reduce the quota to the level of GC supply is that one should not penalise someone who wants to buy but cannot due to insufficient supply. E.g. the quota for 2008 was modified from 5.26% to 0.316% (www.anre.ro/download.php?id=2319). Obviously this reduces the effectiveness of the penalty and the complete quota system. Hence, a much higher investment risk is caused by this fact, hampering the overall RES development in Romania.

There are no maximum or minimum sizes of plants which are eligible, except hydro plants which are rated maximal 10 MW, new or refurbished after 2004. Neither exists a cap on the annually available budget for new installation.

A RES-E project may receive also other grants, besides the GC mechanism, as co-financing by European structural funds (see Governmental Decision 750 dated 9 July 2008) or by the national Environment Fund (www.afm.ro). These facilities are given on a selection basis, not as general scheme for all RES-E projects.

The regulation does not make the support conditional to the use of certified equipment and/or certified installers.

The quota in the coming years is

- 2009 - 6.78%
- 2010-2012 – 8.3%

Law 220, once it will become operational, .guarantees that the system will remain in place until 2020. The foreseen quotas are:

Year	Annual binding quota , %
2013	9.0
2014	10.0
2015	10.8
2016	12.0
2017	13.2
2018	14.4
2019	15.6
2020	16.8

The energy supply companies are obliged to respect the quota. Some DSOs are also energy supply companies.

The present GC mechanism does not make a difference between the technologies.

The proposed Law 220 foresees the following certificates distribution until 2030, if not stated otherwise:

- 1 GC/ 1 MWh for re-furbished small hydro
- 1 GC / 2 MWh for non-refurbished small hydro with 1 -10 MW capacity
- 2 GC / 1 MWh for micro-hydro – up to 1 MW
- 2 GC / 1 MWh for wind power – until 2015
- 1 GC / 1 MWh for wind power – from 2016
- 3 GC / 1 MWh for power from bioenergy or geothermal
- 4 GC / 1 MWh for PV

With respect to biomass cofiring plants, they are also eligible for 3 GC/MWh and hold a huge potential in Romania.

The scheme covers the following technologies:

- small hydro up to 10 MW capacity
- wind power
- bioenergy and cofiring bioenergy
- geothermal
- PV
- waves

The trade of GCs is allowed on a centralized market organized by OPCOM. For the period 2008-2014 the value of GC transactions are set to min. 27 €/GC and max. 55 €/GC. Minimum value for 2015-2030 may be no less than the minimum GC price stated for 2014.

70 €/MWh are considered as penalties in case of quota non-fulfillment. By ANRE Order, the penalties are allocated to Grid Operators, DSO and TSO. The corresponding methodology was approved by Order 62/2009 (www.anre.ro/download.php?id=2629).

Because supply was lower than demand, the prices of GCs were at the maximal value of 42 €/GC. No futures are traded. The prices are public, on the OPCOM web site (http://www.opcom.ro/portal/content.aspx?lang=RO&item=2165)

The certificates may be kept unlimited. The support scheme for RES-E may be applied also to High Efficient Cogeneration using biomass (totally or in a co-combustion process).

The regulatory body ANRE prepared a Governmental Decision on the conditions and criteria to implement the support mechanism for the promotion of high efficiency cogeneration (www.anre.ro/download.php?id=964).

There is not yet any support schemes specifically related to district heating, small scale heating or industrial applications.

3 Details RES-Heating and Cooling Support Policy

Capital grants

The only support mechanism is the so called CASA VERDE (Green House) program, focusing on building heating systems using RES (see below). It was announced in 2008, modified and postponed several time since then. In this respect the lack of funds seems to be an explanation. Probably it will become operational and significant no latter than the end 2010.

Nevertheless, there are other grants which may be given to RES-H projects, such as co-financing through European Structural Funds (see Governmental Decision 750 dated 9 July 2008) or by the national Environment Fund (www.afm.ro), but these schemes are based on a selection process and are not a general scheme for all projects.

There are no additional instruments to promote RES-H the regional/local level

More details on the, CASA VERDE program, which is not in force yet, is given below:

The program provides capital grants for RES heating systems in buildings replacing conventional heating systems. Hereby several RES options like solar, geothermal, wind energy or other systems which bring improvements to the air, water and soil quality are eligible for grants.

Ministry of Environment is managing the instrument. Details are given on: http://www.mmediu.ro/casa_verde.htm

The instrument conditions were modified several times up to now.

The instrument was introduced by the Ministry Order no.1339/2008, but is still pending. The instrument guide, approved by the Order no.565 dated 8 May 2009, is available on

http://www.mmediu.ro/ghiduri/ghid_finantare_energie_regenerabila.rar

It is envisaged to be operational by end 2009, alöthough most probably it will be postponed to end of 2010. There are no mentioned start and end dates. The 2010 budget is not yet known.

Initially, the support was conditional to employ certified installers from an approved list, but now there is no conditionality.

The instrument covers 70% of the capital costs. The beneficiaries are local authorities who may apply for projects regarding public buildings and residential buildings managed by an association of the owners.

There are periodical calls. In 2009 have been 2 calls announced and even a budget of 310,000 RON (about 78,000 €) was stated for 2009, however, in the end the budget was not eligible.

4 Details RES-Transport Support Policy

Quota obligation

The central instrument is a quota obligation. Biofuels are exempted from excise tax

Romania should ensure the introduction on the market for transport purposes, of a minimum percentage for biofuels and other renewable fuels of 5.75% until 2010. This is calculated on the basis of energy content of all petrol and diesel consumption in transport sector.

The instrument is managed by:

- the Ministry of Economy, Directorate of Infrastructure Quality and Environment is monitoring the biofuels policy
- the licensed laboratories ROMPETROL and ROMCONTROL develops fuel analysis to certify the biofuel content
- the Ministry of Agriculture is monitoring the development of energy crops

More information about the instrument is available from the Ministry of Economy: http://www.minind.ro/

Mrs. Cristian Ion, Director of the Directorate of Infrastructure Quality and Environment, cristiana_ion@minind.ro

The quota of biofuels is monitored and reported annually.

The primary legislation is:the “Government Decision, no. 1844/2005” which was adopted according to the “Government Decision, no. 456/2007”. The fuel suppliers are obliged to fulfill the quota. The technologies covered by the scheme should produce as final products bioethanol or biodiesel. For the energy crops there is an additional support to farmers of 45 €/ha, according the Governmental Urgency Ordinance 125/2006, art.10.

There is a gradual introduction of a minimum percent of biofuels in conventional fuels, as follows:

a. from 1 July 2007, diesel with a minimum biofuel content of 2% in volume;
b. from 1 January 2008, diesel with a minimum biofuel content of 3% in volume;
c. from 1 July 2008, diesel with a minimum biofuel content of 4% in volume;
d. from 1 July 2009, petrol with a minimum biofuel content of 4% in volume;

The regulation does not make the support conditional to the use of certified equipment and/or certified installers. There is no specific support for electric vehicles that use renewable electricity.

5 RES-E Grid Integration

Grid operators are obliged to connect renewable energy systems to their grids as a priority, unless this poses a risk to the correct operation of the national energy system (art. 20 Law no. 220/2008).

In practice, RES-E projects do not have grid connection priority, or a dispatch priority.

Regarding the grid extensions / upstream grid reinforcement costs, the system is close to a “shallowish” connection charging: only the costs of the physical connection to the nearest grid connection point including new transformer stations or necessary upgrades of existing transformer stations have to be carried by the RES-E project; upstream reinforcement costs are paid by the network operator/ split among all network users

The new Law 220 and the Grid operator’s norms make project developers responsible to pay for the required balancing energy. Therefore the project should forecast its production and should pay for balancing energy in case actual production and forecasted production deviate from each other. The support instrument does not include an extra remuneration for these balancing costs. The balancing costs are the same as for any other electricity producers on the market.

6 RES Production, Potential and Market Development

RES-E

Key technologies in terms of potential are hydro power, biomass (agricultural waste, forestry waste, biogas), wind energy and Photovoltaic. However, in the near future apart from hydro power mainly wind and biomass energy will be exploited.

Due to the size of the additional not yet used agricultural land (3 millions ha) and the huge potential for cofiring biomass plants, biomass is expected to be one of the most promising RES-E technology.

In recent years wind energy projects became very attractive for investors as there are 20,000 MW intended to be installed, and about 3,000 MW approved to be connected to the grid.

RES-H&C

Key technologies in terms of future potential, deployment and growth rates are the biomass technologies based on agricultural waste, forestry waste and biogas both in CHP and District Heating plants but even more in the individual non-grid connected heat sector.

Nowadays, only biomass in the individual, non-grid connected heat sector is party exploited, in form of log wood and mostly used in inefficient rural stoves. A switch towards more efficient residential heating systems and to DH systems supplied by modern boilers or CHP units is expected.

RES-T

Key technologies in terms of deployment and growth rates are the ones producing biodiesel from rape and bioethanol from cork, sweet sorghum etc.

Due to the size of exploited agricultural land and the additional not used agricultural land (3 millions ha), biofuels have a large potential for development, in order to fulfil national quotas and also for export.

In the last 4 years there was a constant growth of biodiesel production capacities, totaling nowadays some 400,000 tons/year.

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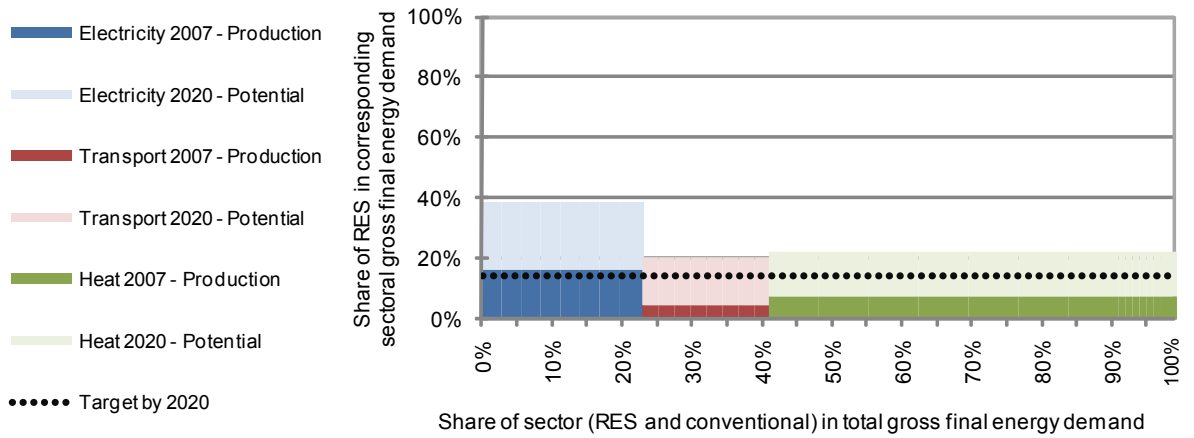
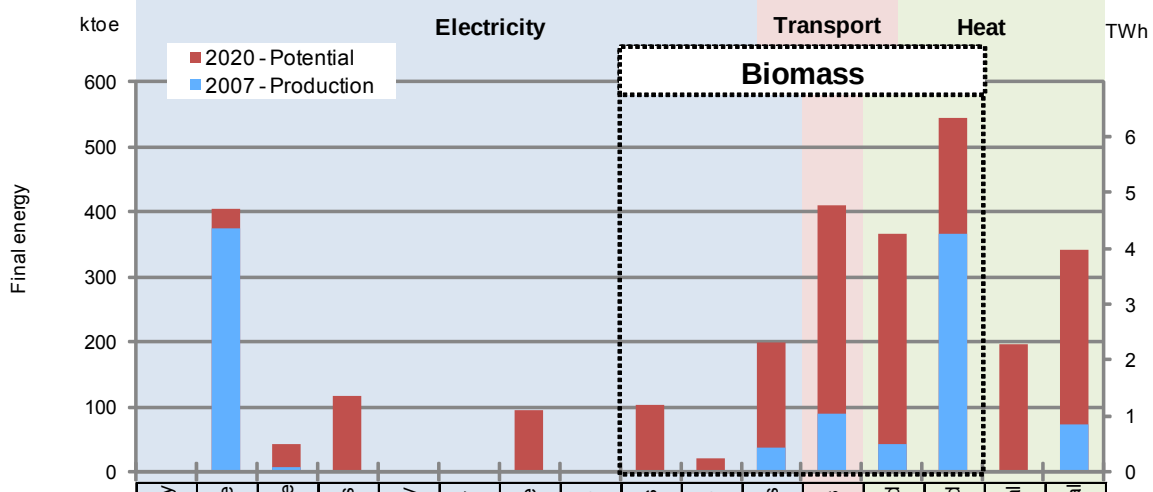
SLOVAKIA - Summary: RES target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	17%	4%	7%	9%
Share of total sector consumption in total final energy consumption	23%	18%	59%	100%
Production 2007 [ktoe]	424	89	481	994
Production 2005 [ktoe]	402	11	430	843
Production 1997 [ktoe]	350	0	51	401
Average growth 2005-2007 [%/a]	3%	184%	6%	9%
Average growth 1997-2007 [%/a]	2%	-	25%	10%
Potential 2020 [ktoe]	982	410	1,450	2,842
Annual growth of RES needed to achieve target	-	-	-	4%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	376	7	0	0	0	1	0	1	1	38	89	43	366	0	72
Production 2005 [ktoe]	0	394	5	0	0	0	1	0	0	2	0	11	43	315	0	72
Production 1997 [ktoe]	0	350	0	0	0	0	0	0	0	0	0	0	0	5	0	46
Ø annual production growth 2005-2007	-	-2%	15%	-	-	-	7%	-	66%	-14%	950%	184%	0%	8%	-	0%
Ø annual production growth 1997-2007	-	1%	-	-	-	-	-	-	-	-	-	-	-	54%	-	5%
Total realisable potential by 2020 [ktoe]	2	404	43	117	0	0	94	0	102	20	200	410	367	545	196	342

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

Currently, the key support instrument of RES-E in Slovakia is a feed-in tariff. The Regulatory Office for Network Industries sets feed-in tariff rates annually, taking into account the index of national core inflation. The revision of feed-in tariffs every year brings some uncertainty into the RES-E market.

On 19 June 2009, Slovakia adopted a new Law on the Promotion of RES and High-Efficiency Cogeneration in order to foster the attractiveness of investments in RES technologies and to meet the country's EU targets. New RES-E support schemes will enter into effect on 1 January 2010. Under this new support scheme, a feed-in premium will be available for RES-E producers. Some secondary legislation for full implementation of this new law has not yet been adopted.

Slovakia also promotes the RES-E through a fiscal measure: exemption from consumption tax.

RES-H&C

The generation of RES-H is supported by investment subsidies under the Governmental Programme for Promotion of Biomass and Solar Energy Use in Households. Based on this programme, households that install a biomass boiler or solar panels are eligible for a subsidy under specified criteria.

RES-T

There are two main RES-T support measures: quota obligations and excise tax exemptions. Producers and vendors are obliged to blend a minimum 2% of biofuels in fuels for transport up to 31 December 2009. The main target is 5.75% for energy from RES in transport by 2010.

2 Details RES-Electricity Support Policy

Feed-in Tariffs

Since 2005, Slovakia has had a feed-in tariff in place, based on the Law on Energy [1].

The Regulatory Office for Network Industries (http://www.urso.gov.sk/en/site-map) sets feed-in tariff rates annually, taking into consideration the index of national core inflation. The latest amendment was issued on 28 July 2008, by Decree on electricity price regulation No. 2/2008 [2]. The feed-in tariff level for 2009 presented in table 1 (ranges indicate lowest and highest level, which depend on the year when the plant started to operate).

Table 1. Feed-in tariffs for 2009 [2]

RES technology	Level of support			
	Overall level of support		Plants started in 2009	
	SKK/MWh	EUR/MWh	SSK/MWh	EUR/MWh
Hydro under 1MW	2500-4000	84-134	3400	113
Hydro 1-5 MW	2250-3600	75-120	3060	102
Solar PV	12000-13500	400-450	13500	450
Wind	2550-3060	85-102	2550	85
Geothermal	5900	197	5900	197
Biomass combustion	3200-3900	107-130	3900	130
Biomass co-firing	3100-4000	104-134	4000	134
Biogas combustion	3100-5350	104-179	3100-5350	104-179

* 1 EUR=30.126 SKK

The fixed tariff is determined for different types of RES technologies on the basis of installed capacity and the date of commissioning the plant (before or after 1 January 2005). The feed-in tariff has been determined in such way that the pay-back period is 12 years.

Regional energy utilities purchase RES-E for a fixed feed-in tariff (table 1) based on the guaranties of origin under the Government regulation that determines the rules for the operation of the market in electricity No. 317/2007 [3].

New Feed-in Premium

Recently, on 19 June 2009, the Slovak Republic, in an attempt to foster the attractiveness of investments in RES technologies and to meet the country's EU targets, adopted the Law on the Promotion of RES and High-Efficiency Cogeneration [4]. This Law revises the rules for RES-E support and introduces new support rules for electricity produced at high-efficiency cogeneration plants. This Law also introduces new rules on biomethane production. Some secondary legislation for full implementation of this new law has not yet been adopted.

New RES-E support schemes will enter into effect on 1 January 2010. The new support scheme is available for the following RES technologies: hydropower, solar, wind,

geothermal, biomass (including all products derived from biomass processing), biogas, sewage gas and biomethane.

Under this new support scheme, a feed-in premium will be available for RES-E producers. The feed-in premium scheme will be based on a premium payment on top of the basic electricity price. The feed-in premium will be set by the Regulatory Office for Network Industries for a certain type of RES. A producer of RES-E will be entitled to a premium for 15 years after the initial operation, reconstruction or modernization of a power plant. The premium will be determined taking into account the type of RES, technology used, the date of the installation, the size of the installation.

RES-E producers have the right to a premium if the total installed capacity is up to 10 MW. If the installed capacity exceeds 10 MW, the right to the premium applies to a proportional part of produced electricity calculated as a ratio of 10 MW to the total installed capacity. In the case of wind energy, producers have right to a premium if the total installed capacity is up to 15 MW.

The Regulatory Office for Network Industries upon request of RES-E producer will issue a guarantee of origin for the preceding year. The Slovak Republic accepts guarantees of origin issued in other EU countries for disclosure purpose, but not within the feed-in support system.

Biomethane producers have the right for a priority connection to the natural gas pipeline and priority distribution based on the Law on promotion of RES and high-efficiency cogeneration [4].

The Ministry of Economy (http://www.economy.gov.sk/) and the Regulatory Office for Network Industries are responsible for implementation of this Law. All related secondary legislation should be adopted by the end of 2009.

