Thermorehabilitation of Historic Buildings in the Royal Łazienki Gardens in Warsaw

The project **"Thermorehabilitation and Energy Management in Selected Buildings of the Royal Łazienki Museum – Officer Cadets School, Old Guardhouse, Forge"**, submitted and implemented by the Royal Łazienki Museum – a Palace and Garden Complex in Warsaw, was co-financed with funds from the climate account under the first competition of priority programme "Green Investment Scheme – Part 5) – energy management in buildings of selected entities of the public finance sector" addressed to national cultural institutions.

The project consists of the implementation of thermorehabilitation of 3 buildings of the Royal Łazienki Museum: the Old Guardhouse, the Forge and the Officer Cadets School. The following works are within the project scope: modernisation of the central heating installation, replacement of doors and windows, roof insulation, modernisation of the usable hot water installation, replacement of the lighting.

Expected effects:

- Reduction of CO_2 emissions as a result of energy savings after the project completion by 230 Mg CO_2 per year.

Thermorehabilitation of the Polish National Opera and the Grand Theatre in Warsaw

Ongoing implementation – expected date of completion 31 December 2013

The project **"Thermorehabilitation of the Building of the Polish National Opera and the Grand Theatre"**, submitted and implemented by the Grand Theatre-National Opera in Warsaw, was co-financed with funds from the climate account under the first competition of priority programme "Green Investments System Part 5) energy management in buildings of selected entities of the public finance sector" addressed to national cultural institutions.

The works planned as part of the thermorehabilitation include: insulation of the flat roof, replacement of windows and historic external doors, replacement of thermostatic valves and radiators, installation of automatic venting, hydraulic regulation of the central heating installation, modernisation of the mechanical ventilation installation.

Projekt, DTP, druk: www.pracowniacc.pl

Expected effects:

- Reduction of CO_2 emissions as a result of energy savings after the project completion by 1,372 Mg CO_2 per year.

Thermorehabilitation of Schools in Łomża

Project completed at the end of 2011.

The project **"Thermorehabilitation of Educational Facilities in Łomża"**, submitted and implemented by the city of Łomża, is compliant with priority programme "Green Investment Scheme – Part 1) – energy management in public buildings". The thermorehabilitation covered four buildings in Łomża, housing primary schools and a lower secondary school, with the total cubic volume of almost 54,000 cubic metres.

As a result of the project, the facilities' technical condition improved as regards their thermal management and the costs of their use decreased, as did the number of harmful substances emitted to the environment, which was achieved by means of a reduced heat demand and improved sanitary and hygiene conditions.

Effects gained:

- The amount of energy saved as a result of thermal modernisation projects:
  – savings in heat energy (primary energy) – 6,210 GJ per year,
- Avoided CO_2 emissions as a result of energy savings – 687 Mg CO_2 per year.

For details please contact:
National Fund for Environmental Protection
and Water Management
3A Konstruktorska St.,
02-673 Warsaw, Poland
Climate Protection Department/Green Investment Scheme Unit
phone: (+48) 22 4595 829; (838; 844; 847)
fax: (+48) 22 45 95 849
e-mail: gis@nfosigw.gov.pl
www.nfosigw.gov.pl/gis-poland

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National Fund for Environmental Protection and Water Management

GIS Operator in Poland

GIS PROJECTS IMPLEMENTATION in Poland

Warsaw, 2013

Green Investment Scheme – Poland

Due to restructuring of the economy in 1990s, focused inter alia on reduction of impact of the national economy on the environment and decoupling of the GDP growth from the emissions levels, Poland will have GHG emissions well below target established under the Kyoto Protocol. As of April 29, 2008 Poland met specific criteria and became eligible to enter into international emissions trading (Article 17 of the Kyoto Protocol), including trading of AAUs. The Polish Act on management of GHG emissions and emissions of other substances adopted on July 17, 2009 amended by the Act of December 12, 2012 defines:

- proceeds from the transactions can be spent on hard greening, as well as on soft greening,
- transparent method of projects applications assessment,
- robust but flexible regulations for monitoring, reporting and verification of the effects provided by the projects,
- other operational rules on National Green Investment Scheme including the use of GIS proceeds to refinance project costs covered from other sources.

According to the Act, the operating entity for the National GIS is the National Fund for Environmental Protection and Water Management (NFEP&WM).

Key features of the GIS in Poland:

- transparency
- project identification using call for proposals mechanism
- project selection on a competitive basis after screening against eligibility criteria
- GIS-specific taylor-made methodology used to estimate environmental effects
- project ranking based on environmental efficiency
- Strict monitoring, reporting and verification rules mandatory to beneficiaries and to NFEP&WM

Among types of projects eligible for financing from the GIS, Poland has set up the following six priorities:

- biomass fired heat and power plants
- agricultural biogas plants
- upgrading electricity grid for connecting renewable wind energy sources
- energy management and efficiency in public buildings and co-generation
- improvement of the external lighting energy efficiency
- reduction of fuel or energy consumption of the public transport

Biomass fired heat and power plants

Beneficiaries:

- entities carrying projects for construction of facilities fired by biomass
- mainly private entities
- but can be also public institutions

Types of projects:

- construction of facilities fired by biomass for generation of heat or heat and power (dispersed sources of nominal thermal capacity below 20 MWt).
- minimum total cost of the project PLN 2 000 000 (ca. EUR 500 000)

Agricultural biogas plants

Beneficiaries:

- entities carrying project for generation of biogas for production of power (and heat) or for introduction of the cleaned biogas in the gas distribution network,
- only private companies

Types of projects:

- construction of power or power and heat production facilities using agricultural biogas
- construction and/or modernisation of installations producing agricultural biogas with the purpose for introduction to the gas distribution network
- minimum total cost of the project PLN 10 000 000 (app EUR 2,5 M)

