

# Production of power and heat from bioenergy

**Project:** Bio-energy plant 1.4 MW at Veliky Novgorod

**Project owner:** LLC Novgorodsky Bekon/R-energo OOO

**Duration:** 2012–2013

**Year of BSAP funding:** 2012

**Approximate total budget:** EUR 6.7 million

**BSAP Funding:** Up to EUR 300,000

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**The production of power and heat from bioenergy is one of the most promising alternatives for renewable energy development in Russia. The potential for this technology is large and positive experience could influence long-term strategies and increase bioenergy production.**

The animal breeding company LLC Novgorodsky Bekon, a leading producer of meat products in the Novgorod region in Russia, is cooperating with R-energo OOO for the construction of a

bioenergy unit. A new reproducing unit for livestock has been constructed, which increases the supply of manure and other biomass.

The planned project is a combined power and heat plant with 1.4 MW of electric capacity and 1.4 MW of heat. The technology will be based on Best Practice European technology, both for handling of biomass and for energy production.

The project has substantial positive environmental impacts. The project reduces emissions of methane, one of the most powerful climate gases, and also reduces the flow of nutrients to the local river system and to the Baltic Sea. The project initiators will seek to use existing Russian/Nordic financial incentives and loans. The project originates from Russian–Nordic cooperation, with foreseen use of Nordic technology, energy management systems, planning methods and models. The project shall be implemented in view of long-term price development and relevant risk consideration and risk management.

#### Number of animals

Pigs: 45194 heads

Cattle: 1020 heads

#### The volume of manure available

Pigs breeding farm: 700 m<sup>3</sup>/day

New reproducing unit: 240 m<sup>3</sup>/day

Cattle: 16.5 m<sup>3</sup>/day

The bio-energy plant is planning to enter into a long-term contract on the operation of the plant with international providers of such services. The sale of heat and power will be on a long-term contract with the Novgorodsky Bekon manufacturing unit and to the free power market.

The investment costs are estimated to be EUR 6.7 million.

Installed capacity	1.4	MW
Generation/year, electrical power	11 900,00	MW/year
Utilization, electrical power	8,500	hours
Economic life	25	years
Investment costs, gross	6.7	MEUR

The main layout of the plant consists of the receiving unit for biomass, the gasification unit and the gas engine and turbine unit. Heat and electricity is delivered directly to the livestock breeding complex. The technology selected for the plant has been used and proven reliable for more than two decades and therefore involves relatively low technical risk and uncertainty.

## Baltic Sea Action Plan Fund

The BSAP Fund is a fund managed by the Nordic Investment Bank (NIB) and the Nordic Environment Finance Corporation (NEFCO). The fund provides grants for technical assistance to projects that support the implementation of the HELCOM Baltic Sea Action Plan (BSAP). The aim of the BSAP is to help restore the ecological status of the Baltic Sea.

Recipients eligible for financing through the BSAP Fund include both public and private entities operating in the agricultural and wastewater treatment sectors, shipping and ports, as well as those working to reduce hazardous waste in the Baltic Sea catchment area. A key purpose of the fund is to facilitate and speed up the preparation of bankable projects. The fund provides grant financing for the following:

- Project preparation and development, including feasibility studies, development of business ideas, and cash-flow models
- Technical assistance for institutional support, that is, training and support needed for project preparation, development and implementation
- Measures that improve efficiency and quality in project implementation (e.g., the acquisition of equipment for demonstration purposes).

Sweden has committed SEK 90 million (EUR 9 million) to the BSAP Fund and Finland EUR 2 million.

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