T@W Good Practice Form

Setting

Title:	JIM.NRW – First German programmatic JI-project
Country:	Germany
Location:	Various facilities in State of North Rhine-Westphalia
Start date:	June 2007
End date:	31.12.2012
Technology keyword(s):	Preterm renewal and modernisation of heating and steam boilers, both with and without fuel switch
Host sector:	Small industrial emitters as well as public facilities

General description

Summary: Within the scope of the concrete application of the project-based Kyoto-mechanism, the Ministry of Economics of the Federal State of North Rhine-Westphalia intends to implement a pilot programmatic Joint Implementation (JI) project for this federal state. This is supposed to offer an incentive for the advanced renewal and modernisation of heating and steam boilers, both with and without fuel switch, which is not covered by the EU-Emission Trading Scheme (EU-ETS)
Target groups are small and medium sized companies as well as public facilities in North Rhine-Westphalia.
The implementation of the JI-project is effected in accordance with the Track1-procedure and in the terms of the "Programmatic CDM". In this manner, new participants can be admitted continously to the JI-project, provided that they comply with the participation criteria – without the need for passing through the (JI-) authorisation process again.
This means that the applicant of the program is credited the proceeds of emission reductions, which are the result of actual measures, in the form of ERUs.

Emission reductions can be reached by:
- efficiency increase due to improvement of the annual use efficiency of the boiler plant
- reduced CO2-emissions due to lower specific emission values in case of fuel switch

The EnergieAgentur.NRW (www.energieagentur.nrw.de), which also functions as applicant general, conducts the entire procedure. The participants in the JI-project put specific reduction measures into practice and receive a refund according to their reduction achievements. An impartial monitoring finds out the actual reduction volume.
The potential emission reduction volume in every single case is too small to justify the implementation of a separate project. This gives reasons to the assumption that reduction measures without the involvement into the programmatic project would be delayed in many cases, if they would materialise at all.
Tying separate measures in a „Programmatic JI Project" shuns this obstacle. However, this approach requires the development of highly standardized calculation bases to assess the reduction volumes and of a feasible calculation scheme plus monitoring for the participants.

Aims: Demonstration of feasibility of programmatic JI-project, stimulation of implementation of new technologies, partial investment refunding via international emissions trading, creating strong publicity effects, promotion of political goals via inclusion in NRW-energy initiative, strong positive effects on innovation.

Summary of Results: Summary of the main results
Planning Time: From June 2007 on Conception to end of building in years (not mandatory)
Planning issues: (not mandatory)
Operation Time: 2008-2012
Feasibility Study: included

Technical details

Technical details: Text description

Energy data

Energy data:
Energy saved/generated: In common units, GJ/y (not mandatory)
Monitoring: Methodology used (who did it)

Environmental data

Environmental data: Text description
Project GHG-emissions: In common units, tonnes CO_2equivalent/year
GHG-emission reductions: expected 250,000t CO2e (in 2008-12)
"EUA, CER, ERU, AAU": ERU
Methodology: Own methodology

Baseline Text description
Monitoring: Own methodology

Contribution to Sustainable Development:
JIM.NRW contributes to Sustainable Development by

- effecting C02e emission reductions in SMEs,
- demonstrating of feasibility of energy efficiency improvements under the JI mechanism, of the programmatic approach
- promoting environmentally improved technologies and processes.

Economic data:

Economic data: Text description
Financing: Commercial
Capital cost: Select a currency (not mandatory)
Operational Costs: Select a currency (not mandatory)
Payback: In years (not mandatory)
Energy Production costs: Select a currency (not mandatory)

Other savings: Select a currency (not mandatory)

Additional Information

Printed or electronic reports or other literature available:

