

Promotion of conversion to biomass CHP in Poland

EC BREC, Poland

Summary

The set of activities promoting best EU experience with biomass combined heat and power (CHP) CHP technologies to the Polish market has been implemented by EC Baltic Renewable Energy Centre (EC BREC/ RES-OPET Poland) and OPET Sweden and OPET Arctic (Merinova, Finland) in 2000 - 2002 under the OPET Network.

Promotional campaign for conversion to biomass CHP with a transfer of successful EU experience in this field to Poland. The set of promotion activities were implemented by EC BREC (Poland), OPET Sweden and Merinova (Finland) in 2001 – 2002 within the EU OPET Network supported by ENERGIE Programme of the European Commission. It helped to identify 3 sites with total capacity (heat+electricity) around 60-70 MW, who have got opportunities for conversion to biomass CHP in the coming 3 years. The campaign has been important to stimulate the development of biomass CHP especially in existing the municipal district heating sector in Poland.

Key words: solid biomass, combined heat and power, promotion campaign

End-user area	Target Audience	Technical
<input type="checkbox"/> New buildings	<input type="checkbox"/> Citizens	<input type="checkbox"/> Energy efficiency
<input type="checkbox"/> Refurbishment of buildings	<input type="checkbox"/> Households	<input type="checkbox"/> Heating
<input type="checkbox"/> Transport and mobility	<input type="checkbox"/> Property owners	<input type="checkbox"/> Cooling
<input type="checkbox"/> Financial instruments	<input type="checkbox"/> Schools and universities	<input type="checkbox"/> Appliances
<input type="checkbox"/> Industry	<input checked="" type="checkbox"/> Decision makers	<input type="checkbox"/> Lighting
<input type="checkbox"/> Legal initiatives (municipal regulations, directives, etc)	<input type="checkbox"/> Local and regional authorities	<input checked="" type="checkbox"/> CHP
<input type="checkbox"/> Planning issues	<input type="checkbox"/> Transport companies	<input type="checkbox"/> District Heating
<input type="checkbox"/> Sustainable communities	<input type="checkbox"/> Utilities	<input type="checkbox"/> Solar energy
<input checked="" type="checkbox"/> User behaviour	<input checked="" type="checkbox"/> ESCOs	<input checked="" type="checkbox"/> Biomass
<input type="checkbox"/> Education	<input type="checkbox"/> Architects and engineers	<input type="checkbox"/> Wind
<input type="checkbox"/> Other	<input type="checkbox"/> Financial institutions	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Other	<input type="checkbox"/> Hydro power
		<input type="checkbox"/> Other

Context

Many recent studies (eg. EC FAIR PL983826) have already demonstrated that technical potential for the utilisation of solid biomass fuels for energy purposes in Poland is around 400 PJ. And yet, still very little of this resource is being utilized for energy purposes. At the same time, district heating systems typically burning coal are common in Poland supplying centralized heat to more than 50% of the Polish population. However, especially in the rural areas and smaller towns these heating systems often require urgent refurbishment or even substitution of boilers, which offers a chance for wider introduction of modern biomass technologies including biomass CHP.

Objectives

The big chance for the improvement of security of energy supply at a local level linked to the creation of new non-food-related job places in the rural areas due to wider deployment of biomass technologies have been recognized by the Council of Ministers of Poland, who in September 2000 adopted a national Strategy for the Development of Renewable Energy Sector. The Strategy approved last year by the Polish Parliament (Sejm) has set targets to increase the share of RES in the primary energy balance of Poland from 2.5% in 1999 to 7.5% in 2010 and 14% in 2020.

