

Technology Fact Sheet for Mitigation

Technology 9: Improvement of heat only boilers ⁱ

<i>Subsector</i>	Energy supply
<i>Sector GHG emission (tCO₂-eq)</i>	6,399,000 tCO ₂ -eq from the energy supply subsector in 2006
<i>Technology Name</i>	Improvement of heat only boilers
<i>Background/Notes, Short description of the technology option sourced from ClimateTechWiki, Seminars, etc</i>	Approximately 20% of annual coal consumption or over 1.2 million tons are used per year for heating of over 340 residential areas and ger districts of bigger cities of the country. A typical boiler in provincial areas (particularly, in soums centre, an administrative unit) uses 800-1200 tons of coal a year on average. Outdated boilers, installed during a socialist period with lower efficiency (0.4-0.5), provide heating for schools, hospitals, kindergartens and other public institutions. The maximum heat load of a boiler reaches 0.5-0.8 MW.
<i>Implementation assumptions, How the technology will be implemented and diffused across the subsector?</i>	One of the biggest problems facing Mongolia is how to raise the efficiency of the boilers. If we can increase the efficiency up to 70% then the coal consumption would decrease by a factor of two, and environmental pollution would dramatically reduce as well. At present, around 30% of soum centers are connected to the central power grid, which is expected to increase. Initially, up to 2020, it is planned to improve 100 HOBs with average capacity of 1.0 MW.
<i>Reduction in GHG emissions</i>	GHG emissions are expected to be reduced by 112,500 tCO ₂ -eq for 100 boilers
<i>Impact Statements - How this option impacts the country development priorities</i>	
<i>Social development priorities</i>	<ul style="list-style-type: none"> • Cost of heating will be resulted in diversification of industries and services; • Products of industries and services could become cheaper; • Quality and efficiency of energy supply will improve.
<i>Economic development priorities</i>	<p>If efficiency of the heating boiler houses with capacity 1 MW increased from 40 to 70 per cent then coal consumption will be reduced by 725 ton/year.</p> <p>Coal consumption of heat generation will decrease from 715 kg/Gcal to 408 kg/Gcal. Less fuel consumption will result in lower heating costs i.e. there is a estimation that the unit cost for heating can be reduced from 22.5 USD/Gcal to 19.0USD/Gcal.</p>

<i>Environmental development priorities</i>	Annual coal saving for 100 HOBs is 72500t. Reduced air pollution: CO-2280 t;NO _x - 101 t; SO ₂ - 333 t; Ash-190 t. (air pollutant reduction by 42%) Reduction of CO ₂ emissions by 1125 ton per 1.0 MW heat load.
<i>Other considerations and priorities such as market potential</i>	-
<i>Costs</i>	
<i>Capital costs</i>	Investment cost for modern efficientheat only boilers with 1MWheat load is 200.000 USD. Total Investment cost 20 million USD for 100 HOBs.
<i>Operational and Maintenance costs</i>	Operational and Maintenance costs of heat only boilersof 1.0 MWheat load are 60,000.0 USD.
<i>Cost of GHG reduction</i>	GHG emission reduction cost will be 53.3.0 USD/tCO ₂ -eq

ⁱ **This fact sheet has been extracted from TNA Report – Technology Needs Assessment For Climate Change Mitigation– Mongolia. You can access the complete report from the TNA project website <http://tech-action.org/>**