Title: xxx Cost: xxx *#if applicable#*

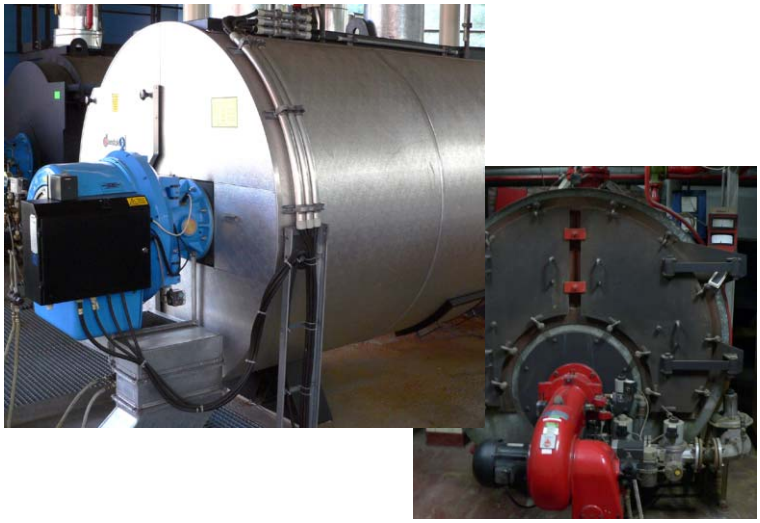
Address for download of electronic document: xxx

Project Web site: *http://www.future-camp.de/english/subwebs/2klima/26_andere.html*

Photo Library

Pictures:

JIM.NRW Energy Efficiency Project



Contact

information (to be duplicated for each contact for this project):

Type of Organisation: Service provider

(e.g. technology supplier, service provider, host company, financing body, project management)

Technology keyword(s) specific to this organisation: Wind, landfill gas, industrial technologies and other technologies

Organisation / Agency: FutureCamp GmbH

Main contact

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Description of the Organisation for inclusion in the database of Technology and Service Providers:

FutureCamp GmbH offers consulting, functional support and development of strategic concepts in the domains of emissions trading (EU emissions trading, JI&CDM, as well as other climate protection projects) and innovation management. In addition to providing consulting services, FutureCamp is also active in the development of new, innovative business fields in several domains (ecology/water monitoring, mobile health / tele-monitoring, decentral and regenerative power systems).

Other contacts:

#please only give full contact details (name, address, email, telephone) if you have confirmed that they are willing to respond to enquiries and want to be included in the database of Technology and Service Providers. These could for example be: host organisation, equipment manufacturers, financial organisations, etc.#

Please email filled out form (including pictures) to: GP@setatwork.eu

For each picture provided, please provide a caption including any acknowledgement or source and confirm that you own the copyright and/or permission is given for it to be published by T@W on the website and in T@W publications.

If possible please provide pictures at 300dpi so that they can be used in printed versions of the Good Practice.