Various scenarios for the development of the RES sector made using SAFIRE model have clearly shown that biomass CHP technologies are to be one the main contributor to the achieving of the Polish national RES targets especially as regards electricity component. In order to reach the targets cumulative capacity (electricity + heat) at biomass CHP plants in Poland should increase in the year 2000-2010 by at least additional 1200 MW. However, apart from pulp&paper industry biomass CHP technologies are still uncommon in Poland

Process

Current policy framework favours uptake of electricity from RES. The regulation of the Minister of Economy of 15.12.2000 imposed obligatory minimum quotas for RES-e on utilities but and obliged them to take any electricity produced in combined heat & power where cumulative efficiency of the process in more than 65%. At presents, works are underway to prepare additional instrument of green certificates to boost RES-e market in Poland, so one may assume that legislative framework for biomass CHP in developing in Poland is developing in the promising direction.

However, in order to “ignite” biomass CHP sector in Poland some barriers still need to be broken, which include lack of experience with biomass handling at larger sites, lack of knowledge among managers of municipal district heating companies as regards legal and technical issues relating to electricity generation from renewables, etc.

Taking into account already quite successful experience gained in the EU, especially in the Scandinavian countries, EC BREC of Poland has developed a joined programme of promotional actions together with OPET Sweden and OPET Merinova (Finland), which included: organisation of an international seminar on biomass CHP held in Gdansk, northern Poland, February 2001, 4-days study tour for selected decision-makers and managers to southern Sweden in late March 2001, series of articles in technical press and publication of a guidebook for investors in biomass CHP and a training workshop for pre-selected group of local managers and decision-makers on conversion/upgrading to biomass CHP at existing inefficient coal-fired district heating plants, May 2002.

The activities have been targeted towards decision-makers and managers of local district heating companies from smaller and medium sized municipalities with capabilities/interests to convert their local heating installations to biomass CHP. The main focus was on already proven technologies (eg. steam cycle CHP).



Workshop for the Polish participants on biomass CHP in Växjö, southern Sweden

Financial resources and partners

The costs of the campaign in 2000-2002 reached 80,000 Euro. The campaign received support from the 5th EU RTD Framework Programme (37,000 Euro) and some national organisations including Polish Ministry of Science and Informatisation. The promotion activities were implemented by a consortium including EC Baltic Renewable Energy Centre (EC BREC (Poland), OPET Sweden and Merinova (Finland) within the EU OPET Network. The role of EC BREC was to organise the campaign in Poland addressing potential local end users of biomass CHP technologies as well as interested local industries, while OPET Sweden and Merinova concentrated mainly on the organisation of links to European biomass CHP industries and promoted experience from successful biomass CHP plants already implemented in the EU.

Results

In 2001 Following successful promotion of the international seminar on opportunities to convert to biomass CHP in Poland around 50 organisations mainly from northern Poland attended the first state of the promotion. The next step of a study tour to southern Sweden included 8 participants with presumably highest interest in converting their local plants.



Polish participants of the study tour visiting biomass CHP plant in Växjö, March 2001

In 2002 a guidebook for investors in biomass CHP (in Polish) has been printed using materials received from various OPETs (200 copies) and some articles in local and international press (Bioenergy International No. 3 May 2002) have been published. A practical training course on conversion to biomass CHP was attended by 10 pre-selected organisations mainly from existing larger district heating companies from various parts of Poland.

Over the period of 2 years a number of potential biomass CHP conversion projects have been identified, with at least 3 plants having opportunities to be converted within coming 3-4 years. The latter's total capacity may reach 60-70 MW (electricity and heat).

The project of such behavioural/dissemination type is by nature long-term oriented in sense of actual economic impact. It has been monitored that among the participants of the events and direct promotion organised by ECBREC and OPET Sweden at least at 3 sites feasibility studies for conversion to biomass CHP have been initiated. The expected total value of these new investments would exceed 140 million Euro

Lessons learned and repeatability

The project have been successful as it directly promoted the concept of biomass CHP to over 30-40% of existing district heating plants in Poland, who may have capabilities to convert to biomass CHP in the coming 3-5 years. If the finance is available, a feasibility study for a pilot municipal biomass CHP plant could be prepared as a natural follow-up.

A disadvantage of the promotional campaign for biomass CHP in Poland was almost 6 months gap between the end of the 1999 OPET contract and the final approval of 2001 contract, which disturbed direct contacts of the OPET consortium to the local decision-makers and managers.

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