Exemption from consumption tax

In Slovakia, electricity is subject to a consumption tax [5]. Renewable energy is promoted through the exemption of the consumption of RES-E from tax. All technologies used in the RES-E generation are eligible for this exemption. The amount of subsidy equals the amount of tax entitled persons are exempt from. The amount of tax is calculated on the basis of the amount of electricity in kWh and the corresponding tariff. From 01/07/2008 to 31/12/2009, the tax on electricity amounts to 0.02 SKK/kWh (0.07 €ct/kWh). From 01/01/2010 onwards, the amount of tax will amount to 0.04 SKK/kWh (0.13 €ct/kWh).

3 Details RES-Heating and Cooling Support Policy

Subsidy

The generation of RES-H is supported by subsidies. In 2007, the Government of the Slovak Republic adopted the Programme for Promotion of Biomass and Solar Energy Use in Households, which is financed from the state budget [6]. Based on this Programme, households that install a biomass boiler or solar panels are eligible for a subsidy under specified criteria. Only new installation of biomass boilers and solar collectors can claim a subsidy. The subsidy can be granted to the owner of the house or the legal administrator of house.

The total budget of this programme is 8 million EUR. It is foreseen to fund approximately 5000 units (solar collectors, biomass boilers or combination thereof).

Requirements for supported solar collectors are the following:

- efficiency should be at least 525 kWh/m^2 per year for installations completed as of 2010;
- certificate of Solar Keymark (issued in EU) is necessary.

Requirements for supported biomass boilers are the following:

- boilers for burning wood pellets, wood briquettes, wood chips, wood logs;
- efficiency should be at least 84% (certified by EU laboratory);
- emissions should be less than 1500 mg/m^3 for carbon monoxide and 100 mg/m^3 for solid particles;
- some additional safety equipment is necessary.

Amount of subsidy for solar collectors:

- 200 EUR per 1 m^2 for up to maximum 8 m^2;
- 50 EUR per 1 m^2 for installations above 8 m^2;
- 300 EUR per 1 m^2 for apartment houses, if area of solar collectors for one apartment is less than 3 m^2.

The amount of subsidies for biomass boilers can reach up to 30% of the installation price, but not more than 1,000 EUR.

Building Obligation

An obligation to evaluate the possibility of RES utilisation in new large buildings is adopted by the Act on Energy Efficiency of Buildings No 555/2005 [7]. According to this Act it is necessary for new large buildings to perform the technical, economical and environmental evaluation of utilization of alternative energy systems.

CHP Support

Slovakia supports electricity produced at high efficiency CHP depending on capacity of CHP, on used technology and on data of power plant put into operation.

4 Details RES-Transport Support Policy

Quota Obligation

The Government Regulation on the Minimum Amount of Motor Fuels Produced from RES No 246/2006 sets the mandates on the minimum quantity of renewable fuels in the petrol and diesel fuels marketed in the Slovak Republic [8]. This regulation entered into effect on 1 May 2006. Producers and vendors are obliged to blend a minimum 2% of biofuels in fuels for transport, based on the energy content of the total quantity of petrol and diesel fuel placed on the market until 31 December 2009. The primary target is 5.75% for energy from RES in transport by 2010. There is no penalty for non fulfillment of quota obligation.

Excise Tax Exemption

Since May 2004, pure biofuels used for transport purposes have been fully exempt from excise tax [9]. In July 2007, a scheme for offering reduced excise tax on biofuel blends has been introduced. Diesel blends with esters and petrol blends with a bioethanol derivate, ETBE, receive excise tax exemptions proportional to the content of biofuel in the blend. The exemptions are limited to 7.2% for petrol blend with ETBE and to 5 % for diesel blend with esters.

There is no specific support for electric vehicles that use renewable electricity and no specific support for biofuel produced from waste or residues.

5 RES-E Grid Integration

According to the Law on Energy 656/2004, the producer generating RES-E has the preferential right for transmission, distribution and supply of electricity if the technical conditions are satisfied [1]. The supplier is obliged to purchase power generated from RES and CHP units.

Based on the Law on the promotion of RES and high-efficiency cogeneration No. 309/2009, RES-E producers have priority for connection, transmission, distribution and supply of electricity [4]. The priority right is not subject to any time limit.

Slovakia applies the deep connection charges approach in case of necessary grid reinforcement. The cost for grid connection (according to the capacity) is to be covered by the applicant for connection (RES-E generator) in the form of the fee for connection [10]. The connection fees are calculated according to transparent rules presented in the business conditions of individual TSO or DSOs. The size of fees for the connection corresponds to the size of costs required for essential technical modifications and a fee for reserve capacity.

Transmission and distribution system operators are responsible for the balancing of RES-E generation.

6 RES Production, Potential and Market Development

RES-E

The contribution of RES-E to the overall electricity consumption in Slovakia was 14.3% in 1997 and 16.6% in 2007. RES-E production is fully dominated by hydropower, generating 4,451 GWh in 2007. The highest growth was achieved by biomass during 2005-2007. In 2007, solid biomass and biogas contributed 452 GWh to electricity generation. The use of wind power is not significant, amounting to only 8 GWh in 2007.

RES-T

Since 2005, biofuel consumption in Slovakia has increased significantly: from 9 ktoe in 2005 to 89 ktoe in 2007. In 2007 biodiesel consumption was 77 ktoe and bioethanol to 12 ktoe.

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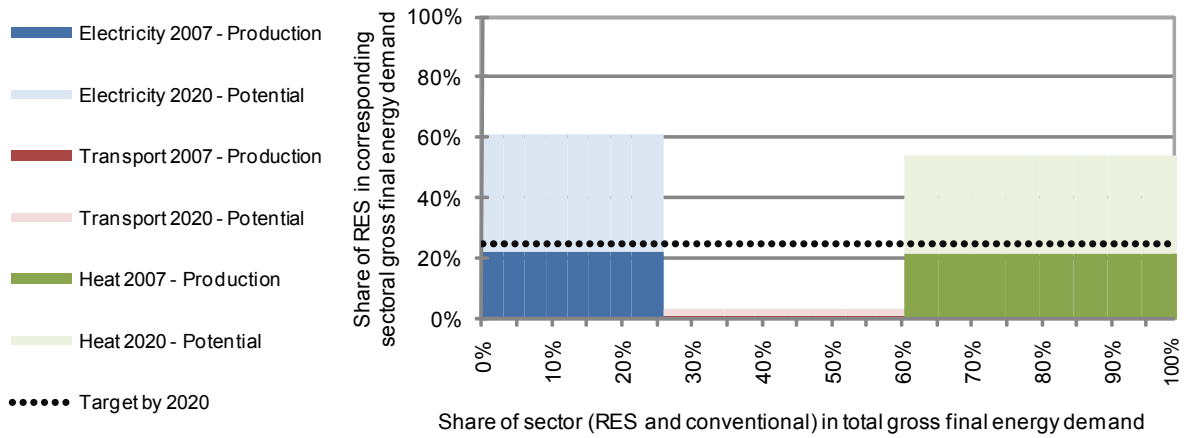
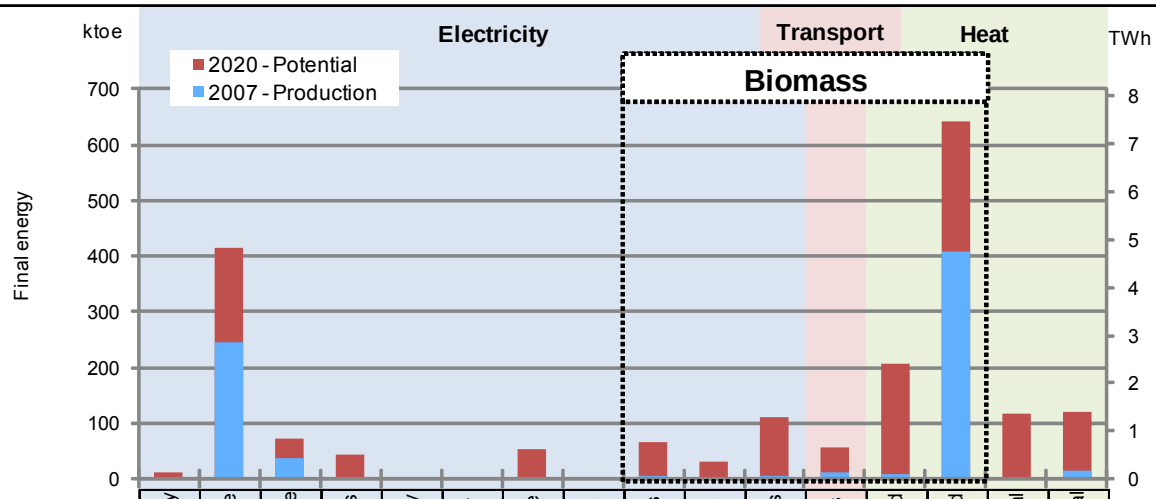
SLOVENIA - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	22%	1%	21%	15%
Share of total sector consumption in total final energy consumption	26%	35%	40%	100%
Production 2007 [ktoe]	294	13	430	737
Production 2005 [ktoe]	307	0	463	770
Production 1997 [ktoe]	279	0	288	567
Average growth 2005-2007 [%/a]	-2%	-	-4%	-2%
Average growth 1997-2007 [%/a]	1%	-	4%	3%
Potential 2020 [ktoe]	800	57	1,085	1,943
Annual growth of RES needed to achieve target	-	-	-	5%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	246	39	0	0	0	0	0	4	0	5	13	8	407	0	15
Production 2005 [ktoe]	0	265	33	0	0	0	0	0	3	0	7	0	9	439	0	15
Production 1997 [ktoe]	0	266	13	0	0	0	0	0	0	0	0	0	0	260	0	28
Ø annual production growth 2005-2007	-	-4%	8%	-	-	-	-	-	22%	-	-12%	-	-6%	-4%	-	0%
Ø annual production growth 1997-2007	-	-1%	12%	-	-	-	-	-	-	-	-	-	-	5%	-	-6%
Total realisable potential by 2020 [ktoe]	12	413	71	43	0	0	52	0	66	32	111	57	206	642	117	121

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

A new RES-E support scheme entered into force on 12 July 2009. Producers may chose between a

- feed-in tariff (guaranteed purchase);
- feed-in premium (on top of power price) only for RES plants above 5 MW and CHP plants above 1 MW.

Slovenia also promotes the RES-E through fiscal measures: low interest loans and grants.

RES-H&C

There is no direct support scheme for RES-H in Slovenia. The generation of RES-H is supported by grants and low interest loans under the same conditions as RES-E investment projects.

RES-T

Quota obligation on fuel distributors is in place to promote biofuels in Slovenia. There are few financial measures for RES-T production: excise tax exemption and aids for growing energy crops.

2 Details RES-Electricity Support Policy

Feed-in tariff and feed-in premium

New RES-E support scheme in Slovenia entered into force 12 July 2009 by the adopted amendment of the Law on Energy [1].

Since 2004 Slovenia had a feed-in tariff in place. Under this old system, RES-E producers were able to receive either a fixed feed-in tariff or a feed-in premium from the network operators. Producers of RES-E were eligible only if they hold the status of "qualified producer". In general, this principle was applicable to all RES-E producers.

Under the new RES-E support system two instruments are available [2]:

- Feed-in tariff (guaranteed purchase) for RES plants up to 5 MW and CHP plants up to 1 MW. Bigger plants also are eligible for feed-in tariff.
- Feed-in premium (operation support) only for RES plants above 5 MW and CHP plants above 1 MW. These larger plants can chose between the fixed and the premium option.

Eligible technologies are biomass, biogas, wind, solar, geothermal, hydro, biodegradable waste plants up to 125 MW capacity. Support will be provided for 15 years. There is no cap on the total volume of electricity produced in a year or a cap on installed capacity.

The level of support will be based on the Reference Cost of Electricity (RCE), which represents the overall annual costs of operation of specific typical RES/CHP generating plants, minus all revenues and benefits of operation. RCE is divided into 2 parts: fixed and variable (Fixed part=Investment cost + O&M cost; Variable part=Fuel cost-revenues). The fixed part of RCE will be adjusted every 5 year or more frequently in case of substantial change of conditions. The variable part of RCE will be determined annually or more frequently on the basis of forecast of reference energy market prices.

Table 1. Feed-in tariff (RCE) for RES plants in year 2009, €/MWh [2]

Technology	Capacity			
	Up to 50 kW	Up to 1 MW	Up to 10 MW	Up to 125 MW
1. Hydro	105.47	92.61	82.34	76.57
2. Wind	95.38	95.38	95.38	86.74
3.1. Solar PV – on buildings	415.46	380.02	315.36	280.71
3.2. Solar – independent	390.42	359.71	289.98	269.22
4. Geothermal	152.47	152.47	152.47	-
5.1. Biomass	-	224.35	167.43	-
5.2. Co-firing biomass	102.54	102.54	102.54	-
6.1. Biogas – biomass	160.05	155.76	140.77	-
6.2. Biogas – waste	139.23	139.23	129.15	-
7. Sewage gas	85.84	74.42	66.09	-
8. Landfill gas	99.33	67.47	61.67	-
9. Biodegradable waste	-	77.44	74.34	-

According to the Regulation on Support of Electricity Produced from RES a 7% annual decrease of RCE till the year 2013 only for solar plants is foreseen [2].

Table 2. Feed-in premium (operation support) for RES plants in year 2009, EUR/MWh [2]

Technology	Capacity			
	Up to 50 kW	Up to 1 MW	Up to 10 MW	Up to 125 MW
1. Hydro	49.57	36.71	23.84	18.07
2. Wind	43.38	43.38	43.38	30.84
3.1. Solar PV – on buildings	358.26	322.82	256.21	215.71
3.2. Solar PV – independent	333.22	302.51	230.83	204.22
4. Geothermal	152.47	92.67	92.67	-
5.1. Biomass	-	165.20	107.63	-
5.2. Co-firing biomass	42.74	42.74	42.74	-
6.1. Biogas – biomass	102.85	96.61	80.97	-
6.2. Biogas – waste	80.08	80.08	69.35	-
7. Sewage gas	26.04	14.62	6.94	-
8. Landfill gas	39.53	7.67	2.52	-
9. Biodegradable waste	-	17.64	14.54	-

In order to receive support, an owner of RES or CHP plant first of all has to obtain a declaration for the production facility from the Energy Agency. A declaration is obtained for a specific period: for RES-E producers – up to 5 years, for CHP – for 1 year [3].

A producer that has obtained a declaration for a CHP production facility that is not older than 10 years and for RES-E production facility not older than 15 years are eligible to get support. Refurbished RES power plants, older than 15 years, are eligible for support if the refurbishing costs are higher than 50% of investment costs into such new power plant. In this case the support lasts 15 years as well. Qualified producers whose production facilities do not meet the age requirement for obtaining support under the new system (CHP facilities being older than 10 years and RES facilities being older than 15 years) can receive support until 31 December 2011.

Since 1 January 2009 support will be provided by the Centre of Support, organized as one of the services carried out by Borzen, the electricity market operator. Support of RES-E will be based on a guaranty of origin [3]. A producer shall make a contract with the Centre of Support. Based on this contract the Energy Agency will transfer all the guarantees of origin from certain producers to the Centre of Support.

The instruments are managed by the Energy Agency (http://www.agen-rs.si/sl/) and Centre of Support (http://www.borzen.si/eng/). More information is available on website of the Energy Agency.

The new support scheme is regulated by Law on Energy (No. 70/2008) and a set of national regulations: Regulation on Support of Electricity Produced from RES (No. 37/2009, 53/2009, 68/2009, 76/2009), Regulation on the Issue of Declarations of RES-E Production Facilities and Guaranties of Origin for Electricity (No. 8/2009).

Every final consumer of electricity must pay a contribution fee for support of RES-E and high efficiency CHP production [4]. In 2009, the average monthly contribution fee necessary to ensure financial resources for support of RES-E and high efficiency CHP

production will amount to 0.36 €cent/kWh. Of this amount, 591,000 € will be devoted to funding the Centre of Support [5].

Low interest loans

The Environmental Fund of the Republic of Slovenia (Eko sklad) awards low interest loans to RES projects through calls for applications. The loan shall not exceed 10% of the total budget the Fund has allocated to the promotion of RES. The amount per project is specified in every call for application.

The new incentive programme started at the beginning of 2009. In 2009, the total fund regarding the incentive programme for RES and energy efficiency in buildings amounted to 4 million €. The application period for this year closed on the 9th October.

Under this programme eligible technologies (in residential and commercial sectors) are solar water heating systems, RES-E generation and other energy efficiency measures.

Eco Fund supports RES by two measures: a low interest loans and a non-refundable financial incentive. Low-interest loans can cover between 50 and 90% of the predicted investment costs. The maximum for an individual loan is 2 million €, the minimum is 50,000 €. Low-interest loans to private citizens cover up to 100% of the investment costs.

3 Details RES-Heating and Cooling Support Policy

There is no direct support scheme for RES-H in Slovenia. The generation of RES-H is supported by grants and low interest loans under the same conditions as RES-E investment projects (see chapter 3).

Slovenia supports electricity produced at high efficiency CHP depending on capacity of CHP, fuel used (fossil fuel and biomass) and number on operating hours a year (up to 4,000 and more than 4,000) [7].

Table 3. Feed-in tariff (RCE) and feed-in premium (operation support) for electricity produced from biomass CHP in year 2009, €/MWh [7]

	Feed-in tariff		Feed-in premium	
	Up to 4000 full load hours	More than 4000 full load hours	Up to 4,000 full load hours	More than 4,000 full load hours
Less than 50 kW	-	-	-	-
Less than 1,000 kW	326.70	220.05	269.50	160.25
1–5 MW	252.73	172.27	192.28	111.17
5–25 MW	187.01	129.09	126.56	67.99
25–50 MW	155.71	109.51	93.31	46.46
50–200 MW	-	-	-	-

Non-refundable financial incentives for solar water heaters:

Flat plate systems may receive up to 25% of the recognised investment costs, but no more than 150 €/m²; vacuum systems up to 25% of the recognised investment costs, but no more than 200 €/m²; systems with Solar Key Mark[117] receive an additional 10 €/m². The size of the solar system that receives the subsidies is not capped. This support measure requires the use of certified installers. The instruments are managed by the Eco Fund (http://www.ekosklad.si/).

Grants

The Ministry of the Environment and Spatial Planning awards grants for investment projects in the field of energy efficiency; renewable energy; production, distribution and use of hydrogen [6]. The maximum subsidy amounts up to 50% of eligible costs of the investment projects in household and public sectors (who are not engaged in gainful activity). The recipient of grant should contribute by its own resources at least 25% of the eligible costs of the investment project. The maximum value of grant for investment projects is up to 200,000 €. In general, all RES technologies are eligible for promotion. Exact conditions are laid down in every call for applications. Calls for applications are held on a regular basis.

This instrument is regulated by Rules on Promoting Energy Efficiency and Renewable Energy Use No. 89/2008. According to these rules the Ministry of the Environment and Spatial Planning (http://www.mop.gov.si/en/) is responsible for implementation of grant system. The Ministry of Environment and Spatial Planning annually provides information on aid allocated to the Ministry of Finance.

