Technology Fact Sheet

Technology Name	**Condensing boilers**[i] /Caldaie a condensazione SIME. Benessere in evoluzione/ http://www.caldaie-climatizzatori.com/prodotti.php?filtro=id_ordinamento&id=14
Subsector GHG emission (megatons CO2-eq)	5.067 mln. t CO_2 in thermal power sector in 2010
Background/Notes, Short description of the technology option	Condensing boilers /Caldaie a condensazione SIME. Benessere in evoluzione/ use latent heat of condensation of vapors from combustion gas, increasing boiler efficiency by 10 -15%. Vapor condensation takes place when the gas temperature drops below 50 ^{0}C. This is possible if the water incoming into the boiler has a temperature of 30-40 ^{0}C, in relatively small heating systems. These boilers' productivity is up to 100 kW of heat. To avoid corrosion of surfaces the boiler is manufactured of special steel, which increases its cost by up to 2 times.
Implementation assumptions. How the technology will be implemented and diffused across the subsector? Explain if the technology could have some improvements in the country environment.	Energy consumption for heating by 2020 is expected to reach 46.6 PJ, CO2 emissions amounting to 1.89 mln. t. Increased cost of the boiler until recently made them non-competitive. Current tariffs for natural gas have made them competitive and they started to be implemented more widely. However, the share of condensing boilers in total consumption of heat can not exceed 5%.
Implementation barriers	- Increased investment - Decreased effect if the required temperature of water is higher (when outdoor temperature drops) - Lack of efficiency increasing effect in hot water preparation.
Reduction in GHG emissions (megatons CO2-eq)	0,0092 Million t CO2e for 2020
Impact Statements – Impact of this option on the country development priorities	
Country **social** development priorities	Consumers pay less for fuel
Country **economic** development priorities – economic benefits	Reduced consumption, and subsequently, a reduction by 3.5 mil.m^3/year of natural gas import
Country **environmental** development priorities	Reduction in CO and NO_x emissions
Other considerations and priorities	-
Costs	
Capital costs	Investments in condensing boilers are about 2 times higher than in simple boilers
Operational and Maintenance costs	Operational and maintenance costs, provided the price of gas in 2030 is 1.0 USD/m^3 , will be 35.4 USD/GJ.
Cost of GHG reduction	The total cost of installed boilers will be 20 thousand USD Emissions reduced in between 2010-2030 will amount to 150 thousand t CO_2eq. Therefore the cost of GHG reduction is 130 USD /tCO2
Lifetime.	Lifetime – 10 years

[i] This fact sheet has been extracted from TNA Report - Technology Needs Assessment for climate change mitigation - Republic of Moldova. You can access the complete report from the TNA project website **http://tech-action.org/**