T@W Good Practice Technology Keywords

TECHNOLOGY KEYWORD	DESCRIPTION
Advanced technologies	The introduction of IT into the workplace and the spread of home working as a result is one example of how advanced technologies can save energy and resources. Others include neural networking, robotics, artificial intelligence and advanced control networks. Applied properly, these can reduce energy usage and improve industrial performance.
Agricultural Waste	Organic wastes are produced as a result of a wide range of agricultural activities, for example crop residues, animal manure, poultry litter, etc. These can be converted to energy by a range of technologies, including direct combustion, gasification, anaerobic digestion (to produce biogas), etc.
Agriculture	There is a vast opportunity to save energy and reduce emissions through more efficient processes in Agriculture. This ranges from reducing the use of nitrogen fertiliser by using more manure through to re-forestation.
Air monitoring	Air monitors can contain materials that have a deleterious effect on the environment. Monitoring systems are now available which can reduce these effects.
Buildings	There are very few parts of the world where buildings require either no heating or cooling to sustain adequate living or working conditions. As such energy in buildings uses about 30% of the total world's energy resources. All aspects of the building can be examined and improved to reduce energy consumption and this area offers a major opportunity for reducing greenhouse gases into the atmosphere.
Coal combustion	This is a traditional source of heat for industrial and power generation processes. There are a large number of developments around the world to increase combustion efficiencies and to reduce Greenhouse Gas emissions during combustion.
Coal mining technology	The extraction of coal can be energy intensive. There are now a number of technologies that can help optimise this process and hence help to reduce Greenhouse gas emissions. These include pre-mining gasification and the integrated recovery of both coal and methane.
Combined cycle	This is a generic term used to describe a two or multistage process of generating electricity through different types of turbines. It can produce efficiencies in excess of 60%.
Combined heat & power	Gas turbines and internal combustion engines can be utilised to generate both electricity and heat. Both of these energy types can be used within a business to make best use of the fossil fuel input. CHP can be found in many industry sectors such as paper and chemicals. Smaller units can be found in hospitals, hotels and leisure centres.
Combined renewable energy technologies	Due to the intermittency of some renewable energy sources, it is often beneficial to combine two or more technologies to achieve a firm power supply (sometimes with a form of energy storage). These can be used to supply energy to remote communities that are not connected to a larger grid system.
Electrical	There is a wide range of domestic and commercial appliances that consume large amounts of the world's electricity resources. These range from the humble office fan to the multilevel commercial refrigeration system. All can be improved to run on less electricity through better control, improved internal components or development of a better appreciation of waste.
Electrical transmission & storage	Most transmission networks loose about 3-6% of the power being transmitted. However in some parts of the developing world this can be as high as 20%. There are a number of technologies available that can help reduce these losses.
Energy distribution	Energy is distributed in many forms: as compressed air and liquids, steam, hot water, hot gases, electricity and hot oils. Distribution losses can be reduced through insulation, leak detection and repair, better transformers in electricity distribution and overall improved maintenance.
Energy management	Industry and Commerce are, in general, poor at managing their energy resource. Effective management of energy can save up to 20% of energy costs in a business. It can be applied through developing a management champion and teams, setting targets to achieve, careful measurement and reporting of performance.

Engines & transmissions	The internal combustion engine has been with us for almost a century and in that time it has been constantly improved through better combustion efficiencies and power to size ratios. There is still further work to do on these devices as well as exploiting new types of engine such as the wankel engine or direct diesel injection.
Forestry & energy crops	Wood can be used as a fuel both as a by-product from forestry operations and as a crop grown in its own right. Other crops can also be grown for energy purposes (e.g. Oil seeds, sweet sorghum, etc). Combustion is the most common technology used to extract the energy but there is also a range of other technologies that can be used depending on the end use energy requirement (gasification, pyrolysis, anaerobic digestion, fermentation, etc).
Fuel cells	When certain chemicals are mixed across a membrane then electricity is generated. This generation can be highly efficient and devices, in principle, can be made with high power to weight ratios. Most fuel cells are at the development stage although some are being installed in vehicles and are being used for electricity storage.
Gas cleaning systems	Industrial processes often need to filter gas streams to remove particulates or to filter liquids to separate types of fluid. These processes can be energy intensive and there a number of developments that are available to reduce this process energy.
Geothermal energy	Geothermal energy is the name given to energy extracted from the earth, either near the surface or by drilling to higher temperatures at greater depth. At lower temperatures the energy is usually extracted as heat, sometimes with the aid of a mechanical heat pump. At high temperature the heat can be used for power generation.
Heat recovery & storage	All high temperature processes generate some waste heat. Sometimes it is cost effective to utilise this heat either at the point of generation for example in recuperative type burners or remotely to heat other parts of an industrial site. In some instances there is no immediate use for waste heat and it can be stored. Heat storage, however, is not practised much in industry and it has its main use for space heating applications where electricity is the main energy source.
High temperature technologies	High temperature is here referred to as above 300 deg C. There is a steady stream of new burner, insulation and control technologies being introduced into the market place. These reduce waste gas emissions, shorten heating times save energy and improve industrial competitiveness.
Hydroelectricity	Hydroelectricity (or hydropower) is one of the oldest and most widely used forms of renewable energy. It exploits the mechanical energy of falling water to drive a turbine, of which there is a wide variety of designs. Systems range from low-head (<3m) to high head (>20m). This database is limited to small-scale hydropower systems (<10MW).
Hydrogen	Hydrogen is emerging as a major component of clean, sustainable energy systems, relevant to all energy sectors (transportation, buildings, utilities and industry). Ultimately it is hoped to produce hydrogen from renewable energy sources.
Industrial technologies	This covers a vast range of technologies and processes from gentle drying of fabrics to paper pulping and cement clinker grinding. One of its principal technologies is the electric motor which consumes about 60% of the electrical energy used by industry.
Industrial waste	Organic wastes are produced by a wide range of commercial and industrial processes for example industrial wood waste, hospital wastes, tyres, chemical wastes, food processing, etc. These can be converted into useful energy by a range of technologies: combustion, gasification, anaerobic digestion, etc.
Landfill gas	Landfill gas is produced as a result of organic wastes decomposing in landfill sites. It can be recovered for direct use as a boiler fuel, converted into electricity or upgraded to a higher value fuel gas.
Lighting	Around the world the provision of lighting is one of the single largest influences on the emission of greenhouse gases. There is a vast range of lighting types available and most currently installed are of relatively low efficiency. The introduction of technology such as compact fluorescents and low energy Tungsten lighting can revolutionise the power consumption of whole societies.
Municipal waste	Municipal solid waste (MSW) contains a significant amount of organic matter that can be used for energy purposes. MSW can be combusted untreated, processed into a higher-value “refuse