4 Details RES-Transport Support Policy

Obligation on fuel distributors

The regulation on the content of biofuels in motor vehicle fuels (adopted in 2005) imposed obligations on fuel distributors: distributors of fuel for transport vehicles must ensure that the annual average content of biofuel in all transport fuel placed in the Slovenian market (in a particular calendar year) would be as follows [8]:

- 2006 – at least 1.2%;
- 2007 – at least 2%;
- 2008 – at least 3%;
- 2009 – at least 4%;
- 2010 – at least 5%.

Distributors may transfer obligations from one year to the next if the price of purchasing biofuel exceeds the sum of the price of fossil fuel and the excise duties on them.

[117] A voluntary quality label for Solar Thermal Products in Europe. http://www.estif.org/solarkeymark/index.php

Financial support

According to the Law on Excise Taxes biofuels used as motor fuel are exempt from excise inspection and payment system when used in their pure form [9]. When biofuels are blended with fossil fuels, a maximum 5% exemption of excise tax can be claimed, or more for standard fuel containing biofuels. The level of exemption from excise tax is proportional to the share of biofuel added. Exemption of excise tax is applicable for bio-ethanol, biodiesel, biogas, bio ETBE or biodimethyl ether.

Since 1 January 2009, according to the Regulation on Direct Payments in Agriculture, aid of 45 € per hectare is granted for growing energy crops [10]. The minimum total area, which may receive the aid for energy crops is 0.30 ha.

There is no specific support for electric vehicles that use renewable electricity.

5 RES-E Grid Integration

In 2008, the adopted amendment of the Law on Energy supports faster development of RES in regard to grid connection [1].

Connection of RES-E to the grid is the obligation of system operators. According to the Law on Energy the system operator should prepare and publish standard rules for the connection and cost estimation for power plants <10 MW connected to the distribution network. These rules should be objective, transparent and non-discriminatory. At the request of RES-E plant (>10MW) investors, the system operator should prepare a comprehensive and detailed assessment of the connection cost and time table for implementation of grid connection within 60 days.

TSO and DSO must ensure the transfer and distribution of RES-E. TSO and DSO should give priority for RES-E dispatching to the possible extent taking into account technical conditions of the system.

The reinforcements of the grid have to be executed and financed by DSO. The connection of RES-E to the grid has to be financed by power plant's owner (shallow approach).

6 RES Production, Potential and Market Development

RES-E

RES-E production is fully dominated by hydropower, generating 3,306 GWh in 2007. In 2007 solid biomass and biogas contributed 111 GWh towards electricity generation. There are no wind power plants installed in Slovenia.

RES-T

In 2007 biodiesel consumption in Slovenia was 13 ktoe. In Slovenia there is a good potential for producing biodiesel or refined vegetable oil. The basic raw materials to produce both these types of biofuels are oil obtained from pressing the seeds of oil seed rape. Slovenia does not have any plants that produce bio-ethanol or other types of

biofuels suitable for blending with petrol nor does it have any refineries or plants that blend imported biofuels with petrol.

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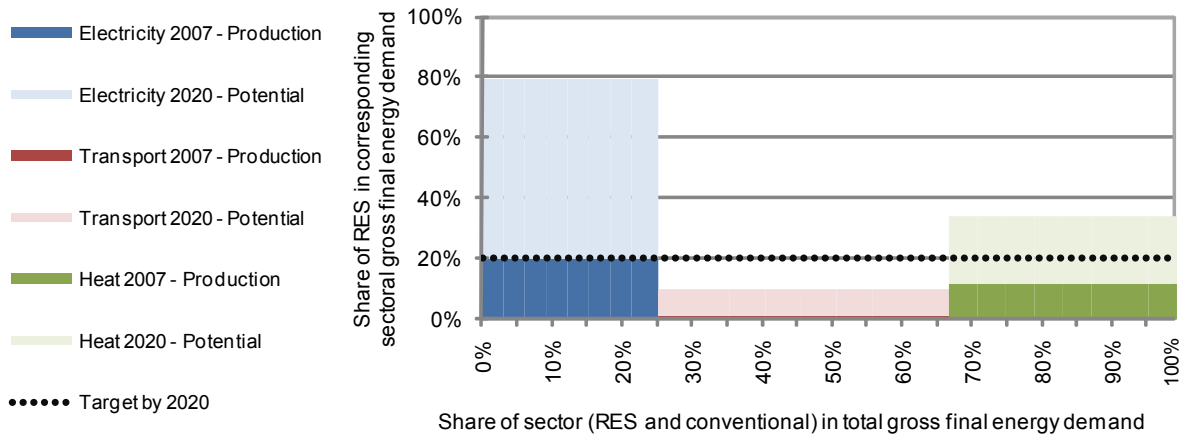
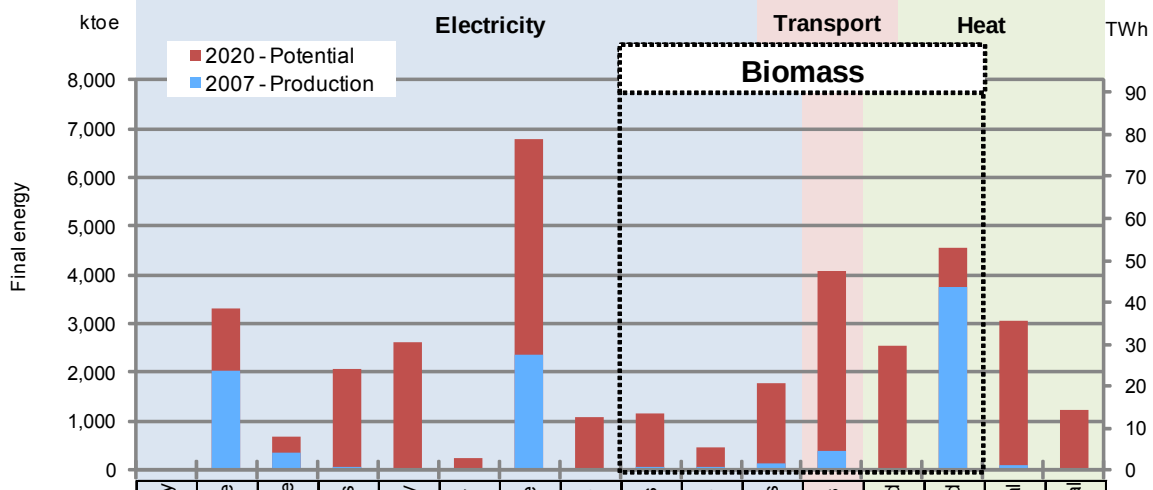
SPAIN - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	20%	1%	11%	9%
Share of total sector consumption in total final energy consumption	25%	42%	33%	100%
Production 2007 [ktoe]	5,049	386	3,859	9,294
Production 2005 [ktoe]	3,784	259	3,546	7,589
Production 1997 [ktoe]	3,213	0	3,297	6,509
Average growth 2005-2007 [%/a]	16%	22%	4%	11%
Average growth 1997-2007 [%/a]	5%	-	2%	4%
Potential 2020 [ktoe]	20,162	4,089	11,421	35,672
Annual growth of RES needed to achieve target	-	-	-	7%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	2,026	362	43	0	0	2,366	0	52	67	134	387	0	3,758	93	8
Production 2005 [ktoe]	0	1,386	342	4	0	0	1,825	0	54	39	136	259	0	3,477	61	8
Production 1997 [ktoe]	0	2,653	404	0	0	0	62	0	13	23	58	0	6	3,261	23	7
Ø annual production growth 2005-2007	-	21%	3%	250%	-	-	14%	-	-1%	31%	-1%	22%	-	4%	23%	0%
Ø annual production growth 1997-2007	-	-3%	-1%	67%	-	-	44%	-	15%	11%	9%	-	-100%	1%	15%	2%
Total realisable potential by 2020 [ktoe]	16	3,301	672	2,073	2,626	228	6,797	1,095	1,140	446	1,768	4,089	2,554	4,572	3,068	1,227

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The key policy instrument for the support of RES-E is a scheme in which system operators may choose between a feed-in-tariff and a feed-in-premium. Besides the feed-in support, fiscal measures are relevant at the national level and the regional governments have an important role in RES-E promotion polices and legislation. Premium tariffs have been promoting in particular wind and solar PV so far. The new regulations intend to make the premium tariff attractive for solar thermal electricity and biomass too. Wind offshore projects are not covered by the feed-in scheme, but by a tendering procedure.

The year 2010 will be a decisive moment for RE support policies in Spain, as the following new pieces of legislation are to be approved :

- New National Renewable Energy Plan (2011-2020).
- New Law on Renewable Energy and Energy Efficiency.
- New Law on Sustainable Economy.
- Implementation of European Directives, such as Sustainability on biofuels

RES-H&C

Since 2006, any new or renovated buildings are obliged to integrate a solar thermal energy installation. The mandatory requirement of installing solar thermal systems depends on the climatic zone, the surface (m2), and type and use of the building. The local and regional governments are allowed to reinforce the national law with regional obligations, increasing therewith the minimum of installed solar systems.

In case of cogeneration units the heating and cooling facilities are also promoted indirectly via the above mentioned feed-in- scheme. This includes in particular CHP-plants fuelled by either biomass or biogas.

Under the promotion tool for cogeneration, favorable conditions have been created for cogeneration using biomass. It is stated within this regulation that the Ministry of Industry, Tourism and Trade will perform an analysis document to evaluate the potential application of high efficiency cogeneration. Within this document evaluation of different fuel sources will be performed with particular consideration to strategies in order to increase renewable energy sources for heat generation.

RES-T

The main support instrument for renewable fuels in Spain is a tax exemption. Law 22/2005 establishes a zero tax rate for biofuels in order to improve their market position compared to fossil fuels. The scheme will remain in effect until 31st December 2012, when it will be revised.

2 Details RES-Electricity Support Policy

Price Regulation: Feed-in-tariffs and feed-in-premium for Electricity Producers under the Special Regime (Productores de Electricidad en Régimen Especial).

In Spain, generation of electricity from renewable energy sources is promoted through a scheme in which system operators may choose between a fixed *feed-in-tariff* and a *feed-in-premium* (which is paid on top of the electricity price achieved within the electricity selling market[118]). Financial support under the Special Regime is restricted by a capacity contingent legally determined on technology level[119].The basic regulatory framework created to develop and implement the before mentioned *feed-in* schemes is ruled under te following legislation:

- Royal Decree 661/2007[120], dated May 25th, on the regulation of electricity production through a special feed-in-tariff (Special Regime).
- Royal Decree 1578/2008[121], dated September 26th, on the feed-in-tariff for electricity generated by photovoltaic systems and produced after the period of payment for this technology by Royal Decree 661/2007, dated May 25th.
- Royal Decree 6/2009, dated 30th April, adopts particular measures within the energy sector. Article 4 from this regulation establishes requirements to sign up in the pre-assignation registry to be rewarded under the special regime.

Eligible plants are classified in the following groups[122]:

- Plants using either cogeneration or other sources to produce electricity with high energy efficiency performance.
- Plants using renewable energies not consumable, biomass, biofuels, etc.
- Plants that use municipal solid waste or other residues.
- Plants for reduction and treatment of agricultural, livestock and services residues.

To become eligible to be rewarded, plants must sign up to the administrative registry of special regime production plants, Under the Royal Decree 6/2009, April 30th 2009, a new registry held by the Ministry of Industry came into force: “the pre-register of systems entitled to the feed-in tariff”, that introduces stricter requisites in order to apply for the feed-in tariffs and premium system: specific financial conditions, bank guarantees, etc. Applications for this registry must be sent out to the Ministry of Industry, Tourism and

118 Regulated via arts. 1, 24 of the Royal Decree 661/2007)

119 Regulated via arts. 37 to 42 of the Royal Decree 661/2007 and arts. 10,5 of Royal Decree 1578/2008)

120 To be amended in 2010 (expected) (art. 19.3, 44.3, DA (Diposición Adicional) Novena).

121 The feed-in tariff for electricity generated from solar sources may be amended in 2012. However, this depends on technological and market developments and on the smoothness of the distribution process (art. 15, RD 1578/2008).

122 Detailed information regarding categories comprised under these regulations can be checked at the following link:
http://www.mityc.es/energia/electricidad/RegimenEspecial/Registro/Paginas/RD661.aspx

Trade. These additional requirements could lead to additional burdens for RE promoters and investors.

All plants considered to be within the special regime have to be approved by the Ministry of Industry[123] in order to receive granted access to the special price revenues promoted by the scheme[124].

The General Administration[125] is in charge of authorizing plants located in the limit of two regions, offshore or in case capacity of the plants exceed 50 MW (and in that case comprised in the ordinary regime).

Off-shore wind projects larger than 50 MW[126] are considered to be covered by the "Ordinary Regime", which covers the remaining conventional energy conversion technologies, but can participate in tendering procedures.

Payment Scheme

The basis for the claim for payment when generating energy through renewable energy sources is that system operators may choose between two feed-in-mechanisms. Only for Photovoltaic power systems there is only a fixed feed-in tariff available[127]. The decision taken for the operator will be binding for one year[128]. Scheme is based on the following options:

1. Feed-in Tariff (guaranteed payment)

- **Guaranteed feed-in tariff.** Guaranteed tariffs in terms of state-regulated minimum tariffs for all sources of renewable energy[129].
- **Variable feed-in tariff.** Operators of hydro-electricity and biomass systems may also opt for a variable, time-dependent tariff, which is set by a statutory law. This tariff is composed of different elements depending on the time of day and the season[130].

2. Feed-in Premium

123 As stated by the Royal Decree 6/2009.

124 Set up by the Royal Decree 661/2007.

125 Through the General Direction of Energy Policy and Mines from the Ministry of Industry, Tourism and Trade.

126 This type of plants can reach power capacity larger than 50 MW as projects executed normally exceed this value.

127 As they are currently under new regulation scheme RD 1578/2008 which sets up a guaranteed feed-in-tariff valued at 32-34 €ct/kWh depending on the system's size and location.

128 Art. 24, art. 26 par. 3 of the RD 661/2007.

129 Arts. 35, -43 RD 661/2007.

130 Art. 26 RD 661/2007 in connection with First Final Provision of RD 1578/2008.

Variable premiums are paid on top of the electricity prices minimum and maximum prices for the overall remuneration level corresponding to the sum of electricity prices and premium were established under RD 661/2007. The variable premium is determined on an hourly basis. For PV and geothermal installation no premium tariff is determined.

Information about the average level of feed-in tariff and feed-in premium paid in 2009 can be found in the table below.

Table 15: Average level of feed-in tariff and premium paid in 2009

Average selling price (Eurocent/kWh) – Sold via tariff through distribution company	COGENERATION	12.690
	SOLAR	46.544
	WIND	7.278
	HYDRO	8.356
	BIOMASS	10.687
	WASTE	5.853
	WASTE TREATMENT	12.112
Average selling price (Eurocent/kWh) – Participation in the supply market	COGENERATION	7.955
	SOLAR	31.157
	WIND	8.110
	HYDRO	8.034
	BIOMASS	10.787
	WASTE	7.022
	WASTE TREATMENT	6.046
Average selling price (Eurocent/kWh) – Sales through representative	COGENERATION	11.337
	SOLAR	47.757
	WIND	8.212
	HYDRO	8.770
	BIOMASS	12.371
	WASTE	
	WASTE TREATMENT	12.747
Average selling price (Eurocent/kWh) – Participation in other markets	HYDRO	7.651
	BIOMASS	10.851

Source: http://www.cne.es

Requirements for technologies and technology-specific capacity limits**.**

If the cap on the total volume of electricity produced from the respective technology type is reached (i.e. a market cap), the exceeding amount of electricity will not be eligible for subsidies[131].

- **Wind energy.** Both onshore and offshore wind energy systems are eligible until the cap on the total volume of 20,155 MW of installed capacity is reached[132].
- **Solar energy.** Both photovoltaic and solar-thermal electricity generation[133] (art. 2 RD 661/2007) are eligible, if the system capacity does not exceed the following limits:
    - Systems registered in the register of systems prior to 29.09.2008. **371 MW for photovoltaic, 500 MW for solar-thermal systems.**
    - Systems registered in the register of systems after 29.09.2008. The capacity limits for the different system types are re-defined as part of the application procedure every quarter[134]. Prior to the conclusion of an application procedure, the market caps specified for each system type are published on the website of the Ministry of Industry, Tourism and Trade (Annex III RD 1578/2008).
- **Geothermal energy.** Eligible, including hot-dry-rock energy. Statutory law does not specify a specific capacity limit for geothermal.
- **Biogas.** Eligible, if the main fuel is bio-fuel or biogas from anaerobic digestion of agricultural and livestock wastes, bio-degradable industrial waste and sewage sludge or landfill gas. Biogas and biomass together are eligible for subsidies until the cap of 250 MW[135] is reached[136].
- **Biomass.** Eligible, if the main fuel is biomass from manure, energy crops, agricultural and garden wastes, forest management or other activities related to forest and land management. Biomass and biogas together are eligible for subsidies until the total installed capacity reaches 250 MW[137].
- **Hydro-electricity.** Systems whose primary source of energy is wave energy, tidal energy, ocean thermal energy and ocean current energy are eligible. Traditional hydro-electric stations are also eligible, if their capacity does not exceed 50

131 Art. 22, 35-42 RD 661/2007; arts. 5, 10 RD 1578/2008.

132 Arts. 2, 38 RD 661/2007.

133 Art. 2 RD 661/2007.

134 Art. 5 RD 1578/2008, Annex III RD 1578/2008.

135 Capacity cap to be reached by 2010 (matching up life period of the Renewable Energies Plan 2005-2010).

136 Art. 2 and art. 41 RD 661/2007.

137 Art. 2 RD 661/2007.

MW[138]. Hydro-electricity systems that generate up to 10 MW are eligible for subsidies until a total installed capacity in the market of 2,400 MW is reached[139].

Individuals entitled to apply for this price regulation are those systems operators that meet the following requirements:

- **Connection to a central control system.** All systems that generate electricity, as specified by the special regulation and, where the capacity exceeds 10 MW shall be connected to a central control system, which shall be the interface with the system operator. The control system shall provide real-time system information and make sure that the system operator's instructions are implemented in such a way to guarantee the reliability of the grid.
- **Register of systems.** Systems shall be definitely registered in the register of systems. The register of systems is an official register kept by the Ministry of Industry, Tourism and Trade[140]. Autonomous regions may also keep such a register[141].
- Register of systems entitled to the feed-in tariff (photovoltaic systems only). Photovoltaic systems registered in the register of systems after 29.09.2008 are eligible for promotion only if they have also been admitted to a part of the register of systems called "the register of systems entitled to the feed-in tariff". This register aims at selecting systems for the feed-in tariff until the annual market cap for electricity from photovoltaic sources is reached. The systems are selected chronologically, i.e. the system that has been entitled the longest according to the documents submitted in the course of the application for registration is selected first[142]. If the cap is not reached in one year, the remaining capacity may be used in a subsequent year.

