1.3.4. Possible solutions to address the barriers for the transfer and diffusion of combined heat and power (CHP)

1.3.4.1. Measures to support the creation of a stakeholder network for the development and transfer of the technology

Measure 1: Facilitate existing networks of stakeholders.
Measure 2: Establish a coordination mechanism between stakeholders.

1.3.4.2. Actions to improve policies and creating measures for technology development and transfer

Measure 1: Provide incentives in addition to legal regulations to engage stakeholders in the technology deployment.
Measure 2: Publish materials on new technologies for application to industries that consume both heat and power.

1.3.4.3. Measures to strengthen functioning of organizations and institutions

Measure1: Review and develop planning.

Measure 2: Provide CHP training for staff.
Measure 3: Develop technical management capacity and raise community awareness on the benefits of this technology.

1.3.4.4. Measures to support skills training and education for technology development and transfer
Measure 1: Work with international experts and send staff members to training courses.

Measure 2: Make budget for training and education.

1.3.4.5. Measures to facilitate international cooperation and deal with intellectual property rights (IPR), particularly for a more cooperative model for RD&D

Measure 1: Join forces with the global community in development and transfer of CHP technology.

1.3.5. Recommended solutions for energy

a) Recommended solutions for electricity generation

- Incentivize the investment on renewable energy (RE) production through policies and financing mechanisms. Establish post-installation maintenance services and networks of information on new technologies.

- Develop a legal framework for the acceleration, encouragement and obligation of the diffusion of CHP technology in potential areas; for instance: *Add obligatory regulations to facilitate the deployment of CHP technology in potential areas (such as industrial zones, processing utilities, new residential areas, etc., that consume electricity and heat) to the Law on Energy Efficiency*.

b) Recommended solutions for energy consumption

- Enhance energy efficiency through measures such as: Developing and promoting tax incentives for importing production technologies and concessional loans for national businesses to invest on, innovate or deploy new production technologies.

- Build a system of information on new technologies, equipment suppliers, and raise awareness on the social, economic and environmental benefits on energy-saving technologies. Support businesses to expand their cooperation with international partners in terms of research and sharing experience of how to enhance product quality.

1.4. Technology action plan, project ideas, and other issues in energy

1.4.1. Wind power technology

1.4.1.1. Technology action plan for wind power technology

a) Aggregation and rationalization of measures identified for technology acceleration

The list of measures identified for formulation of a national strategy to accelerate the development and transfer of technologies can be seen in Table below.

Table 35 - Aggregation for strategy formulation

Strategic measure	Accelerating innovation RD&D	Accelerating deployment	Accelerating diffusion
Creation of Network			
Build a communication system to provide information to stakeholders	X	X	X
Policies and Measures			
Develop investment incentive and subsidization schemes	X	X	X
Establish a market-driven pricing system	X	X	X
Organizational/behavioral change			
Strengthen the coordination between organizations	X	X	X
Market support actions			
Build wind maps to locate appropriate sites for wind power plants	X	XX	XX
Provide financial support mechanisms and incentives for local production of wind power	X	X	X
Make legal obligations for local electric utilities to purchase wind electricity	X	X	X
Develop infrastructure and maintenance services	X	XX	XX
Training and education			
Facilitate training and education on the technology, form groups of technicians and share experience with international experts	XX	X	XX

* Note: This table illustrates for a strategy of acceleration measures according to letters of each square, using the timescale for completion of an action, where:

- Letter "X" refers to measures which need to be started in the short term and carried out within the next five years;

- Letter "XX" refers to measures which can be completed in up to 10 years;

- Letter "XXX" refers to measures longer-term measures which can be planned for completion within 15 years from the current date and also will be used for other technologies below.

b) Prioritization and characterization of technology acceleration measures for a national plan

The list of measures identified for the acceleration of technologies and the innovation stage structured under the core elements of a national strategy are identified and aggregated in Table below.