Upgrading electricity grid for connecting renewable wind energy sources

Beneficiaries:

- entities carrying out projects within the scope of efficient transmission and distribution of electric energy,
- only private companies

Types of projects:

projects pertaining to construction, extension or conversion of electricity network in order to enable connection of entities producing electricity from wind energy (RES) to the NEEN, including implementation of the following tasks:

a) Provision of connections for wind energy generation sources (RES) (transformer, segment of the line from energy source to connection point to the NEEN);
b) extension of switchgear units of power 110 kV/SN through additional bays (line bays, transformer bays, bus switch bays, clutch bays, measurement bays, auxiliaries bays, lightning rod bays and other) with connections, general improvement of supervision and control system (including monitoring);
c) extension of network 110 kV/SN – overhead/wire lines or increasing the capacity of existing lines by changing the gauge of working wires and adding an additional circuit;
d) connection between transformer and switching stations 110 kV/SN and between them and the distribution network (220 kV or 400 kV);
e) construction of new segments of overhead network and cable networks;
f) construction of new, fully equipped transformer and switching station 110 kV/SN;
g) construction of reserve electricity sources in order to stabilise networks supplied temporarily from renewable energy sources;
h) network modernisation consisting in increasing the admissible temperature for the transmission line (in order to connect new wind energy generation sources (RES)), e.g. by raising the location of transmission line or by means of additional insulation.

Energy management and efficiency in public buildings and co-generation

Beneficiaries:

- public institutions
- local government units
- NGOs organizations
- churches and other religious organizations
- higher education institutions
- institutions of culture
- research institutes
- independent public and private health care facilities

Types of projects:

energy improvement of buildings and energy efficiency modernisation of objects, in particular:

- insulation retrofitting
- replacement of windows
- replacement of exterior doors
- reconstruction of heating systems (including the exchange of heat source)
- replacement of HVAC systems
- preparation of technical documentation for the project
- application of energy management systems in buildings
- use of renewable energy technologies
- replacement of internal lighting system

Improvement of the external lighting energy efficiency

Beneficiaries:

- territorial self-government units entitled to use infrastructure of street lighting within the scope of the implemented project

Types of projects:

- modernisation of the street lighting system (including replacement of: sources of light, fixtures, igniters, power cable, poles, installation of new light points as part of the modernised lighting routes. if it is necessary to meet the requirements of PN EN 13201 standard)
- assembly of equipment for intelligent lighting control
- assembly of steered systems of power reduction and stabilisation of supply voltage

Reduction of fuel or energy consumption of the public transport

Beneficiaries:

- municipalities
- municipal utility companies implementing tasks related to the local transport
- other service providers from domain of local transport operating on the basis of an agreement concluded with municipality

Types of projects:

- related to the transport fleet, such as:
  a) the purchase of new hybrid buses fuelled by CNG
  b) training of public transport vehicles drivers to adapt to low-carbon fleet
- infrastructure and management, such as:
  a) the modernisation and construction of public transport vehicles refuelling service stations to adapt to the hybrid buses fuelled by CNG
  b) the modernisation and construction of bike paths
  c) the modernisation and construction of bus lanes
  d) the modernisation and construction of car parks "Park and Ride"
  e) the implementation of urban transport management systems
  f) the implementation of urban bicycle system

GIS projects implementation

Since 2010, the GIS Operator has published 14 calls for proposals covering all the six priorities. All the announcements and the results of competitive procedure were published at www.nfosigw.gov.pl. Grant agreements were signed with 249 beneficiaries by the end of February 2013, on amount of:

- **EUR[1] 99.4 million** (PLN 413 million) for energy management in public buildings and for energy management in buildings of selected public sector entities programmes
- **EUR 11.9 million** (PLN 49.3 million) for agricultural biogas plants programme
- **EUR 2.8 million** (PLN 11.5 million) for biomass combined heat and power stations programme

It is anticipated that the remaining selected projects will be completed by the end of 2013, amongst them thermorehabilitation of more than 200 nurseries, kindergartens, primary schools, high schools, hospitals. The GIS Operator has launched two calls for proposals since the beginning of 2013 and plans to place another one. Due to project cycle timing, completion of projects to be selected under those three calls is expected by the 2016. More than 100 grant agreements are expected to be signed with beneficiaries until the end of 2013.

GIS Project examples

Please, find below examples of successful GIS projects:

* * *

Thermorehabilitation of Vocational Schools in the City of Lublin

Project completed at the end of 2011.

The project **"Thermorehabilitation of the Lublin Centre of Vocational Education and the Complex of Information Technology Schools in Lublin"**, submitted and implemented by the gmina of Lublin, is compliant with the priority programme "Green Investment Scheme – Part 1) – energy management in public buildings". The thermorehabilitation activities covered four school buildings in Lublin, including the buildings in the Complex of Information Technology Schools and in the Lublin Centre of Vocational Education.

As a result of the project, the facilities' technical condition improved as regards their heat management and the costs of their use decreased, as did the number of harmful substances emitted to the environment, which was achieved by means of a reduced heat demand and improved sanitary and hygiene conditions.

Effects gained

- The amount of energy saved as a result of thermal modernisation projects:
  – savings in heat energy (primary energy): 16,494.15 GJ per year,
  – savings in electric energy (primary energy): 159.00 GJ per year,
- Total reduction of energy consumption: 16,653.00 GJ per year;
- Avoided CO_2 emissions as a result of energy savings – 787 Mg CO_2 per year.

[1] EUR to PLN exchange rate as of February 28, 2013 www.nbp.pl

www.nfosigw.gov.pl
www.nfosigw.gov.pl