The tariff levels are determined depending on the efficiency of operation of the systems the cost of the technology used, on the share of electricity generated with this technology in the total technology-specific capacity set by the special regulation, on the technological and economic development of the RES sector and the cost of capital in the financial market[143].

The amounts granted for each of the eligible technologies are presented in Table below[144]:

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138 Arts. 2 b) 3, 45.2 RD 661/2007.

139 Art. 40 RD 661/2007.

140 Art. 9 RD 661/2007.

141 Art. 10 RD 661/2007.

142 Art. 6 RD 1578/2008.

143 Art. 44 RD 661/2007.

144 Information about development of tariffs can checked at: http://www.mityc.es/energia/electricidad/Tarifas/Instalaciones/Paginas/Index.aspx

Table 2: feed-in tariffs in 2007per technology category and duration.

Technology	Amount granted
Wind onshore	for 20 years: 7.3228 €ct/kWh from the 21st year onwards: 6.12 €ct/kWh
Solar (photovoltaic energy), registered in the register of systems prior to 29.09.2008.	for 25 years: 22.9764 – 44.0381 €ct/kWh (depending on the system size) from the 26th year onwards: 18.3811 – 35.2305 €ct/kWh (depending on the system size)
Solar (photovoltaic energy), registered in the register of systems after 29.09.2008[145]	for 25 years: 32 – 34 €ct/kWh (depending on system size and system site)
Solar energy (solar-thermal generation)	for 25 years: 26.9375 €ct/kWh from the 26th year onwards: 21.5498 €ct/kWh
Geothermal power	for 20 years: 6.89 €ct/kWh from the 21st year onwards: 6.51 €ct/kWh
Biomass	for 15 years: 10.754 – 15.889 €ct/kWh (depending on energy source and system size) from the 16th year onwards: 8.066 – 12.347 €ct/kWh (depending on energy source and system size)
Hydro-electricity (up to 10 MW)	for 25 years: 7.8 €ct/kWh from the 26th year onwards: 7.02 €ct/kWh System capacities of 10 -15 MW are subject to the formula laid down in art. 36 RD 661/2007.

The tariffs presented in table 1 are the ones set up initially on the Royal Decree 661/2007 and are updated on a quarterly/annual basis by the central administration, depending on the type of technology. The updating of these tariffs is based on different

145 Art. 11 RD 1578/2008.

factors and attempts to guarantee reasonable profitability for the investors[146]. The following list presents the factors used to update the tariff value:

- Consumer price index
- New Renewable Energy Plan (2011-2020)
- Cost of technology
- Extend of participation within the special price regulation[147]
- Energy demand
- Effects on the technical and economical system

A special Case: off-shore Wind Projects.

As previously mentioned, off-shore wind parks are regulated under specific legislation, named after Royal Decree 1028/2007[148]. The Royal Decree 1028/2007 sets up a tender process for awarding the promoter the right to book a location for the wind project during a maximum period of two years. This booking will be necessary for the realization, by the promoter of the studies to evaluate the wind resources that will allow the project and present the application of Administrative Authorization by the end of the period.

Promotion costs of renewable-energy-sourced electricity derived from the price regulation mechanism are borne by the end consumers, this cost being included in the electricity prices that consumers have to pay in their bills[149].

The cost of the feed-in-tariff is initially borne by the grid operator who may pass these costs to the consumers by means of surcharges[150]. At the end of every month, the grid operator balances his additional income and additional expenses (for the payment of tariffs to the system operators)[151].

Fiscal Regulation

Up to 10% of unsubsidized investments in RES-E systems may be deducted from the income tax for a period of 10 years.

The application of this scheme is ruled under the Royal Legislative Decree 4/2004, dated March 5th, that approves refunded text of the Law of Corporate Tax[152]. It applies to the following applications:

- Use of solar energy to be transformed into electricity or heat.

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146 For updated information on tariffs check web page of the Ministry of Industry, Tourism and Trade: www.mityc.es.

147 RD 661/2007.

148 For all matters not foreseen in the law, general regulation regarding authorization of generation plants will be applied.

149 Real Decreto 2017/1997.

150 Arts. 4,5,6 RD 2017/1997.

151 In case energy's supplier's balance are negative, the deficit is covered by the National Energy Commission (CNE).

152 Law 35/2006.

- Use, as fuel, of municipal solid waste or biomass proceeding from forest and agricultural industry residues, forest and agricultural residues and energy crops for their transformation into either electricity or heat.
- Treatment of biodegradable residues proceeding from livestock industry, waste water clarification plants, industrial effluents or municipal solid waste to be transformed into biogas.
- Treatment of agricultural and forest products as well as used oils to be transformed into biofuels.

The entitled individuals are commercial and private investors who are subject to income taxes. At the moment, the tax reduction amounts to 6% of investment costs (since 1st January 2008). This percentage will decrease over time:

- 4% from 1st January 2009 onwards,
- 2% from 1st January 2010 onwards.

On 1st January 2011, the tax reduction will be discontinued.

The cost of the subsidy is borne by the State and has its own control mechanisms.

Other Considerations

These mechanisms are not conditioned to support special certified equipment and/or certified installers. Development of some technologies (e.g. solar thermal) within the country presented some inefficiencies due to the former lack of expertise of installers and low degree of development of the equipment. In the particular case of cogeneration technology, some technical conditions regarding performance are required (minimum level of energy efficiency and energy savings).

The national administration (Ministry of Industry) has recently introduced stronger formal requirements for RE promoters and investors complicating therewith the administrative procedures. It is the objective to implement stricter access to the price regulation system (feed-in tariffs and premium) by the creation of a new pre-registry and approval system (Royal Decree 6/2009, of April 30th 2009).

Solar photovoltaic technology is also being promoted on national level using the building code regulation which defines a minimum solar PV installed power to be integrated in buildings (Royal Decree 314/2006 sets up mandatory requirements of installing solar PV on different types of buildings depending on several parameters: climatic zone, surface as well as use and type of the building.

In addition to the national policy, many autonomous communities (Regional Authorities in Spain) have developed their own Energy Policies, including renewable energy targets. The autonomous communities (Regional Governments) manage almost the 50% of the national budget. Therefore, they are decisive in the implementation of RE plans. Some of the most relevant regional energy plans are:

- Basque Country: “Euskadi Energy Strategy. 3E-2010”.
- Catalonia: “Energy Plan 2006-2015”.
- Madrid: “Energy Plan from the Community of Madrid 2004-2012”.
- Andalusia: “Andalusian Energy Sustainability Plan 2007-2013”.

- Valencia: “Wind Energy Plan from the Community of Valencia”.
- Galicia: “Promotion Program of Solar Energy in Galicia” and “Wind Energy Plan of Galicia”.

The Role of IDAE

An important source of subsidies for investments in renewable energy projects is the Institute for Diversification and Energy Saving [153](IDAE) which offers the following support:

- **Third-Party Financing (TPF):** this is one of the most appropriate mechanisms available to undertake investment projects in energy saving and efficiency and energy generation using various sources, including renewable energy sources. The IDAE, the main promoter of this financing mechanism in Spain, has been using it successfully since 1987.
- **Project finance and Provision of services:** a financing mechanism applicable to projects investing in energy saving, energy efficiency and renewable energy sources, which have undergone a prior economic/technical feasibility analysis. It is a new model of financial collaboration which entails drawing up and signing two contracts: A framework collaboration and service provision contract and a project finance contract (i.e. a business loan).
- **Program of aid for strategic projects:** This is a line of IDAE support aimed at financing energy saving and efficiency projects. The programme is set in the context of the IDAE's direct actions under the 2008-2012 Action Plan for the 2004-2012 Spanish Energy Saving and Efficiency Strategy (E4).
- **Program of Voluntary Agreements with companies involved in the thermal use of biomass in buildings (Biomcasa).** This program aims at establishing a financing system to ease access to hot water production systems using biomass in buildings. This program is framed in the Renewables Energy Plan 2005-2010.

3 Details RES-Heating and Cooling Support Policy

Royal Decree 661/2007, dated May 25th, to regulate electricity production under the special regime.

Similar to pure electricity generation, combined production of heat and electricity is also promoted via the feed-in-tariff and feed-in-premium scheme paid for the electricity production of the plant. In particular, high efficiency cogeneration, using either biomass or biogas is considered under the regulation and awarded with special tariffs following the same scheme as presented in the RES-E section.

Royal Decree 616/2007, dated May 11th, for the Promotion of Cogeneration.

The primary promotional tool within the country for cogeneration is set up under the Royal Decree 616/2007, dated May 11th. This regulation aims at fostering primary energy saving, using high efficiency cogeneration, and sets up the methodology for

153 Instituto para la Diversificación y Ahorro Energético. More information can be checked at: www.idae.es

updating and organizes the economic and legal regime of the electricity production within these types of plants.

This new regulation creates a favorable scenario for cogeneration using biomass, particularly in the tertiary sector, and is particularly demanding with cogeneration processes involving a low use of heat. Regarding economic profitability, this new decree aims at achieving large profitability for cogeneration processes involving biomass use (for both selling electricity to distribution companies and in the electricity market). In the situation of selling the electricity in the market, the feed-in-tariff varies according the reference market price. Therefore, maximum and minimum limits are established for each technology[154].

The electricity production with biomass (through cogeneration or not), and in particular, those plants running from 1st January 2008, will regulated under the RD 661/2007.

In addition, it has to be pointed out that the economic regime is temporary and will be reviewed as the power capacity goals are achieved for each of the technology groups. All plants registered from that moment on will be awarded with a different feed-in-tariff.

Goals regarding power capacity[155] related to plants fuelled by biomass (as principal resource) are:

- Electricity production with biomass[156]: 1 317 MW.
- Electricity production with biogas[157]: 250 MW.

As previously mentioned, this regulation aims at promoting high efficiency cogeneration. Thus, it establishes a minimum energy output (equivalent electricity output[158]) which is calculated[159] and, for the case of cogeneration using biomass set up the following minimum limits:

- Biomass for electricity production[160]: 30%
- Biogas for electricity production[161]: 50%

For plants with e a capacity under 1 MW, requirements are reduced to 27% and 45%, respectively.

Electricity production with cogeneration distinguishes clearly between electricity generation using biomass or using biogas as primary resource. The retribution related to

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154 Which are updated considering Consumer's Price Index (-0.25 until 2012 and -0.50 from that moment on).

155 Independent from generation through cogeneration.

156 Groups b.6 and b.8 from the RD 661/2007.

157 Group b.7 from the RD 661/2007.

158 Rendimiento Energético Equivalente - REE

159 Partially in base on some factors defined under the European Directive 2004/8/CE.

160 Included in groups b.6 and b.8 of the RD 661/2007.

161 Included in the Group b.7.2 of the RD 661/2007.

electricity, generated through cogeneration with biomass varies depending on the capacity of the plant (less or more than 2 MW) and on the fuel used.

In case of hybrid plants in which biomass is not the only primary energy source or in which different types of biomass are used, retribution of each of the technologies and/or fuels will be achieved considering the supplied energy for each of the sources, considering the mass and calorific power (kWh/kg) of each one.

By the year 2010, depending on the degree of fulfillment of the Renewable Energies Plan (PER) 2005-2010, the Strategy on Energy Saving and Energy Efficiency in Spain[162] (E4) as well as the new goals considered in the next Renewable Energies Plan for the period 2011-2020, tariff, premiums, complements, caps and trades will be reviewed. This revision will be performed considering the cost of each of these technologies, share of participation in the special regime and influence on the technical and economic organization of the energy system, aiming at guaranteeing reasonable profitability rates. From that moment on, revision will be performed on a four year period basis.

Building Technical Code (Código técnico de edificación, CTE) – Solar Thermal and Photovoltaic Obligations for Buildings

In summary, from September 29, 2006, [Royal Decree 314/2006] new or renovated buildings with demand for hot water and/or covered swimming pools acclimatization, are obliged to use solar thermal energy. The mandatory requirement of installing solar PV depends on different parameters of the building: climatic zone, surface (m2), and type and use of the building. The local and regional governments can harden the national law increasing the minimum of installed solar systems.

In March 17th, 2006, the new Building Technical Code was approved, by Royal Decree 314/2006. The CTE intends to obtain more sustainable and efficient buildings. The Energy Saving Basic Document (DB-HE) aims to achieve a more rational use of the energy in buildings, reducing its energy consumption and using renewable energy sources, establishing energy efficient criteria and the use of solar energy, thermal or photovoltaic, in new or renovated buildings.

The document, DB-HE has five basic energetic requirements, and it is the document DB-HE 4 Minimum Solar Contribution to Sanitary Hot Water covers between 30% and 70% of the buildings hot water needs by solar thermal systems, the exact share depending on the climatic zone where the building is set and the foreseen daily demand of hot water.

Regarding solar PV, the legislation (document HE 5) defines a minimum installed power depending on climatic zone, constructed surface (m2), and type and use of building (especially for tertiary buildings such as hospitals, hotels, supermarkets, etc). There are tables with coefficients to determine the minimum power to install. Solar PV plants built under this building obligation are also eligible for the feed-in tariff.

On the other hand, some exceptions are defined in the law, situations in which the building satisfies its domestic hot water demand by other renewables or by cogeneration or for shaded buildings.

162 Estrategia de Ahorro y Eficiencia Energética en España (E4)

The Renewable Energy Plan in Spain 2005-2010 (PER) had the target to reach in 2010, 4.900.000 m^2 of solar thermal installed collectors. The Building Technical Code is a key instrument for the Solar Energy development in Spain and to fulfill the Plan targets.

4 Details RES-Transport Support Policy

Law 22/2005,(dated 18th November), of Energy Fiscality

The main support instrument for renewable fuels in Spain is a tax relief, established by the Law 22/2005, dated 18th November.

The lead on this law has the Ministry of Economy and Treasury[163]. The law establishes a zero tax rate for biofuels (instead of 0.278 €/liter for diesel and of 0.371 €/liter for gasoline), so as to improve their market position compared to fossil fuels. The Ministry is the entity to administer the scheme and the law will be in effect until 31st December 2012, when it shall be revised.

The "zero rate" on the Hydrocarbons tax is entitled to the use of bioethanol, biomethanol and biodiesel as transport fuel and is also applicable to biomethanol and biodiesel used for heating purposes. It has to be remarked that biofuels are not exempted from two other existing taxes, which are:

- The "tax on the retails sales of certain hydrocarbons" (IVMH)[164], including a national component of 0.024 €/liter as well as a regional component of approximately 0.024 €/liter;
- The "value-added tax" (IVA)[165] of 16%.

Targets on biofuel use within the transport sector are not given in this law, but are set up by the Real Decreto 61/2006[166], which establishes a target of 5.75% substitution of fossil fuels by biofuels in the road sector. The national renewable plan (Plan de Energías Renovables 2005-2010[167]) sets up a target for biofuels consumption at a value of 5.83% of gasoline and gasoil in road transport. In June 2007, the Spanish government modified Law 34/1998, regarding Hydrocarbons Sector[168] through erogation of the "Disposición Adicional Decimosexta" which makes blending of biofuels into petroleum fuel obligatory. This regulation has set an interim target for 1.9% of biofuels to be blended into regular

163 http://www.meh.es/en-GB/Paginas/Home.aspx

164 Impuesto sobre las ventas minoristas de hidrocarburos. More information can be reviewed at: http://www.aeat.es/AEAT/Contenidos_Comunes/Aduanas/Impuestos_especiales/Estudio_relativo_2003/vtasmino.pdf

165 Impuesto sobre el valor añadido. More information can be reviewed at: http://www.agenciatributaria.es/wps/portal/Listado?channel=3e9921a53a335010VgnVCM100000d7005a80____&ver=L&site=56d8237c0bc1ff00VgnVCM100000d7005a80____&idioma=es_ES&menu=1&img=8

166 http://www.boe.es/boe/dias/2006/02/17/pdfs/A06342-06357.pdf

167 This plan will be substituted by a new Renewable Energies Plan that will be issued on this year

168 Ley 34/1998 del Sector de Hidrocarburos

fuels in 2008 (not mandatory), which will become mandatory proportions of 3.4% in 2009 and 5.83% in 2010.

Tax Benefit for Investment in Biofuel Production

As mentioned in the RES-E fiscal regulation section, the Regulation of the Corporate Tax[169], updated by the Royal Legislative Decree 4/2004 introduces a tax rebate scheme for environmental investments, including agricultural and forestry products as well as used oils, to be transformed in biofuels (biodiesel and bioethanol).

This tax rebate scheme will be completely eliminated in 2011[170]. In 2006, parties are allowed to deduct 10% of the value of investments from its final tax bill. According to what is stated in the law, this percentage is progressively reduced until its complete elimination in 2011 (2006: 10%; 2007:8%; 2008: 5%; 2009: 4%; 2010: 2% and 2011: 0%).

Support for Energy Cropping

Farmers can receive, depending on the type of crop, a grant of 45ha for growing energy crops. This incentive scheme will be available until the total surface in the EU devoted to energy crops does not exceed 1.5 million ha. In 2009, a total surface valued of 35.591 ha was eligible to apply for. This economic help is split into the following crops: sunflower (64% of total surface), rape (27% of total surface) and cereals (yield, triticale, wheat and rye. The use of land set aside to grow energy crops in Spain has not been very successful. In fact, productivity levels in Spain are around one third less than in other European countries such as Germany or France. Therefore, Spain did not benefit so much from the compensatory program (based on yield) of the European Common Agricultural Policy.

5 RES-E Grid Integration

Overview of Access to the Grid

In Spain, RES-E is statutorily entitled to connection to and usage of the grid with priority[171]. The plant operator may be contractually entitled to an expansion of the grid, where the operator shall bear the costs if the connection of the system to the grid requires a grid expansion.

Basic legislation to regulate grid access to renewables is comprised under the following regulations:

- Royal Decree 661/2007, dated May 25th.
- Royal Decree 1955/2000, dated December 1st.

169 Real Decreto 537/1997 sobre el Reglamento del Impuesto de Sociedades. More information can be reviewed at: http://noticias.juridicas.com/base_datos/Derogadas/r9-rd537-1997.html

170 As stated in the Ley 35/2006, de 28 de Noviembre, del Impuesto sobre Sociedades, sobre la Renta de no Residentes y sobre el Patrimonio. More information can be reviewed at:

171 As stated in RD 661/2007.

Spain follows, in principle, a *deep charging approach*, in which costs of grid connection are borne by the project developer, as well as the necessary reinforcement work arising from the connection of the generator. New users connecting to the same line extension within a period of 5 years may be responsible for a pro-rata payment of these costs, based on their relative use of the installed capacity. These payments will be used to reimburse the original contributor.

