

# BIOGAS: A NEED FOR A DIFFERENTIATED FEED-IN TARIFF ?

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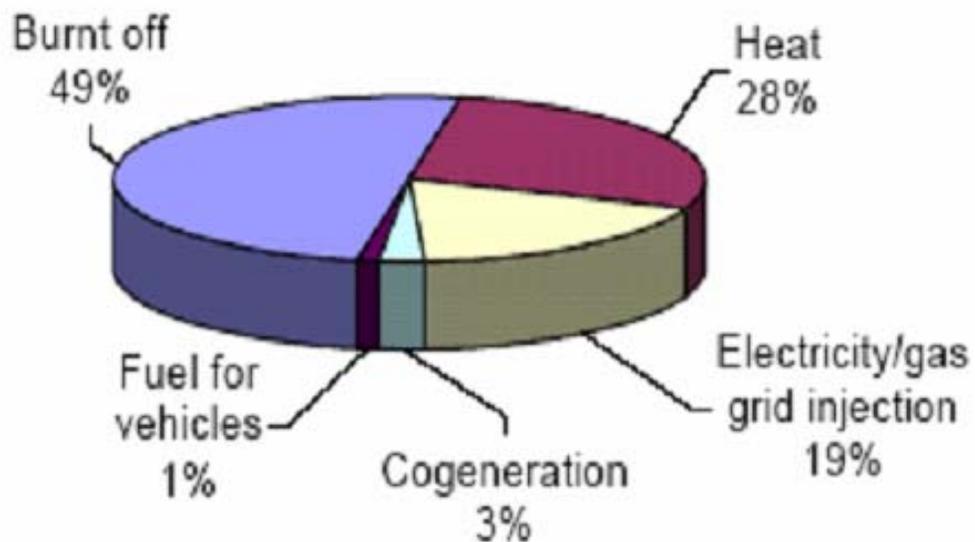
Maribor, 2006



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# THE USE OF BIOGAS IN EUROPE



Biogas use in Europe

Source: Biogas Barometer December 2002



# AVERAGE INVESTMENT COSTS OF A BIOGAS PLANT

- Depends on the size of installed power

Installed power in kWel.	Number of plants	Average installed power in kWel	Investment cost in EUR/kWel.
< 25	6	18,2	8.436
25 – 50	9	37,0	5.580
51 – 100	8	82,1	5.083
101 – 200	7	155,5	4.300
> 200	4	322,5	3.770