	derived fuel" or converted using other technologies (e.g. gasification, pyrolysis, fermentation, etc). Sewage sludge also can be digested to produce biogas.
Nuclear technology	Electricity generation through the use of nuclear power is widespread around the world. There are a number of designs of reactor and for each there is a possibility of improving energy efficiencies. These devices produce virtually no greenhouse gases.
Ocean energy	Energy in the oceans and seas can be extracted in a number of ways. Tidal barrages capture water at high tide, and tidal-stream devices used tide-induced currents to generate power. Devices to capture the energy in waves can be located on the shoreline or some distance offshore. It is also possible to generate power from the thermal gradients in seawater at appropriate locations – this technology is known as OTEC (Ocean Thermal Energy Conversion).
Oil & natural gas technology	In the extraction of oil and gas there are a growing range of technologies that can make these processes more efficient such as working with more efficient compressors and improving leak detection.
Other Technologies	This section deals with any other technologies that have not been classified elsewhere.
Solar energy (heat)	Energy from sunlight in the form of heat can be captured by devices that circulate a fluid for delivery elsewhere. Solar water heaters range from systems supplying a single house or swimming pool to those supplying multiple dwellings or commercial/industrial premises. Solar energy can also be used to provide process heat for industrial/agricultural processes. Solar cooling technologies have also been developed. Through the use of climate-sensitive building design, solar energy can be used for space heating, natural day lighting and even ventilation. Buildings that exploit these range from individual dwellings to large commercial/industrial ones.
Solar power	When certain materials are subjected to sunlight they develop an electric potential that can be used to generate electricity. These photovoltaic (or PV) systems can be used for large scale centralised power generation, for decentralised grid-connected power supply and as a remote power source when there is no grid-supplied electricity available. The energy in sunlight can also be concentrated sufficiently to achieve temperatures suitable for thermal power generation. A variety of designs have been used in areas of high incident sunshine.
Transport	This subject covers a wide range of transport types on land, sea and in the air. Indeed transport contributes some 30% (at least) to the amount of Greenhouse gases in the atmosphere. There a wide range of technologies either available or under test which can help improve efficiencies and reduce emissions. These include electric vehicles, improved tyres, transport use optimisation and better turbine design.
Wind	Modern wind turbines generate electricity through the action of the wind on aerofoil blades. Most of these are land-based and can either be connected to an electricity grid or be non-grid connected, with some form of back up or storage. More recently the potential to site turbines offshore is being investigated and developed. Wind energy can also be used to generate heat and mechanical power.