Connection costs can vary significantly according to the reinforcement requirements of the grid. The reliance on a deep charging approach constitutes an obstacle to projects in areas where grid reinforcements are required. This is further complicated by the fact that the process of connection charging itself is generally a negotiation between producers and the distribution company, even if it is possible to appeal against its decision.

The plant operator shall bear the costs of connection to and a possible expansion of the grid[172] as well as all costs related to feeding and transmission of electricity generated from renewable energy. Furthermore, operators of plants whose capacity exceeds 10 MW and which shall be connected to a control system shall bear the costs of installations and maintenance of the control systems, including installation and maintenance of the communication lines to the grid operator.

Usage of the Grid

RES-E shall be fed in at priority over electricity from conventional sources of energy. However, this priority ceases if the plant operator does not comply with the conditions laid down by the contract on the technical relations between plant operator and grid operator[173].

Connection to a Central Control System.

All systems that generate electricity as specified by the special regulation and whose capacity exceeds 10 MW shall be connected to a central control system, which shall be the interface to the plant operator. The control system shall provide real-time system information and make sure that the plant operator's instructions are implemented so that the reliability of the electric system is granted.

Grid Expansion

Construction of transmission and distribution installations in Spain is subject to a compulsory energy plan. The most recent plan “Gas and Power sectors Planning 2007-2016-Development of the transport network”[174] shows the projected expansion of the

172 Annex XI nr. 8, 9 RD 661/2007).

173 Art. 17.e, Annex XI nr.4 RD 661/2007).

174 Planificación de los sectores de electricidad y gas 2007-2016. [Planning of electricity and gas sectors 2007-2016] Desarrollo de las redes de transporte [Development of transport networks]. Ministerio de Industria, Turismo y Comercio. Secretaría General de Energía. Subdirección General de Planificación Energética. [Ministry of Industry, Tourism and Trade. General Energy Secretary. General Section of Energy Planning. More information can be checked at: http://www.mityc.es/es-ES/Documentacion/Publicaciones/Otras%20publicaciones/pansectelecgag20082016.pdf

national grid as well as the existing infrastructure per region. The document **"Planning of Gas and Electricity Sectors 2007-2016"** predicts the evolution of the Spanish energy sector and plans future infrastructure required to cover electricity and gas demand. Figures presented are consistent with those in the RES-E Plan but considered from an integrated perspective with the national energy mix.

As far as the grid operator's general obligation to expand the grids is concerned, the operator shall elaborate a grid expansion plan in co-operation with the Ministry of Economy every four years. The plan shall take into account the number of existing and new systems and the opinions of interested persons[175]. Time limitations and deadlines of an expansion of the grid depend on the terms of the contract.

The grid shall be expanded according to the principle of non-discrimination. Therefore, renewable-energy-sourced electricity is not given priority.

The costs of general expansion of the grid are borne by the grid operator[176]. If the expansion benefits exclusively the plant operator, he shall bear the costs of the expansion[177].

Grid integration

Additional requirements for RES-E operator intending to improve the integration of variable renewable electricity into the grid are established within the Spanish feed-in regulation:

- **Forecasts for feeding electricity to the grid:** Decree 436/2004 obliged operators of installations (> 10 MW) to provide the distributor with a forecast of the electricity they intend to feed into the grid at least 30 hours before the start of each day. Penalties are established for deviations.
- **Cost of deviation:** The cost of deviation was 10% of the average electricity tariff applied to the difference between the forecast and the electricity measured (when the permitted tolerance is exceeded – the tolerances are 20% for solar and wind power, and 5% for the rest). For renewable energy installations, this came into force on 1 January 2006. The cost of deviations for installations opting to sell directly to the market were the same as that applied to installations operating in the Ordinary System. The obligation to make forecasts and the penalties for deviations improve the functioning of the system and the quality of the electricity fed into the grid.

6 RES Production, Potential and Market Development

RES-E

- Key technologies in the forthcoming years in terms of development potential are wind, solar thermal electricity, biomass and cogeneration.

175 Art. 11 RD 1955/2000.

176 Annex XI RD 661/2007.

177 Annex XI RD 661/2007.

- PV solar expansion will suffer from the existing caps, procedures and limits regulated by Royal Decree 1578/2008, dated September 26th.
- Spain has one of the largest biomass potentials in Europe and this has to be developed. Until now, premium tariffs promoted more wind and PV solar. The new regulations will change the trend towards solar thermal electricity and biomass.
- Important changes in market development are foreseen in the forthcoming years:
    - Consolidation of the Renewable Energies industry, especially wind and solar.
    - International expansion of Spanish technologies and corporations (wind, solar).
    - Major international role of the big Spanish RE corporations: Acciona, Abengoa, Iberdrola, Gamesa, etc.

RES-H&C

- Implementation of the solar thermal obligation in buildings is in process.
- Increasing development and implementation of co-generation under the support of the law RD 616/2007.
- District heating –not very well developed so far in Spain- is becoming better known and new district heating projects will be in place in the near future.

RES-T

Regarding the current capacity of national production and use of biofuels, the Spanish market is underdeveloped, because of the national structure of the fuel market: fossil fuel producers in oligopoly, mostly monopolistic primary logistics (CLH), and distribution technical and market barriers.

Shortly, the infrastructure will be ready (2010) and the technical barriers will be removed. However, it is still ambiguous regarding the position of the major oil companies that control –in an oligopolistic manner- the logistics, the capillary distribution and the majority of the gas stations.

Overview of Laws and Regulations for all RES Sectors

The websites of the Comisión Nacional de Energia[178] (CNE-regulatory entity)) and the Instituto de Diversificación y Ahorro Energético[179] (IDAE-Ministry of Industry) represent main sources of updated information regarding relevant energy laws and regulation. The IDAE's website includes a list of regional legislation, which is very useful considering that a large share of competences related to environment and energy have been transferred from National to Regional authorities.

178 Information available at: http://www.cne.es/cne/Home

179 Information available at: www.idae.es

The most relevant energy legislation currently in force in presented in the following list:

- Law 54/1997 dated November 27, of the Electricity Sector. Its main aim is the full liberalization of the Spanish electricity market. It establishes a Special Regime for renewable energy sources (<50MW) and guarantees grid access, once the necessary administrative permits have been obtained. It also sets a premium price for electricity from the Special Regime. Although electricity generation capacity is no longer planned by the State, transport infrastructures are still planned centrally.
- Royal Decree 2019/1997, dated December 26th, which organizes and regulates the electricity market.
- Royal Decree 2017/1997, dated December 26th, which regulates and organizes procedure to liquidate costs related to transport, distribution an d commercialization via tariff, system permanent costs and diversification and energy supply costs.
- Royal Decree 1955/2000, dated December 1st, regulates the activities of transport, distribution, marketing, supply and authorization procedures of electricity. Updated by RD 1454/2005 and RD 661/2007. It describes the procedure to obtain grid connection.
- Royal Decree 1700/2003, dated December 15th transposes Directive 2003/30/CE and sets specifications of fuels and the use of biofuels.
- Royal Legislative Decree 4/2004, dated March 5th, which approves the refunded text regarding societies taxation.
- Royal Decree 436/2004, dated March 12th, to establish the methodology for updating and organize legal and economic regime of the electricity production activity within the special regime.
- Royal Decree 61/2006, dated January 31st, sets the indicative target of 5.75% biofuels consumption in 2010.
- Royal Decree 314/2006, dated March 17th, approving the Technical Building Code, relevant for solar thermal.
- Royal Decree 1634/2006, dated December 29th, establishes the electricity tariff change of the 1st of January 2007.
- Law 35/2006, dated November 28th, related to the Individual Income Tax and partial modification of the laws regarding Societies, Income of non residents and patrimony.
- Rule ITC/1522/2007, dated May 24th, establishes the regulation of a guarantee of origin for electricity from renewable sources and high efficiency cogeneration.
- Royal Decree 616/2007 Cogeneration
- Royal Decree 661/2007 dated May 25, regulates electricity production under the Special Regime[180]. It modifies and replaces the economic and legal scheme regulating the Special Regime in force so far (RD 436/2004), to meet the following needs:

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180 Facilities under the Special Regime enjoy a number of privileges such as guaranteed sale of electricity produced and economic incentives. Power generation facilities must meet some requirements to adhere to the Special Regime, mainly, have an installed capacity below 50 MW and use renewable energies or cogeneration technologies.

  - Regulate some technical aspects to remove barriers to new capacity.
  - Disengage the premium tariff from the average or reference electricity tariff in order to avoid windfall profits.
  - Increase incentives for cogeneration and biomass.
  - Establish targets of reference installed capacity in compliance with the objectives in the RES-E Plan 2005-2010, the Energy Saving and Efficiency Strategy for Spain (E4), and Directive 2001/77/EC.

- Law 17/2007, dated July 4th, modifies Law 54/1997 to adapt it to Directive 2003/54/EC regarding common rules for the internal market of electricity.
- Royal Decree 1028/2007, dated July 20th, establishes the administrative procedures for processing authorization requests of offshore wind power generation facilities.
- Royal Decree 616/2007, dated May 11th, regarding promotion of cogeneration.
- Royal Decree 871/2007, dated June 29th that adjusts electricity tariffs from July 1st onwards.
- Order ITC/2794/2007, dated September 27th, in which electrical tariffs are reviewed from October 1st, 2007.
- Order ITC/2877/2008, dated October 9th, which establishes promotion tools for the use of biofuels and other renewable fuels for transport.
- Order ITC/3860/2007, dated Decembre 28th, in which it is reviewed the electrical tariffs from January 1st, 2008.
- Royal Decree 222/2008, dated February 15th, in which it is stabilised the retributive regimen of the electrical energy distribution activity.
- Royal Decree 1578/2008, dated September 26th, related to retribution of the electricity production activity through photovoltaic technology for plants installed later than limit date regarding retribution set in the Royal Decree 661/2007, dated May 25, for this technology.
- National Renewable Energies Plan 2005-2010, dated March 26th, issued by the Council of Ministers represents the mail tool at national level to reinforce national goals on energy policy on quality and security on energy supply for end users as well as respect to the environment. General goals of the plan set up that renewables will contribute to produce 12.1% of global energy consumption and 30.3% of brute electricity consumption. Biofuels will substitute 5.83% of gasoline and gasoil for transport.

Additional Sources of Information

More information can be obtained from the following entities:

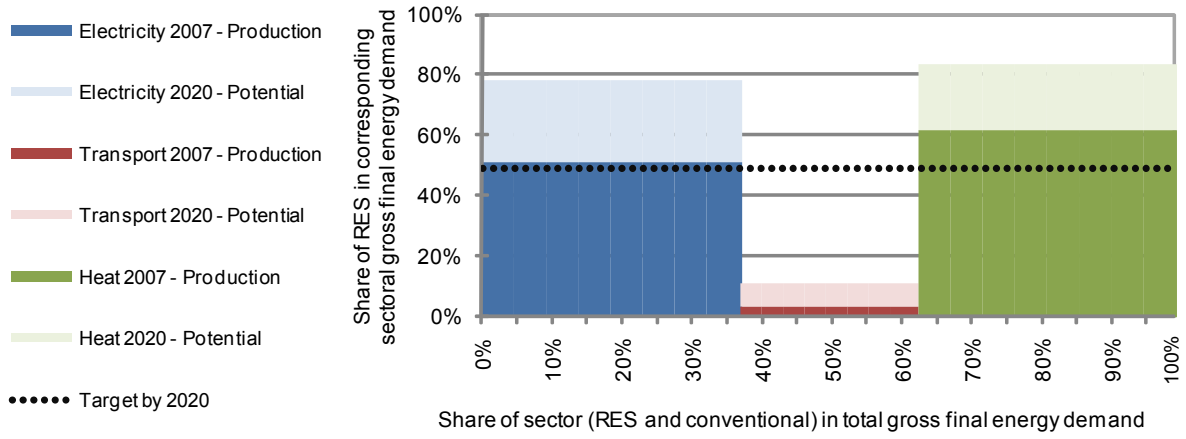
Ministry of Industry, Tourism and Trade
Paseo de la Castellana 160-162
28046, Madrid
Spain
Tel.: 0034 902 44 60 06
Fax: 0034 91 458 30 01

Web page: www.mityc.es

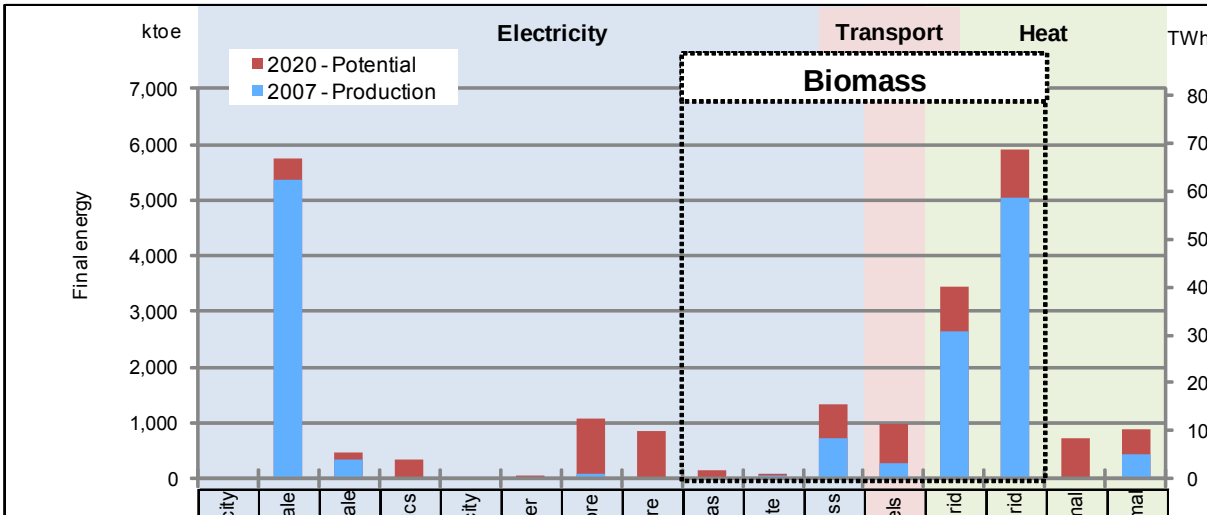
Instituto para la Diversificación y Ahorro Energético (IDAE)
Calle Madera 8
28004, Madrid
Spain
Tel.: 0034 91 456 49 00
Fax: 0034 523 04 14
Web page: www.idae.es

Comisión Nacional de Energía (CNE)
Calle Alcalá 47
28014, Madrid
Spain
Tel.: 0034 91 432 96 00
Web page: www.cne.es

SWEDEN - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	51%	3%	62%	43%
Share of total sector consumption in total final energy consumption	37%	25%	38%	100%
Production 2007 [ktoe]	6,589	285	8,116	14,990
Production 2005 [ktoe]	6,982	152	7,428	14,563
Production 1997 [ktoe]	6,189	0	7,014	13,203
Average growth 2005-2007 [%/a]	-3%	37%	5%	1%
Average growth 1997-2007 [%/a]	1%	-	1%	1%
Potential 2020 [ktoe]	10,077	987	10,988	22,053
Annual growth of RES needed to achieve target	-	-	-	1%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	5,364	326	0	0	0	89	34	6	41	731	284	2,630	5,039	9	438
Production 2005 [ktoe]	0	5,961	300	0	0	0	75	6	5	45	591	152	2,505	4,574	6	343
Production 1997 [ktoe]	0	5,552	376	0	0	0	17	0	4	9	231	0	1,601	5,409	4	0
Ø annual production growth 2005-2007	-	-5%	4%	-	-	-	9%	144%	10%	-5%	11%	37%	2%	5%	22%	13%
Ø annual production growth 1997-2007	-	0%	-1%	-	-	-	18%	-	3%	16%	12%	-	5%	-1%	8%	-
Total realisable potential by 2020 [ktoe]	6	5,736	453	332	0	52	1,075	837	158	83	1,346	987	3,456	5,913	724	895

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1 Summary: RES Support Policy

RES-E

The main support instrument for RES-E is a quota obligation with tradable green certificates. This system came into effect in May 2003 and will be valid until the end of 2030. All technologies (wind, solar, geothermal, biogas, biomass, hydro, wave energy) used in generation of RES-E are eligible for the quota system.

Norway and Sweden have agreed to aim for a joint green electricity certificate market from 1 January 2012.

Sweden also promotes RES-E through fiscal measures: Energy tax exemption for wind energy, reduced real estate tax and subsidies (for solar cells, wind energy projects and research and development in the field of wind energy).

These support instruments for RES-E are applicable at national level.

RES-H&C

Currently, fiscal measures (exemption from energy, CO_2, sulphur and the NO_x taxes) and governmental support through various programs, like the investment programme Klimp or grant schemes for investment in solar heating, are the main RES-H support instruments in Sweden.

A building obligation is another instrument that supports RES-H development.

These support instruments for RES-H are applicable at national level.

RES-T

A tax relief system is in place to promote biofuels. There are no energy taxes for ethanol or biodiesel. Green taxes such as the CO_2 tax promote biofuels in an indirect way.

These support instruments for RES-T are applicable at national level.

2 Details RES-Electricity Support Policy

Quota Obligations and Tradable Certificates

The expansion of electricity production from RES (and peat) in Sweden is supported by a quota obligation with a tradable electricity certificates system. This system came into effect on 1 May 2003, based on Act No. 2003:113 on Electricity Certificates [1] and Regulation No. 2003:120 on Electricity Certificates [2]. The scheme will be valid until end of 2030.

According to the Act on Electricity Certificates [1], production facilities, using biomass, biogas, wind and hydro energy, that came into operation prior to 1 May 2003, are not entitled to electricity certificates after the end of 2014. If production facilities, using solar or geothermal energy came into operation prior to 1 May 2003, then the support will not be provided after the end of 2012. The eligibility of other plants ends after 15 years of promotion, however, the end of 2030 is the latest.

The Swedish Energy Agency (http://www.energimyndigheten.se/en/) and "Svenska Kraftnät" (http://www.svk.se) take responsibility for the functioning of the electricity certificate system. For each produced and metered MWh of electricity from any RES, or even from peat, "Svenska Kraftnät" issues one electricity certificate and later takes a responsibility to cancel it. "Svenska Kraftnät" prepares and maintains the certificate register, publishes regular information on the number of certificates issued, traded and cancelled, and on their average price. The Swedish Energy Agency monitors and analyses developments of the electricity certificate market.

The functioning of the electricity certificate system is based on a quota. The quota has been set for the period 2008 until 2030. Figure 1 presents the quotas that have been set for each year.