Table 36 - Prioritization and characterization of technology acceleration measures

Sector: Energy							
Specific Technology and category: Wind power technology/Medium-scale, short term							
Innovation stage: Deployment – Diffusion							
Measure (grouped under core elements)	**Prio-rity**	**Why is it important?**	**Who should do it?**	**How should they do it?**	**Time-scale**	**Monitoring, reporting and verification for measure**	**Estimated costs (1,000 USD)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Creation of networks							
Build a communication system to provide information to stakeholders	2	It helps stakeholders to make easier decisions on which technology they are going to invest on	MOST	Study information needs, review the existing information channels and develop a suitable information system	2012-2020	MOIT	20
Policies and measures							
Develop investment incentive and subsidization schemes	1	Wind power production has not been able to exploit its full potential and there is a lack of investment incentives or subsidization schemes to accelerate the purchase of wind electricity	MOIT, MOF	Develop investment incentives and subsidization schemes for wind power	2012-2015	MOIT	100
Establish a market-driven pricing system	1	This helps the sector to develop towards a competitive and equitable electricity market	MOIT, MOF	Set an appropriate roadmap taking into consideration negative impacts of electricity price increase on production and household activities	2012-2015	MOIT	50

Market support actions							
Build wind maps to locate appropriate sites for wind power plants	1	It enhances capacity factor and reduces investment costs to appeal to investors	MOIT and EVN	Carry out wind observation in potential sites; Build wind maps	2012-2020	MOIT	1,000
Provide financial support mechanisms and incentives for local production of wind power	1	It helps to reduce investment costs, lower the price and increase competitiveness of technology	MOIT, MOF	Review the existing legislation to form the basis for making financing incentives for wind power projects; develop new support policies for local wind power equipment manufacturing	2012-2015	MOIT	100
Make legal obligations for local electric utilities to purchase wind electricity	1	It helps to develop and facilitate national wind power market	MOIT and EVN	Review the existing legislation to formulate a legally binding framework of wind electricity purchase	2012-2015	MOIT	100
Develop infrastructure and maintenance services	2	It helps to maintain the operation of wind power stations	MOIT and EVN	Investigate and assess the demand for equipment replacement in order to develop infrastructure and maintenance services	2012-2020	MOIT	5,000
Skills training and education							
Facilitate training and education on the technology, form groups of technicians and share experience with international experts	1	To build designing, operating and maintenance capacity of technicians, designers, installation and O&M staff	MOIT, EVN	Assess capacities and training needs, make plans for training and experience sharing with foreign partners	2012-2020	MOIT	1,500

*** Note:**

(1) Measures were grouped under the core elements for a technology acceleration action plan. Using a simple process, expert groups (they work in angencies and organizations which was mentioned in Table and they came from national steering committee for the UNFCCC and the Kyoto Protocol) were requested to categorize each measure into level 1, 2 or 3 according to their view on the importance of the measure to the action plan. The priority levels reveal the importance of the measure, divided into 3 levels from 1 to 3 with the following specifications:

- 1: very important, should be carried out in the short term.
- 2: important, can be carried out in new future (the next 5-10 years) or when possible.
- 3: fairly important, should be carried out but in a longer term, no need to be done in the short time.

c) Finalizing national strategy

Based on priority technology action plans in the subsectors, a national strategy and action plan for the wind power development targets are presented in Table .

Table 37 - National Strategy (technology transfer and development for mitigation)

	0-5 years	5-10 years	10-15 years
Commercially available technologies (short-term)			
Wind power technology			
Build a communication system to provide information to stakeholders	X		
Develop investment incentive and subsidization schemes	X		
Establish a market-driven pricing system	X		
Build wind maps to locate appropriate sites for wind power plants	X	X	
Provide financial support mechanisms and incentives for local production of wind power, increasing the national wind power production	X		
Make legal obligations for local electric utilities to purchase wind electricity	X		
Develop infrastructure and maintenance services	X	X	
Facilitate training and education on the technology, form groups of technicians and share experience with international experts	X	X	

1.4.1.2. Brief summary of project ideas for international support (details in Annex 4)

1.4.2. Compact fluorescent lamps

1.4.2.1. Technology action plan for compact fluorescent lamps (CFLs)

a) Aggregation and rationalization of measures identified for technology acceleration

Similar to the section above, the list of measures identified for formulation of a national strategy to accelerate the development and transfer of technologies can be seen in Table .

Table 38 - Aggregation for strategy formulation

Strategic measure	Accelerating innovation RD&D	Accelerating deployment	Accelerating diffusion
Creation of Networks			
Raise awareness on technology	X	XX	XX
Policies and Measures			
Provide import tax or loan incentives for CFL production	X	X	X
Make regulatory requirements for lighting quality and the	X	XX	XX