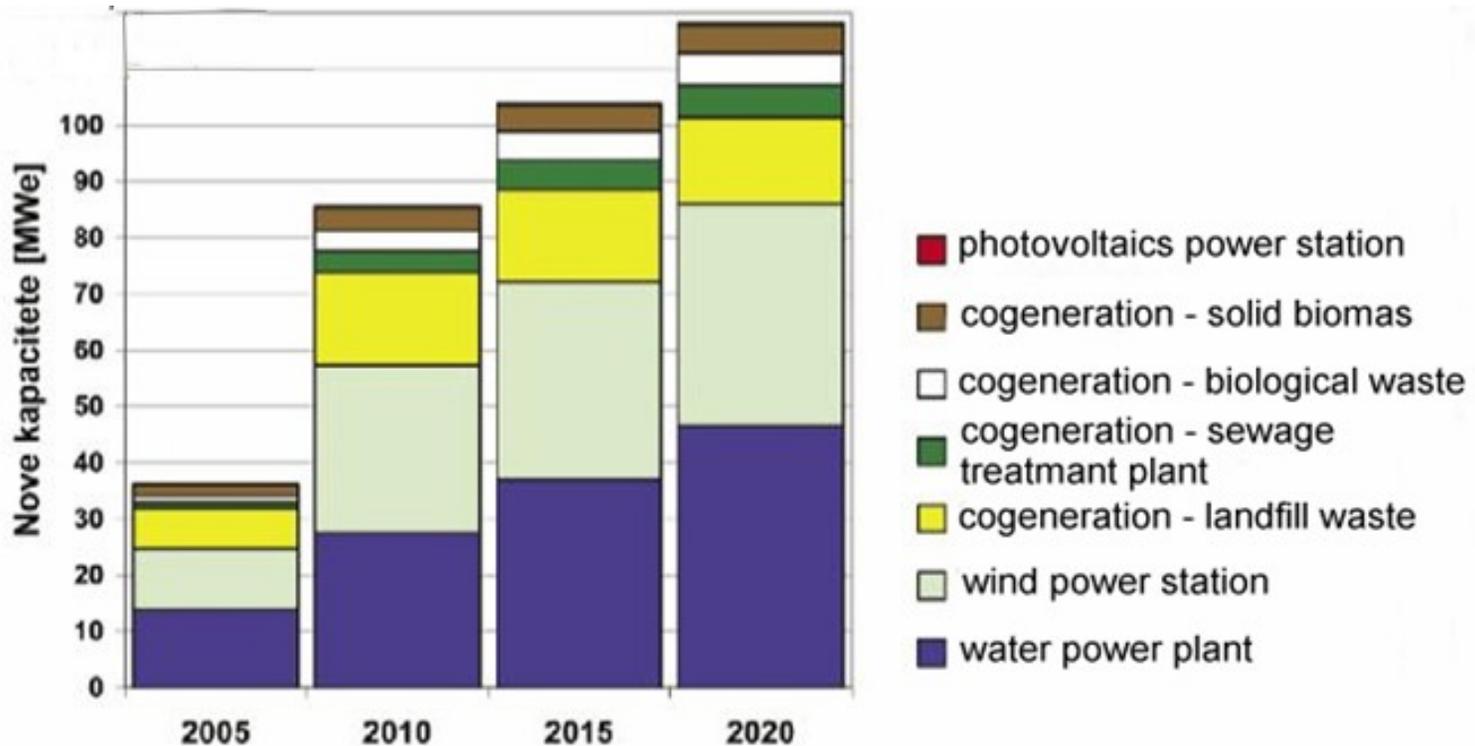
# STRATEGY OF INCREASE IN THE SHARE OF ELECTRICITY FROM RES IN SLOVENIA

- **In the Resolution on the National Energy Programme (NEP), the following key targets in the area of environment are stated:**
  - **An increase in energy efficiency use by 2010 as compared to 2004 by 10 % in the industry, the services providing sector, buildings and transportation, and by 15 % in the public sector;**
  - **Doubling the share of electricity produced from cogeneration by 2010;**
  - **An increase in the share of RES in the primary energy balance to 12 % in 2010, namely: in the heat supply sector from 22% in 2002 to 25% by 2010, in the electricity from RES (renewable energy sources) from 32% in 2002 to 33.6% by 2010, as well as the attainment of a 2% share of bio fuels used in transportation by the end of 2005.**



# STRATEGY OF INCREASE IN THE SHARE OF ELECTRICITY FROM RES IN SLOVENIA

- **Current share and projection of development of electric power production from RES and cogeneration**





# BIOGAS POTENTIAL IN THE SLOVENIAN AREA

- **The potential of biogas production from animal farming waste is assessed at about 45 mi. m<sup>3</sup> or 1,100 TJ per year;**
- **In large public kitchens, nearly 50,000 tons of organic kitchen waste are generated nationwide each year;**
- **The waste from processing industries, such as manufacture of beverages, foods and tobacco products amounts to 53,433 tons (according to the Statistics Agency of the Republic of Slovenia);**
- **The annual quantities of the separately collected communal waste from industry and households amounts to 230,000 ton;**
- **In Slovenia there are 35 slaughterhouses which slaughter the majority of a total of 500,000 cattle. Annually, about 70,000 tons of this kind of waste are thermally treated in Koto, Perutnina Ptuj and Perutninarstvo Pivka animal carcass disposal plants.**



# THE NUMBER OF EXISTING AND PLANNED BIOGAS PLANTS

## ■ **Already built biogas plants**

- Two LFG plants on landfills with an aggregate capacity of 2.5 MW;
- Two CHP biogas plants at a pig-breeding farm with a nominal power output of 0.57 MW each;
- Eight central sewage purification plants are equipped with a biogas recovery system. Of them, only four exploit biogas for heat and electric power cogeneration (Škofja Loka, Domžale, Kranj, Jesenice). The aggregate installed electric power capacity is below 1 MW;
- One privately owned biogas plant is situated in the place of Letuš with a nominal power output of 0,250 MW.

## ■ **New biogas plants**

- At least 4 municipal biogas plants (Moravče pri Gabrovki, Poljče – at the Poljče estate, a biogas plant at the Kolar farm- Logarovci pri Križevcih near Ljutomer and at Zalog).