Figure 1 Quota obligation (%), forecast of new RES-E (TWh) and phase out of RES-E production (not longer eligible for quota obligation) in 2012-2021 (TWh) Source: Swedish Energy Agency (http://www.energimyndigheten.se/en/Climate-and-energy/Instruments/The-electricity-certificate-system/Consumers1/)

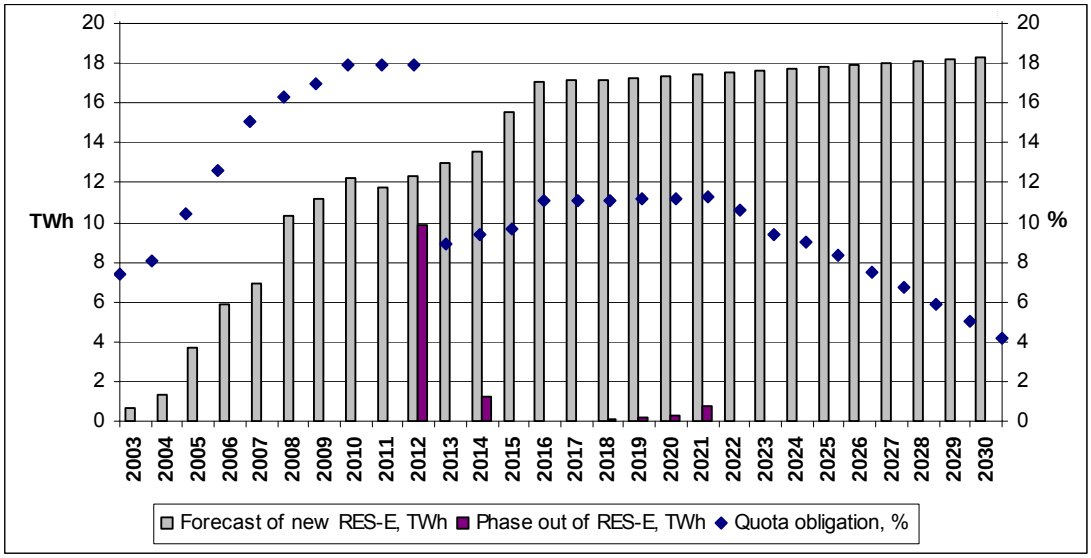


Figure 1 shows the development of quotas and expected production and phase out of RES-E. A decrease in the quota obligation after the end of 2012 is foreseen, because the fact that the first older production units will be phased out from being eligible within the certificate system after the end of 2012 but will continue producing electricity. As new production units can receive certificates only for 15 years, further reductions of the quota are assumed in future years.

All technologies, (wind, solar, geothermal, biogas, biomass, hydro, wave energy) used in generation of RES-E are covered by the quota system. Hydro is, however, covered only if electricity is generated in small existing plants or large newly built plants (commissioning or re-commissioning after 2002); only certain large existing plants are covered, if changes in the legal framework have made their profitable operation impossible or if the renewal of a plant whose capacity does not exceed 15 MW has made it unprofitable [1].

Those that are obligated to satisfy a certain quota are companies supplying electricity to the consumers, electricity consumers (their obligation is proportional to the amount of electricity they have consumed, produced, imported or purchased on the Nordic electricity market), and registered energy-intensive companies.

A certificate can be sold to provide additional revenue over and above that from the sale of the electricity.

Currently, the price of the certificate is determined by supply and demand functions. Historically, a fixed value of quota obligation penalty fee formed a price ceiling. During 2003 and 2004, this was limited to 175 SEK (19.18 EUR[181]) and 240 SEK (26.30 EUR) respectively per certificate, in order to protect consumers against extremely high electricity certificate prices, but in reality it had the effect of setting price levels and operated as a price ceiling for certificates. Since 2005, the penalty fee is dependant on the certificate price and thus does not form a price ceiling anymore. This penalty fee is 150% of the weighted average price of certificates during the period from the previous 1 April until 31 March of the following year.

Prices of electricity certificates are publicly available at “Svenska Kraftnat” website [3]. Annual average price of a spot electricity certificate in 2007 was 195.40 SEK (21.02 EUR), in 2008 and 2009 (January-September) 247.21 SEK (25.74 EUR) and 289.71 SEK (27.05 EUR), respectively. Trading in electricity certificates can be also carried out in the form of forward contracts. Forward prices can be found at Tricorona website [4]. The annual average forward price of electricity certificates in 2008 for delivery of certificate in 2009 was 338.30 SEK (35.22 EUR) and for delivery in 2010 344.91 SEK (35.91 EUR). Accordingly, the average price of electricity certificates in 2009 (January-September) for delivery of certificate in 2010 was 321.29 SEK (30,00 EUR) and for its delivery in 2011 was 323.25 SEK (30.18 EUR).

The distribution of the electricity production that received certificates in 2007 was the following: 68,2% was from biomass fired plants, 4,4% from CHP plants burning peat, 10,8% from wind plants and 16,6% from hydro plants. A small number of solar energy plants were approved for reception of certificates, but they produced only a few MWh

181 Average annual exchange rates are provided by the Central Bank of Sweden: 9.1250 SEK/EUR (for 2003), 9.1268 SEK/EUR (for 2004), 9.2481 SEK/EUR (for 2007), 9.6055 SEK/EUR (for 2008) and 10.7117 SEK/EUR (for January - September 2009) // http://www.riksbank.com/templates/stat.aspx?id=17211

during the year. Wave energy or geothermal energy plants have so far not been submitted for approval and inclusion in the system.

At present, the Swedish electricity certificate system applies only to electricity produced in Sweden. Trading on the electricity certificate market occurs through bilateral agreements, directly between producers and those having quota obligations, and through contract purchases involving the service of a broker. Certificates are traded not only by electricity companies having their own trading departments, but also by industrial companies and district heating utilities, as well as by smaller electricity network companies and producers who trade only a few times per year. Norway and Sweden have agreed on a joint green electricity certificates market from 1 January 2012 [5, 6].

Fiscal Measures (tax exemptions)

Sweden levies an Energy Tax on the consumption of electricity to be paid by commercial producers or suppliers [7]. Wind energy is not subject to tax when generated by non-commercial producers. Wind energy supplied by commercial producers may, under certain conditions, be exempt from energy tax: the supplier of wind energy is eligible for an energy tax credit of 12 öre per kWh (1.12 EURct/kWh), if the wind power station is located in the sea or in Väner lake. The Government may in special cases allow reduction or exemption from energy tax and carbon tax on fuels consumed in the pilot project for technological development of more environmentally friendly products or fuels from RES.

Real Estate Tax [8] foresees that the owner of plants or, under certain conditions, the owner of the land on which a plant is installed, shall pay an annual real estate tax. The tax depends on the value of the plant and doesn't differ for RES and fossil energy sources (0.5%), except for wind energy. Wind energy is subjected to a reduced tax level (0.2%), whereas hydro power was, until the implementation of Act No. 2006:2 on the Real Estate Tax regarding Certain Electricity Generation Systems for the Tax Years 2007-2011, subjected to a higher tax (1.7%) [9]. Act No. 2006:2 affirms that property tax on hydro plants for each calendar year will be 2.2% of its assessed value.

Subsidies

Sweden had a subsidy for wind power, which was called the Environmental Bonus. This production support system will be removed after 2009. During 2008, the value of the Environmental Bonus was 20 SEK/MWh (2.08 EUR/MWh) onshore and 130 SEK/MWh (13.53 EUR/MWh) offshore. During 2007, the Environmental Bonus was 40 SEK/MWh (4.33 EUR/MWh) onshore and 140 SEK/MWh (15.14 EUR/MWh) offshore.

Regulation No. 2009:689 on State Subsidies for solar-PV buildings forecasts support for solar energy development [10]. Support is limited to actions commenced on or after 1 July 2009 and completed by 31 December 2011. This regulation is appointed to reach an annual electricity production increase from solar cells with at least 2.5 GWh during the subsidy period. The aid may not exceed 60% of the eligible costs (planning and labor costs, costs of materials) and for large companies, aid may not exceed 55% of the eligible costs. Generally, the subsidy must not exceed 2 million SEK (0.19 million EUR) per photovoltaic systems or solar electricity and solar thermal hybrid systems.

Regulation No. 2007:160 on Subsidies for Wind Energy Projects authorizes subsidies for municipalities that are planning to implement projects in the field of wind energy [11].

Subsidies are available for planning efforts that have been decided after the end of 2006 and referred to being finalized before the end of 2011. The state subsidy covers 50% of the estimated planning costs. Eligible actions are the development of a new plan, deepening or supplementing the existing general plan, detailed wind mapping and landscape analysis. Applications are to be submitted for a National Board of Housing, Building and Planning. Having completed the measures, the applicant shall report to the National Board of Housing, Building and Planning, the national energy agency and the provincial governments concerned, about the results achieved. The National Board of Housing, Building and Planning performs monitoring and evaluation of planning efforts.

3 Details RES-Heating and Cooling Support Policy

Grants

Since 1996, RES in Sweden were promoted through Government "Local Investment Programs" (LIP). In 2002, "Local Investment Programs" were replaced by "Climate Investment Programs" (Klimp). Klimp has enabled municipalities and other local actors to receive grants for long-term investments that reduce greenhouse gas emissions. The grants have been distributed five times by the Swedish Environmental Protection Agency between 2003 and 2008. The Government doesn't plan to introduce any further grants. The investments are made in the sectors that have the largest impact on the climate (the transport and energy sectors). They include expansion of district heating, transition to biofuels, measures to boost energy efficiency and local information about the climate issue and the ongoing projects. Almost 30% of the Klimp grants have been invested in biogas measures. The climate investment programs normally run for four years. By 2012, all programs will be finished. More information about the measure can be found in Swedish Environmental Protection Agency [13, 14].

In 2006, the Swedish government announced a grant scheme for investment in solar heating on commercial premises. This scheme will run until the end of 2010. Table 1 presents the summary of support levels.

Table 1: Support for RES-H/C in Sweden

Resource	Support level (%/total investment)	Comments
Solar Thermal	Maximum subsidy of 800 EUR for a one family house	For installations in houses
Solar Thermal	30% of its costs covered	For public buildings
Geothermal Heat pump	Grant of 3500 EUR	Start year 2006. For the replacement of electric storage heaters and oil boilers in a building by heating systems containing water as a heat transfer fluid

Tax Exemptions

RES-H is supported in an indirect way by raising taxes on fuels. Fuels used for heat production are subject to energy, CO_2, sulphur tax and a NO_x levy. Biofuels, solid waste and peat are free of tax for all energy uses, although peat is subject to sulphur tax.

Building Obligations

Regulation BBR No. 2006:22 on Building, Section 9 “Energy management” states that dwellings shall be designed in such way, that the specific energy consumption of the building does not exceed the determined energy level [16]. This level is set depending on the climate zone the dwelling is assigned to and a number of dwellings per building. It is mentioned that the specific energy consumption of the building may be reduced with energy from thermal solar collectors and photovoltaic solar cells installed in the building. Similar requirements are held for non-residential premises.

4 Details RES-Transport Support Policy

The primary target is to ensure that 5.75% of transport fuels are produced on the basis of renewable recourses in 2010 and 10% by 2020.

Sweden promotes the use of ethanol and bio-diesel through a tax relief. There are no energy taxes for ethanol or biodiesel (Table 2).

Table 2. Energy taxes in Sweden in 2009

Energy source	Energy tax	Carbon dioxide tax	Sulfur tax	Total tax	Total tax including VAT
Conventional gas,					
- SEK/liter	3.08	2.44	0.00	5.52	5.90
- EUR/liter	0.29	0.23	0.00	0.52	0.55
Diesel oil,					
- SEK/liter	1.33	3.01	0.00	4.34	5.42
- EUR/liter	0.12	0.28	0.00	0.40	0.51
Ethanol/RME, SEK/liter (EUR/liter)	0.00	0.00	0.00	0.00	0.00

Source: http://www.thebioenergysite.com/articles/374/sweden-biofuels-annual-report-2009

In addition to existing tax incentives, the Government Bill intends to implement other economic instruments and changes in taxation policies for the promotion of RES in transport sector. Since 1 April 2007 and until 31 December 2009, any private individual who buys a new low-emission car for private use receive an “eco car subsidy” of 10,000 SEK (1,080 EUR). The vehicles covered by subsidy are conventional fuel-efficient cars, cars that run on biofuels and electric cars meeting certain efficiency requirements. In the case of electric cars, the consumption of electricity per 100 km may not exceed 37 kWh; however, this type of car does is currently not available on the market.

The current “eco car subsidy” will be replaced by a long-term tax concession. The changes will come into effect on 1 January 2010 and will be applied to vehicles taken into use from 1 July 2009. New green cars shall be exempted from vehicle tax for the first 5 years. Vehicle tax will be raised by 5 SEK (0.47 EUR) per gram of CO_2 a car emits. Energy tax on diesel will be raised by a total of 0.40 SEK (0,04 EUR) per liter by 2013. In order to motivate car buyers to choose fuel-efficient vehicles, a tax for light-duty vehicles based on CO_2 emissions instead of weight was introduced in 2006. In fact, all major fuel stations in Sweden are actually required to sell at least one type of biofuel. As of 1 February 2009, it is requested that all cars purchased by the government authorities and 50% of emergency services vehicles must be environmentally friendly [17].

The development of second-generation biofuels will be supported and 875 million SEK (81.7 million EUR) will be earmarked between 2009 and 2011 for the commercialization of new energy technology, including biofuel demonstration plants.

The new Government Bill affirms that Sweden's rural development program for 2007-2013 should be directed to support and improve the production and processing of RES. Sweden also provides investment support for planting forestry for energy use in the country [17].

5 RES-E Grid Integration

Access of RES-E to the grid is subject to the general provisions set in the Electricity Act that came into effect on 1 January 1998, with the latest amendments of 1 August 2008 [18]. The costs arising from the usage of the grids by RES-E are borne by the plant operators, who pay a grid usage fee. Plants of less than 1.5 MW are subject to a reduced fee. According to the Energy Markets Inspectorate, the system operator bears the costs of a grid expansion, if the expansion is to his/her sole benefit [19]. In the instance that the general public benefits from this expansion, then consumers bear the costs of a grid expansion.

6 RES Production, Potential and Market Development

RES-E

The share of RES-E in the total electricity demand amounted to about 51.0% in 2007 compared to 49.1% in 1997.

Hydropower is the largest source of RES-E in Sweden. In 2007, hydropower generated over 66,159 GWh, which corresponds to over 86% of RES-E generation. The RES-E production from biomass showed the strongest growth during 1997-2007. In 2007, solid biomass contributed 8,496 GWh towards electricity generation. Biowaste also generates substantial amounts of electricity (472 GWh in 2007) and is growing. Generation of electricity from wind was recently initiated in Sweden (both onshore and offshore) and had reached 1430 GWh in 2007 (401 GWh from offshore).

RES-T

In Sweden, the consumption of biofuels has increased in the past few years. Biodiesel consumption increased almost twice in comparison to 2006. In 2007, bioethanol consumption amounted to 182 ktoe and biodiesel to 102 ktoe. Around 64% of biofuel consumption in Sweden in 2007 was bioethanol, and around 36% was biodiesel.

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2. Regulation no. 2003:120 on Electricity Certificates // http://www.riksdagen.se/webbnav/index.aspx?nid=3911&bet=2003:120
3. Svenska Kraftnat // https://elcertifikat.svk.se/cmcall.asp?showrequest=false
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7. Act No. 1994:1776 on Energy Tax // http://www.riksdagen.se/webbnav/index.aspx?nid=3911&bet=1994:1776
8. Act No 1984:1052 on Federal Real Estate Tax // http://www.riksdagen.se/webbnav/index.aspx?nid=3911&bet=1984:1052.
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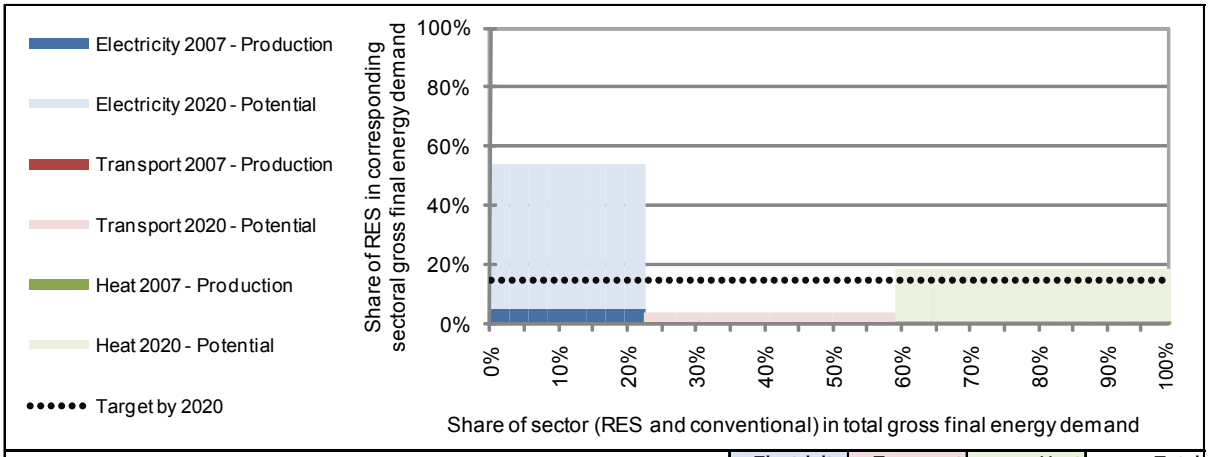
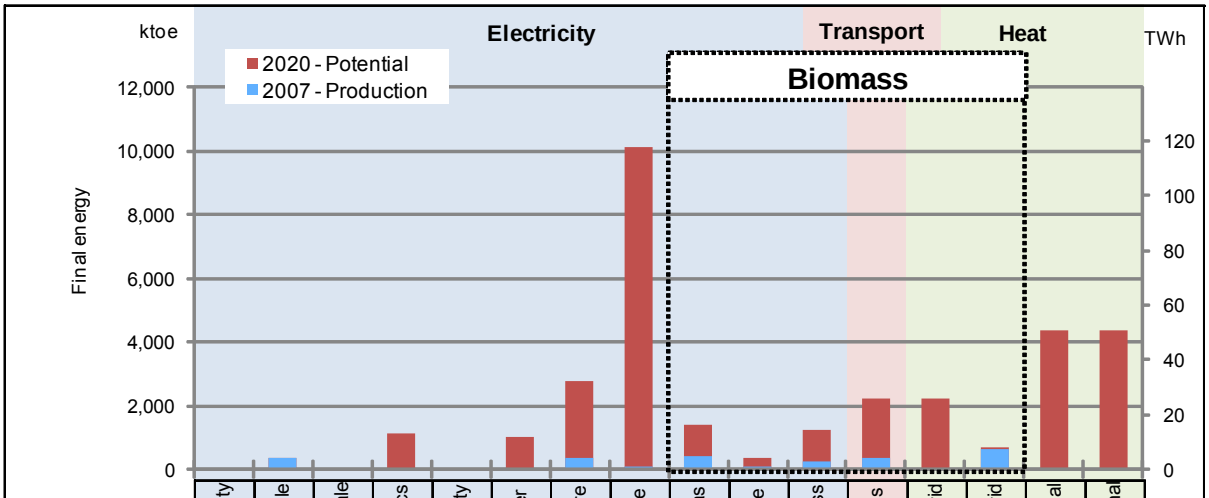
11. Regulation No. 2007:160 on Subsidies for Wind Energy Projects // http://www.riksdagen.se/webbnav/index.aspx?nid=3911&bet=2007:160
12. Regulation No. 2003:564 on Grants for Measures Promoting Effective and Environmentally Sustainable Energy Supply // http://www.riksdagen.se/webbnav/index.aspx?nid=3911&bet=2003:564
13. Swedish Environmental Protection Agency // http://www.naturvardsverket.se/en/In-English/Menu/Legislation-and-other-policy-instruments/Economic-instruments/Investment-Programmes/Climate-Investment-Programmes-Klimp/
14. Green Investments in Sweden // http://klimp.naturvardsverket.se/mir/submitQuickSearch_en.do
15. Tax on Waste-to-Energy Incineration // http://www.riksdagen.se/webbnav/index.aspx?nid=3322&rm=2005/06&bet=SkU33
16. Regulation BBR No. 2006:22 on Building // http://www.boverket.se/Global/Webbokhandel/Dokument/2008/BBR_English/9_Energy_management.pdf
17. Sweden Biofuels Annual Report 2009 // http://www.thebioenergysite.com/articles/374/sweden-biofuels-annual-report-2009
18. Act No. 1997:857 on Electricity // http://www.riksdagen.se/webbnav/index.aspx?nid=3911&bet=1997:857
19. Swedish Energy Market Inspectorate // http://www.energimarknadsinspektionen.se/upload/ENGLISH/Annual%20report%202008.pdf

UNITED KINGDOM - Summary: RES Target, Production and Potential



	Electricity	Transport	Heat	Total
Share of RES in corresponding sectoral gross final energy demand	5%	1%	1%	2%
Share of total sector consumption in total final energy consumption	22%	37%	41%	100%
Production 2007 [ktoe]	1,683	346	688	2,717
Production 2005 [ktoe]	1,453	68	586	2,108
Production 1997 [ktoe]	597	0	864	1,461
Average growth 2005-2007 [%/a]	8%	126%	8%	14%
Average growth 1997-2007 [%/a]	11%	-	-2%	6%
Potential 2020 [ktoe]	18,579	2,226	11,655	32,460
Annual growth of RES needed to achieve target	-	-	-	16%



	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	392	46	1	0	0	349	104	447	93	251	345	0	629	45	14
Production 2005 [ktoe]	0	385	38	1	0	0	215	35	406	83	291	68	0	554	29	3
Production 1997 [ktoe]	0	344	14	0	0	0	57	0	114	50	17	0	0	857	6	1
Ø annual production growth 2005-2007	-	1%	10%	17%	-	-	27%	73%	5%	6%	-7%	125%	-	7%	25%	108%
Ø annual production growth 1997-2007	-	1%	13%	-	-	-	20%	-	15%	6%	31%	-	-	-3%	22%	33%
Total realisable potential by 2020 [ktoe]	13	371	58	1,116	0	1,013	2,793	10,141	1,430	375	1,270	2,226	2,237	686	4,358	4,374

See page 4 for explanation. Unit conversion: 1 ktoe = 11.628 GWh = 41.868 TJ

1. Summary: RES Support Policy

RES-E

The key policy instruments for the support of RES-E at the national level are the Renewables Obligation (RO) and Climate Change Levy (CCL) exemption. Of these two, the RO is the primary support instrument. The UK Government proposes to introduce a feed-in tariff for small-scale producers under 5 MW in April 2010.

From April 2009, the RO has been 'banded'; the number of ROCs awarded per MWh is now dependent on the type of technology. Support to emerging technologies has been 'banded-up', and support to established technologies has been 'banded down'.

The RO has been successful in trebling the share of RES-E in the UK from 1.8% in 2002 to 5.3% in 2008. However, the scheme has also been criticised. The RO is more suited to larger-scale projects, because individuals or communities may not have the capacity to trade certificates with the obligated parties who are very large players in the electricity market. Another criticism of the RO is that it has led to excessive profits for generators and an increase in costs to consumers, whilst not necessarily increasing deployment. The latter is partly addressed by the banding.

RES-H&C

Support for RES-H&C in the UK to date has lacked focus. Currently, the main support instrument is Enhanced Capital Allowances (ECAs), which provides businesses with up-front tax relief on capital investment in designated energy-saving plant and machinery. Although this is of some assistance, the measure is not specific to RES-H. Benefiting from the measure is also reliant on a company making a profit, against which the capital expenditure can be offset. The UK also has a number of grant schemes available for bioenergy. These are often administered on a regional basis (i.e. England, Scotland, Wales and Northern Ireland).

To meet the UK's overall RES target under the RED, the government is planning to introduce a Renewable Heat Incentive (RHI) from April 2011. Details are under development.

RES-T

The primary support instrument for renewable fuel in the UK is the Renewable Transport Fuel Obligation (RTFO), which was implemented on 15 April 2008. This is currently accompanied by a £0.20 per litre fuel duty exemption on biodiesel and bioethanol.

The RTFO increases incrementally to 5% in 2013/14. Following the UK Government's Gallagher Review (July 2008), which expressed concerns about the indirect effects of biofuels, quota targets were reduced (original target was to reach 5% already in 2010/11). The key changes to RTFO progression will be to better assimilate it to the requirements of the RED, specifically with regard to mandatory Carbon and Sustainability requirements, but also to implement aspects such as double counting of advanced biofuels.

2. Details RES-Electricity Support Policy

Renewables Obligation

The primary support mechanism for RES-E in the UK is the Renewables Obligation (RO), a quota system with tradable green certificates known as Renewables Obligation Certificates (ROCs).

The legislation is divided into the Renewables Obligation (for England and Wales), the Renewables Obligation Scotland (SRO), and the Northern Ireland Renewables Obligation (NIRO). These schemes are managed by the Department of Energy and Climate Change, DECC, http://www.decc.gov.uk), the Scottish Government (http://www.scotland.gov.uk) and the Department of Enterprise, Trade and Investment for Northern Ireland (http://www.detini.gov.uk) respectively. The scheme is administered by the UK electricity regulator, the Office of Gas and Electricity Markets, Ofgem, (http://www.ofgem.gov.uk).

The RO is periodically revised. For example, in April 2009, "technology banding" was introduced into the scheme (see below). The Government intends to review the bands in accordance with the future phases of the EU Emissions Trading Scheme, implying that the current bands will be effective until April 2013.

The RO is an existing instrument. The primary legislation governing the RO is the Renewables Obligation Order (England and Wales), the Renewables Obligation Order (Scotland) and the Renewables Obligation (Northern Ireland).

The RO was introduced in England, Wales and Scotland in April 2002 and in April 2005 in Northern Ireland. The scheme is guaranteed to run until March 2027, however, the Government announced its intention to extend the scheme until 2037 in its 2008 pre-budget report (subject to consultation[182]).

There is currently no minimum size limit in place for plants in general. However, from April 2010, it is proposed that plants under 50kW will no longer qualify for support under the RO, but will instead be eligible for a new FIT scheme (see below). Maximum size limits are in place for specific technologies. Support for tidal impoundment is restricted to projects below 1GW declared net capacity (dnc). Large hydro projects (20MW dnc) that were commissioned before April 2002 are also excluded.

There is no cap on the volume of new installations that can qualify for support under the RO. However, since April 2006 there has been a 10% limit in place on the proportion of ROCs from co-firing of biomass with fossil fuel that an obligated party may use towards its obligation. This cap will increase to 12.5% in April 2010 ("energy crops" such as miscanthus and short rotation coppice willow and poplar will be excluded from the cap).

A RES-E project can be supported by the RO in addition to other support measures (for example the Climate Change Levy exemption described below).

RO support is not conditional on certified equipment or certified installers.

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[182] Details of the consultation can be found at: http://www.decc.gov.uk/en/content/cms/consultations/elec_financial/elec_financial.aspx.

The RO places an obligation on all licensed UK suppliers of electricity to supply an increasing proportion of their electricity from renewable sources. Electricity suppliers can meet their obligation:

- by surrendering ROCs to Ofgem as evidence of renewable electricity generation;
- by paying the non-compliance "buy-out" price; or
- by a combination of the two.

Targets for the RO, as well as the level of the buy-out price each year can be found in Table . The buy-out price is adjusted annually in line with the retail price index. Payments are fed into a buy-out fund. that is recycled annually to electricity suppliers in proportion to the number of ROCs they surrendered in the compliance period.

Table 1: RO targets, buy-out price and amount recycled over time

Year	Targets *	Non-compliance buyout price		Amount recycled **	Total "worth" of ROC ** (buyout + recycle)	
	% supply (consumption target)	£/MWh	€/MWh ***	£/MWh	£/MWh	€/MWh ***
2002/03	3	30	33	15.94	45.94	66.61
2003/04	4.3	30.51	33.56	22.92	53.43	77.47
2004/05	4.9	31.39	34.53	13.66	45.05	65.32
2005/06	5.5	32.33	35.56	10.21	42.54	61.68
2006/07	6.7	33.24	36.56	16.04	49.28	54.21
2007/08	7.9	34.30	37.73	18.65	52.95	58.25
2008/09	9.1	35.76	39.34	18.54	54.30	59.73
2009/10	9.7	37.19	40.91			
2010/11	10.4	Increases in line with retail price index				
2011/12	11.4					
2012/13	12.4					
2013/14	13.4					
2014/15	14.4					
2015/16	15.4					

* Targets for Northern Ireland (NI) are lower than the other two regions (England and Wales, and Scotland). Targets for NI electricity suppliers are 3.5% in 2009/10, increasing to 4% in 2010/11 The NIRO target will increase to 6.3% in 2012/13, after which point it is currently planned to remain at 6.3%.

** From 1 April 2005 the single recycling mechanism was introduced, making the amount recycled per ROC equal across all three regions (England and Wales, Scotland, and Northern Ireland).

*** Exchange rate used £1: €1.10

The targets in Table 1 are based on a "headroom" of 8% (i.e. difference between target and estimated RES-E). A concern is that RES-E will meet the RO targets before 2015/16, resulting in the ROC price crashing. It has therefore been proposed to increase the headroom to 10% by 2014/2015 (in 0.5% increment increases from 2011/12), to

reduce this risk. If this is implemented, then the RO targets will increase in the year 2011/12.

The technologies covered by the RO include: Wind (onshore and offshore), bioenergy (landfill gas, sewage gas, biomass combustion and co-firing, anaerobic digestion), advanced biomass and waste conversion technologies (gasification, pyrolysis), solar photovoltaic, hydro, tidal (stream and impoundment), wave, geothermal and geopressure.

The RO was originally set up on a technology neutral basis, whereby 1 ROC was issued for every 1 MWh of eligible renewable electricity. From April 2009, the RO has been 'banded'; the number of ROCs awarded per MWh is now dependent on the technology type. Support to emerging technologies has been 'banded-up' and support to established technologies has been 'banded down'. The following ROCs are earned for each MWh of RES-E generated:

- 0.25 ROCs/MWh for Landfill gas[183];
- 0.5 ROCs/MWh for Co-firing of non-energy crop biomass (with a cap on the proportion of a supplier's obligation that can be met through co-firing), Sewage gas;
- 1 ROC/MWh for Onshore wind, Hydro-power, Co-firing of energy crops, Co-firing of biomass with CHP, Energy from waste with CHP, Geopressure, Standard gasification and pyrolysis;
- 1.5 ROCs/MWh for Offshore wind, Dedicated regular biomass, Co-firing of energy crops with CHP; and
- 2 ROCs/MWh for Dedicated energy crops, Dedicated energy crops with CHP, Dedicated biomass with CHP, Wave, Tidal-stream, Tidal impoundment <1GW (barrage and lagoon), Advanced gasification and pyrolysis, Anaerobic digestion, Solar photovoltaic, Geothermal, Microgeneration (50kW or less) regardless of technology.

In the April 2009 budget, the Government announced that it was temporarily increasing the banding for offshore wind from 1.5 to 2 for projects that reach financial close between 23 April 2009 and 31 March 2010, and from 1.5 to 1.75 for projects that reach financial close between 1 April 2010 and 31 March 2011. (These are on the proviso that offshore works start prior to the end of 2011/12 respectively.)

In March 2009, Ofgem updated the RO to disqualify support for RES-E using biodiesel produced using methanol derived from fossil fuel sources.

ROCs can be traded through bilateral contracts at any time, or traded via auctions which are held quarterly. It is possible to bank ROCs for one year. For example, ROCs issued in 2009/10 may be used for compliance in 2009/10 or 2010/11, but not after this period. In any year, banked ROCs can only be used to meet a maximum of 25% of a supplier's obligation.

Annual compliance periods run from 1 April one year to 31 March the following year. Separate ROCs are issued to generators in Scotland (SROCs) and Northern Ireland

[183] Northern Ireland has not banded landfill gas, which remains at 1 ROC/MWh.

(NIROCs), but the three types of certificate are fully tradable and all can be used by any UK electricity supplier for compliance with the RO.

There is no minimum or maximum price for ROCs. The price is determined by the market. The value of a ROC is dependent on the price a generator can achieve for trading their ROCs and is equivalent to:

- The buy-out penalty paid by suppliers who do not meet their obligation; plus
- The amount recycled back from the buy-out fund to suppliers in proportion to the number of ROCs they used for compliance.

The buy-out recycling mechanism gives suppliers an extra incentive to hold ROCs and has so far kept the ROC market price above the buy-out price.

For example, for the 2007/08 period: the buy-out payment was £34.30; plus the recycle of £18.65; gives a ROC "value" of £52.95 (see Table). This calculation forms the basis of the value of a ROC.

The most recent (“e-ROC”) auction was held in July 2009. Over 150,000 ROCs were traded in the auction. The average ROC price was £52.90 (~58.19 €/MWh).

The lowest average price for ROCs traded via the quarterly auctions was £38.42 back in January 2006, and the highest was £53.27 achieved in July 2008. Average ROC prices in 2007 and 2008 were £47.77 and £51.49 (€52.54 and €56.64) respectively. Future ROCs are not traded.

E-ROC auction price data is publicly available. Historic trading prices of ROCs can be found at: http://www.eroc.co.uk/trackrecord.htm). Figure 2 shows average ROC prices from the quarterly auctions held since the introduction of the RO. Note the distinction made for co-fired ROCs from April 2006 when the co-firing caps were first introduced (i.e. ROCs from co-firing trade for a slightly lower price than other ROCs).

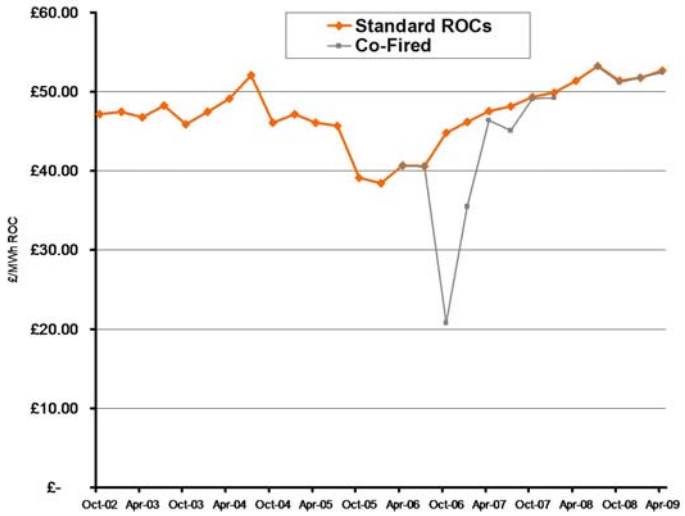

Figure 2: ROC prices in the quarterly "e-ROC" auctions from October 2002 (Source: www.e-roc.co.uk)

The auction trading scheme for certificates allows registered suppliers to view the lots on offer prior to the auction day. On the day of the auction suppliers log on to the e-ROC website and formally make a bid for individual lots, or groups of lots, on a price per ROC basis. Lots are awarded to the supplier who submits the highest bid, which is not bettered after a period of 1 hour. Successful bidders are then notified via email. Bidding takes place over a secure internet service. During the auction, all participants are able to see current highest bids, and final bid prices, though all participants are anonymous.

Subject to consultation approval, projects accredited under the RO before 26 June 2008 will receive ROCs until 2027 at the latest (or project end date), while projects accredited after 26 June 2008 will receive ROCs for a maximum period of 20 years (or 31 March 2037).

Climate Change Levy Exemption

The Climate Change Levy (CCL) is an environmental tax on industrial and commercial users of electricity (domestic and transport sectors are excluded); RES-E generation is exempt from the levy.

The Treasury takes the policy lead on the CCL (http://www.hm-treasury.gov.uk). Guidance for generators and suppliers on the CCL and the CCL exemption for renewables is published by Ofgem (http://www.ofgem.gov.uk).

The levy in 2009/10 is set at £4.70/MWh (5.17 €/MWh) and rises annually according to the retail prices index. Levy Exemption Certificates (LECs) are issued by Ofgem for eligible renewable energy generation and are earned to prove exemption from the Climate Change Levy.

The CCL came into operation in April 2001 and is regulated by the Finance Act 2000. No end date (or duration) has been set for the CCL by the Government. There is therefore no guarantee that it will be remain in place for the duration of the project's lifetime.

The CCL exemption is valid for RES-E generation from any plant size; there are no minimum or maximum size thresholds. In addition, there is no cap in place for the LECs that are issued by Ofgem.

Individual RES-E projects can be supported by more than one measure, such as the RO described above.

The CCL exemption is not conditional on the use of certified equipment or certified installers.

Feed-in Tariff

The UK Government is consulting[184] on the introduction of a renewable electricity FIT scheme. Regulatory aspects of the scheme are being managed by DECC. The scheme will be administered by Ofgem. Additional information on this proposed instrument can be found by contacting DECC.

The FIT is a planned instrument, and due to become operational on 1 April 2010. No end date has yet been announced, however the FIT will provide support for a period of between 20 to 25 years (depending on the technology).

The Government intends to conduct the first major review of the FIT scheme in-line with the review of the RO "rebanding" discussed above. Any changes to the scheme resulting from this review would be implemented in April 2013.

A maximum size of 5MW is set for projects to receive support under the FIT (over 5MW support is through the RO). There is no minimum plant size; however projects under 50kW can only receive support under the FIT, while projects between 50kW and 5MW are eligible to choose whether they would like support under the RO or the FIT.

There is no proposed cap on the annually available budget or volume of new installations in the FIT scheme.