# REASONS FOR A SMALL NUMBER OF BIOGAS PLANTS

- **A poor knowledge of biogas production technology in general;**
- **Uninformed public;**
- **Specificity of Slovenian agricultural sector in terms of size and personnel structure;**
- **Separate collection of primarily organic kitchen waste and slaughterhouse waste products are still in labour pains;**
- **Very time-consuming and unforeseeable is the incorporation into the area, since the buildings have to be entered in the altered communal development plans and confirmed by the government;**



# REASONS FOR A SMALL NUMBER OF BIOGAS PLANTS

- **The administrative procedures of obtaining building permits, operating licences and the use of (co)substrates are very demanding, not inter-coordinated/non-harmonized, time-consuming and in some cases halfway completed;**
- **The government does not implement the resolution on the adaptation to inflation concerning the obligatory purchase system and the guaranteed feed-in tariffs and green bonuses;**
- **The question of distrust in the Certificate of Origin System and the Product Traceability System prescribed by the state.**



# SPECIFICITY OF AGRICULTURAL SECTOR

- **Low educational level and relatively high age of farmers;**
- **The average size of farm is 6.2 ha;**
- **Agricultural land (about 40 %) is divided into permanent grassland 59%, arable farmland and gardens 35 %, vineyards 3 %, orchards 3 %. Industrial crops represent 4 % of the sowings in fields and gardens;**
- **Overgrowing of agricultural lands, felling amounts to about 30 % of growth;**
- **Great fragmentation of livestock farming units and a typically small number of livestock per farm; the average is 6.1 LSU per holding;**
- **Poor functioning of consultancy & educational services.**



# MEASURES OF SUPPORT TAKEN IN SLOVENIA

- **The following measures of support have been introduced by the energy authorities for the area of power and heat generation :**
  - **Fixed feed-in tariffs system for purchases by qualified power plant;**
  - **The activities of the Sector for Efficient Energy Use and the Use of Renewable Sources of Energy within the Ministry of the Environment and Spatial Planning are geared towards promoting efficient use of energy, renewable energy sources and cogeneration of heat and power;**
  - **Through the Agency of the Republic of Slovenia for Agricultural markets and Rural Development it is also possible to obtain non-repayable funds for activities which are close to agriculture. This measure is intended to promote the development of additional and complementary activities on farms;**



# MEASURES OF SUPPORT TAKEN IN SLOVENIA

- **The Eco Fund (Eko Sklad j.s.) promotes and encourages development in the area of ecological protection by granting credits or collaterals for environmental investments and providing other forms of assistance;**
- **On the part of the Ministry of the Environment and Spatial Planning, several studies to increase the production of RES from individual sources of electric power;**
- **Co-financing of the elaboration of local energy concepts;**
- **Providing information and education.**

# POTENTIAL OF PROJECT ENGINEERING

- **Within the project RES Market-Places, a virtual market place has been made available on the web site in order to promote an increased use of renewable energy sources (RES) as well as measures towards the efficient energy use. It contains a list of:**
  - **Providers of comprehensive and all-inclusive services,**
  - **Consultancy, project planning and engineering services available;**
  - **Suppliers of engines for CHP plants;**
  - **Other institutions concerned with the respective field of the efficient use of energy and the renewable sources of energy (RES).**

# FINDINGS

- **The state's support provided for building CHP biogas plants is uniform for both municipal and agricultural biogas plants alike, regardless of size;**
- **The support is »stepmotherly«; the state (Ministry of the Environment and Spatial Planning, Agency for the Efficient Use of Energy), though encouraging the building of biogas plants with non-returnable funds amounting to up to 60 % of the entire investment, reduces the purchase price of fed-in electric power by 5 % for every 10 % of the funds granted to the investor;**
- **In the course of obtaining permits for the project the investor will be confronted with numerous obstacles and receive little help;**
- **Few Slovenian farmers are financially in a position to carry out the investment in a biogas plant on their own. Besides, the potential of the substrates available on his farm hardly suffice for an economically efficient operation of the biogas plant.**



# CONCLUSION ON HOW TO PROCEED FURTHER IN BUILDING BG PLANTS

- **The current governmental measures (uniform support, regardless of type and size of plant) do not adequately support biogas production on farms;**
- **Likewise, these measures do not support the production of biogas as a possibility to improve the harmony between agricultural and tourist-related land use;**
- **Since it is permitted to build biogas plants in industrial centres, the appropriate sites for them are in the vicinity of food processing and leather manufacturing plants, sawmills and woodworking factories, hotel complexes, and the like;**
- **In Slovenia, the building of regional municipal biogas plants, which is already underway, has the best prospects.**

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