A RES-E project can be supported by the FIT in addition to other support measures (for example the Climate Change Levy exemption described below). Projects will not be able to qualify for both FIT and RO support, however.

It is proposed that FIT support for projects under 50kW is conditional on Microgeneration Certified Scheme (MCS) certified equipment and MCS certified installers.

This scheme is a feed-in tariff and not a feed-in premium and is payable for renewable electricity used on-site or exported to the grid.

The conditions to receive the FIT support are that the RES-E project is <5MW and that the technology is one of those listed in Table. For projects under 50kW the restrictions on MCS certified equipment and MCS certified installers also apply. Prospective generators intending to receive FITs will also need to ensure they have any necessary

[184] Details of the consultation can be found at: http://www.decc.gov.uk/en/content/cms/consultations/elec_financial/elec_financial.aspx.

physical connections to the electricity distribution and transmission system and, if necessary, the right to export to the market.

There is currently no proposal to cap the total volume of electricity produced per year, or per technology or of installed capacity that is entitled to receive the FIT. Similarly, there is currently no proposal to cap the available budget for new installations.

Table2: Proposed tariffs per technology for 2010/11.

Technology	Scale	Proposed initial tariff (£p/kWh)	Proposed initial tariff (€cent/kWh)*
Anaerobic Digestion	Electricity only	9	9.9
Anaerobic Digestion	CHP	11.5	12.65
Biomass	<50kW	9	9.9
Biomass	50kW-5MW	4.5	4.95
Biomass	CHP	9	9.9
Hydro	<10kW	17.0	18.7
Hydro	10–100kW	12.0	13.2
Hydro	100kW–1MW	8.5	9.35
Hydro	1-5MW	4.5	4.95
PV	<4kW (new build)	31.0	34.1
PV	<4kW (retrofit)	36.5	40.15
PV	4-10kW	31.0	34.1
PV	10–100kW	28.0	30.8
PV	100kW–5MW	26.0	28.6
PV	Stand alone system	26.0	28.6
Wind	<1.5kW	30.5	33.55
Wind	1.5–15kW	23.0	25.3
Wind	15–50kW	20.5	22.55
Wind	50–250kW	18.0	19.8
Wind	250–500kW	16.0	17.6
Wind	500kW–5MW	4.5	4.95
Existing microgenerators transferred from the RO		9	9.9
* Exchange rate used £1: €1.10			

As can be seen from the table above, the FIT support decreases with technology size. The site quality or type of biomass has no bearing on the tariff, however.

It is proposed that a project will receive the FIT for 20 years (25 years for solar) and guaranteed to remain at the same generation tariff level for the whole support period.

Tariffs for new projects for specific technologies will be reduced annually to reflect expected decreases in technology costs (fixed “degression” rates). The tariff reduction is in line with the expected technology cost reductions for different technologies at different scales (e.g. 7% for PV, 4% for wind <1.5kW and 3% for wind between 1.5 and 50kW.) Tariffs for existing projects will not be subject to an inflationary linked increase.

3. Details: RES-Heating and Cooling Support Policy

Support for renewable heating and cooling in the UK to date has lacked focus. The main support instrument currently is Enhanced Capital Allowances (ECAs) and there are also a number of grant schemes available for bioenergy. The government forecast that they would need to increase RES-H to 12% of heat demand in 2020 to meet the UK's overall RES target under the RED. To achieve this they are planning to introduce a Renewable Heat Incentive (RHI) from April 2011 to boost RES-H deployment.

Enhanced Capital Allowances

ECA's provide businesses with up-front tax relief on capital investment in designated energy-saving plant and machinery. The Energy Technology List185 (ETL) details the energy-saving criteria for each type of technology, and lists those products in each category that meet them. The ETL currently covers 15 categories of technology and over 13,000 specific products. It is managed by the Carbon Trust, on behalf of the Government, and has two parts:

- The Energy Technology Criteria List (ETCL), which is reviewed annually to take account of technological development and market changes. It sets out the qualifying energy-saving criteria for each class of technology. New technology groups could be added as part of the annual review, but they must have the approval of the Department for Energy and Climate Change (DECC), Her Majesty's Revenue and Customs (HMRC) and the Treasury.
- The Energy Technology Product List (ETPL) is updated at the start of each month and lists the products and technologies that are eligible for an ECA.

The ECA scheme was introduced in 2001 as part of the government's Climate Change Programme. There is no proposed end date for the scheme.

The scheme is open to all businesses that pay UK corporation or income tax, regardless of size, sector or location. There is no defined maximum ceiling – a company can claim for any item on the ETL. Some products on the ETL may typically be sold as part of a larger product that is not on the ETL – for example an ETL motor that sits within a non-ETL compressor. In this case there is a list of maximum claim values for the products on the ETL. Companies can claim the value of their compressor that corresponds to just the motor part.

100% first-year ECAs allow the full cost of an investment in designated energy-saving plant and machinery to be written off against the taxable profits of the period in which the investment is made. This compares to the normal rate of capital allowances for spending on (non-energy saving) plant and machinery is 25% a year on the reducing balance basis. (So, a company would always be able to claim the same value back, but with ECAs they get the whole value of the tax rebate in the first year, rather than over the lifetime of their investment.)

ECAs can be claimed alongside other policies and measures. (Because the measure relates to a tax and is stated in the Finance Act, it is the highest level of legislation and a company can not be stopped from claiming against the policy.)

185 http://www.eca.gov.uk/etl

For example, it would be possible for a company to claim exemption to the Climate Change Levy (if they meet their energy saving target specified in their Climate Change Agreement) and claim ECAs on any energy saving technology investment they have made. It is also possible for a company to claim ECAs if they have used a 0% interest loan under the Energy Efficiency Loans Scheme (mainly for SMEs, administered by the Carbon Trust), or if they have received a grant from the Low Carbon Buildings Programme (grant for micro renewables).

Grant Schemes

RES-H is or has been also supported through various grant schemes. The major ones being:

- Bio-energy Capital Grant Scheme[186] is administered by DECC and aims to promote the efficient use of biomass for energy by stimulating the early deployment of biomass fuelled heat and biomass CHP projects by awarding capital grants towards the cost of equipment in complete installations. The scheme is aimed at businesses, organisations and charities in the commercial, industrial and community sectors in England only (note: not available in Scotland, Wales or Northern Ireland). There is no minimum grant aid in any one application and the maximum is £500,000 per installation. The fifth round of the scheme closed in on 30 April 2009. Future rounds are intended, with the next expected in Autumn 2009.
- The Wood Energy Business Scheme (WEBS)[187] is run by the Forestry Commission Wales, for Wales. Grants are available to support the installation of wood-fuelled heating and CHP. The second round of the scheme is now open for applications. The scheme runs until 2013.
- The Scottish Biomass Heat Scheme[188], administered by the Scottish Government, is open for small and medium scale enterprises (SMEs) in Scotland to apply for funding to install biomass heating systems in business premises and district heating demonstrators. Note the scheme is restricted to heat-only biomass applications. In total £3.3 million of funding is available between April 2009 to March 2011. Of this, £1.3 million is available in the Highlands & Islands area and £2 million in the Lowlands & Uplands Scotland area.
- No specific grant support is currently available for biomass heat in Northern Ireland.
- The Carbon Trust Biomass Heat Acceleration project[189] makes available £5million funding for R&D over the 5 year period from 2006.

Planned: Renewable Heat Incentive

To help the UK boost currently low levels of RES-H to help meet the UK's RES target for 2020, the government plan to introduce a Renewable Heat Incentive (RHI) from April

186 http://www.bioenergycapitalgrants.org.uk/

187 http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-7njg2e

188 http://www.usewoodfuel.co.uk/

189 http://www.carbontrust.co.uk/technology/technologyaccelerator/biomass.htm

2011. The scheme is being designed, and is so far planned to be run, by the Department for Energy and Climate Change[190] (DECC).

The Energy Act 2008 (Section 100) allows for the setting up of the RHI, which would provide financial assistance to generators of renewable heat of all scales and to some producers of renewable heat, such as producers of biomethane.

Details of the scheme are scarce, but DECC has outlined the following basic principles:

- The RHI will apply to generation of renewable heat at all scales, whether it is in households, communities or at industrial scale.
- They aim to make the RHI as simple, accessible and user-friendly as possible to encourage potential investors in renewable heat at all scales.
- The RHI will cover a wide range of technologies including biomass, solar hot water, air and ground source heat pumps, biomass CHP, biogas produced from anaerobic digestion and injection of biomethane into the gas grid.
- The RHI will be banded so different rates of support may apply to different technologies or scales.
- The RHI will be available across Great Britain. (Northern Ireland will need to develop their own legislation.)
- The incentive payments will be funded by a levy on suppliers of fossil fuels for heat. These include gas suppliers and suppliers of coal, heating oil and liquefied petroleum gas (LPG).

DECC are currently working to develop the main features of the RHI scheme, and they hope to consult on these before the end of 2009. The RHI is planned to start by April 2011.

RO Support for CHP

The RO supports the use of Good Quality Combined Heat and Power (GQCHP). For example, co-firing biomass or the combustion of dedicated biomass qualifies for additional support under the RO compared to RES-E only generation. GQCHP is also exempt from the CCL.

4. Details RES-Transport Support Policy

Renewable Transport Fuel Obligation

The main support instrument for renewable fuels in the UK is the Renewable Transport Fuel Obligation (RTFO).

The government lead on the RTFO is the Department for Transport (DfT)[191], although the scheme is administered by the Office of the Renewable Fuels Agency (RFA)[192], a

190 DECC RHI pages: http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/renewable_heat/incentive/incentive.aspx

191 http://www.dft.gov.uk/pgr/roads/environment/rtfo/

body specifically set up for the purpose. The DfT sets the renewable fuel targets that obligated parties must meet. These have been adjusted once since the scheme began – lowered due to concerns about indirect effects of biofuels. The RFA administers the scheme and keeps aspects such as the Carbon and Sustainability reporting scheme updated on an ongoing basis. However there is no official timeframe for review or adjustment of the scheme.

The RTFO began on 15 April 2008, put in law by the Renewable Transport Fuel Order[193]. The scheme currently operates in annual obligation periods from 15 April one year to 14 April the next. The scheme was initially guaranteed for a 3 year "pilot" period, however it is intended that it will be continued as the main instrument to achieve the EU target of 10% renewable transport fuel at least to 2020.

The obligation is on fossil fuel suppliers (for road transport) who supply more than 450,000 litres of fossil fuel per year. The obligation falls specifically on refiners, importers and any others who supply fossil based road transport fuels at the point at which excise duties become payable.

Originally targets were set at 2.75% renewable transport fuel (by volume) in 2008/09, 3.75% in 2009/10 and 5% in 2010/11. However following the publication of the UK Government's Gallagher Review (July 2008) which expressed concerns about the indirect effects of biofuels, targets were reduced (approved by Parliament in April 2009) to 3.25% in 2009/10 and 3.5% in 2010/11, then increasing by 0.5% per year, reaching 5% in 2013/14. At the moment the obligation is intended to be increased to enable the minimum 10% target to be reached in 2020, although no target increase beyond 5% is confirmed.

Bioethanol and biodiesel receive one Renewable Transport Fuel Certificate (RTFC) for every litre supplied; biomethane for every kg supplied. Other biofuels such as biobutanol are eligible under the Order, but to date none has been supplied. All biofuels therefore effectively receive the same level of support (per volume) - there is no "banding" concept as such introduced.

To earn an RTFC an obligated party must report to the RFA on the Carbon and Sustainability characteristics of the biofuel supplied. From the start this has been a reporting obligation where the results are made publically available – therefore there are no official minimum standards and companies can report "unknown", but all this information is made public[194]. Indicative targets are given for company performance on Carbon and Sustainability. In the first year targets were that companies should aim to source 30% of biofuels that meet a qualifying environmental standard, biofuels should achieve a minimum 40% GHG saving (according to the RTFO methodology), and companies should be able to report 50% of information asked of them. From December

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192 http://www.renewablefuelsagency.org/

193 Renewable Transport Fuel Obligation Order 2007:
http://www.opsi.gov.uk/si/si2007/uksi_20073072_en_1

Renewable Transport Fuel Obligation Order (Amended) 2009:
http://www.opsi.gov.uk/si/si2009/uksi_20090843_en_1

194 http://www.renewablefuelsagency.org/reportsandpublications/rtforeports.cfm

2010 the RFA intends to incorporate the EC *mandatory* Carbon and Sustainability requirements into this scheme.

The UK Government initially expressed an intention to link the number of RTFCs earned to the actual carbon saving achieved from 2011. At the same time they would wish to introduce a minimum level of sustainability. This intention has now been somewhat overtaken by the introduction of the EC's carbon and sustainability requirements. Such a mechanism is being considered to implement the Fuel Quality Directive, although no final decisions have been made. The DfT plan to consult on such issues in late 2009.

RTFCs are tradable. They can be traded bilaterally or via auction websites run by organisations such as NFPAS, a subsidiary of the Non-Fossil Purchasing Agency[195]. There is no minimum or maximum price cap for certificates. The buy-out price payable if obligated parties do not meet their obligation is currently £0.15 per litre. This will increase to £0.30 when the fuel duty incentive is removed in 2010.

The buy-out fund is administered by the RFA. At the end of each obligation period the buy-out fund is redistributed to companies who have redeemed RTFCs with the administrator, in proportion to the number of RTFCs they redeemed.

A drafting error was made in the legislation in the first year of the scheme which effectively gave obligated parties a much lower biofuels obligation than intended. Despite this, to date obligated parties as a whole have over-achieved the obligation – in the first year, 2008/09, obligated parties supplied 2.6% biofuels, whereas the obligation was 2.5%. As such there has been no shortage in the RTFC market and their value has been low or even zero. In the only published auction results to date, 5 million RTFCs were offered for auction on 18 July 2009, but none were bought. Although there are no official forecasts of RTFC prices, it is likely that they will gain some value in future years if there is a shortage on the market, caused by the increasing percentage obligation and – perhaps more importantly – the introduction of *mandatory* carbon and sustainability criteria from the RED which may mean the supply of qualifying biofuels is lower than currently.

RTFCs can currently be carried over from one year to the next to meet up to 25% of a company's obligation. When the scheme moves over to RED minimum requirements it is intended that only RED-compliant RTFCs will be allowed to be carried over, although the details of this are not yet finalised.

Currently biofuels made from wastes and by-products automatically meet the environmental aspects of the carbon and sustainability reporting, but there is no further specific support. However the DfT plan to change the support level for these biofuels, in line with the double counting element of the RED. Details have yet to be decided.

There is currently no direct support for other renewable transport alternatives under the RTFO – such as hydrogen or electric vehicles – however the scheme has been designed with flexibility in mind to be able to potentially adapt in the future to cover options broader than biofuels.

195 http://www.nfpas-auctions.co.uk/etoc/index.html

Tax Exemption

The second element of biofuels support in the UK is a partial tax exemption. Biodiesel (since 2002) and bioethanol (since 1 Jan 2005) are subject to a £0.20 per litre fuel tax exemption. Note this is on pure biofuel but most sold in the UK is as a 5% blend, therefore this equates to £0.01 per litre on the fuel as sold. The fuel duty incentive for biofuels is planned to cease from April 2010. At that time the RTFO buy out price will be increased to £0.30 per litre.

5. RES-E Grid Integration

At present, the grid operator, National Grid, is obliged to grant access to the grid according to non-discriminative criteria. RES-E is therefore not given priority (compared to conventional generators). However, a public consultation[196] on "Improving grid access" is currently being held by DECC, which may result in changes to the system for 2010.

RES-E projects do not have priority in case of grid congestions.

Connection charges to the distribution network are considered to be "**shallowish**" in that the connecting generator pays for the assets required to connect it to the distribution network plus a proportion of network reinforcement costs. The costs for network reinforcement are based on an "allocation" basis (i.e. according to the relative share of the project in relation to the total installed capacity in the corresponding period.)

RES-E projects are required to forecast production and to pay for balancing energy if actual production and forecasted production deviate. Balancing costs can either be pre-agreed in bilateral agreements with other generators, or paid to the National Grid based on the spot market. Balancing costs fluctuate greatly between the time of year and time of day, and whether the costs are pre-agreed or subject to the spot market.

6. RES Production, Potential and Market Development

RES-E

To date, RES-E generation in the UK has been dominated by biogas (including landfill gas and sewage gas) and large-hydro. However, these technologies are now well-developed in the UK and are not expected to be see further significant growth. The introduction of the RO in April 2002 has led to increased development of onshore wind and solid biomass projects. Both of these technologies now also contribute a significant portion of the UK's RES-E generation. Offshore wind is experiencing rapid growth, albeit from a low base.

Solid biomass has a growing share of RES-E generation and this trend is expected to continue in the coming years, particularly with the RO banding which now awards 1.5 or 2 ROCs per MWh for dedicated biomass. A number of companies have announced their

[196] Further information can be found at: http://www.decc.gov.uk/en/content/cms/consultations/improving_grid/improving_grid.aspx

intention to commission large-scale dedicated power stations. These include, Drax Power (3 x 290MW), MGT Power (2 x 300MW), E.on (300MW) and Prenergy (350MW).

Offshore wind is set to play an increasingly important role in the UK's RES-E generation mix. The government has set a target of 25GW additional generation capacity by 2020, on top of the 8GW already built or planned. A major initiative is the 1GW "London Array" project, which will be commissioned by a consortium involving E.ON, Dong Energy and Masdar.

RES-H&C

Current RES-H production in the UK is relatively low. Bioenergy offers however a key resource for providing RES-H in the UK with a large potential and currently contributes to about 1% of energy for heating. Solar thermal and geothermal heat are growing, but from a very low starting point.

RES-T

The introduction of the RTFO in the UK in April 2008 has given a real boost to the UK biofuels market, and the awareness and engagement of stakeholders has risen rapidly. Despite an error in drafting the legislation which effectively gave obligated parties a much lower biofuels obligation than intended, in the first year of the RTFO 2.6% biofuel was supplied under the obligation – therefore over-achieving the intended target. Of this biofuel, 82% was biodiesel and 18% bioethanol. The UK industry was on the whole disappointed by the UK government decision to slow down the level of biofuel increase following the Gallagher Review, however despite this meeting the increasing biofuels obligation, particularly with mandatory carbon and sustainability requirements, should continue to support the UK biofuels industry.

The UK has relatively large biodiesel production capacity compared to the EU27. In 2007 biodiesel production capacity stood at 657 kt per year, up from 445 kt in 2006 and only 129 kt per year in 2005. In November 2007 the UK's first dedicated bioethanol plant was opened: the Wissington plant in the east of England is owned by British Sugar and will produce 70 million litres of bioethanol per year from sugar beet. Before the end of 2009, Ensus plan to open what will be Europe's largest wheat-to-bioethanol plant in the UK. The Teesside plant will produce a planned 400 million litres of bioethanol per year.