Recommendations

for better use of renewable energy sources in Macedonia and faster approximation of Macedonian legislation with European Directives

Introduction

Macedonia is a country mostly preoccupied with fossil projects, which leaves little chance for investment in sustainable energy efficiency and renewable energy projects. The Energy Community of South Eastern Europe (ECSEE) is a process driven by Balkan governments and International Financial Institutions (IFIs), which promotes the development of the Balkans as a source of dirty and "cheap" energy and a transit region for oil and gas from the east to the EU.

Renewable energy potentials in Macedonia

Macedonia has high potential for developing energy production from renewable energy sources: sun, water, wind, biomass, geothermal energy. It is a small country with an area of 25 713 square km and potentials in:

- **Geothermal:** Macedonia has a history of using geothermal energy for heating purposes. The potential for geothermal energy production is estimated at 210 000 MWh per year. Currently there are more than 14 geothermal sites used for heating green houses.
- **Small hydro:** There are more than 400 potential small hydro sites with small hydro plants from 45 kW up to 5000 kW. Therefore the overall potential is 225 MW in capacity and 1100 GWh in terms of annual energy production.
- **Wind:** There are no wind turbines for energy production installed in Macedonia. However, the potential for energy production using wind power is estimated to be very favorable, especially in the central part of the country.
- **Biomass:** The technical potential of biomass (energy resource from forests, agricultural residues and municipal waste) is estimated at 3361 GWh.
- **Solar:** As one of the sunniest countries in the region, Macedonia has an annual solar energy value of 10 GWh.

Regretfully, these potentials are not studied and exploited enough. Only in 2007 the Faculty of Mechanical Engineering (through a special funded project from the Government of Norway) was able to identify 4 locations for installment of wind turbines. Further studies are yet to be undertaken to show the real potentials in the country.

The implementation of small scale energy efficiency and renewable energy projects in the country are not just about preserving the environment. They can bring greater benefit to local communities and small businesses since it is much more labour-intensive and can create new services in the local economy and increase employment, while decreasing inefficiency and dependency on costly resources from far away. Moreover, energy efficiency unequivocally leads to improved industrial environmental performance (by changing industrial processes) and reduced pollution from energy generation (by decreased energy consumption) with positive social and health impacts.

Renewable energy initiatives in Macedonia

A positive initiative in Macedonia has been the recent decision by the Government to subsidise the households that install solar collectors, by participating with up to EUR 300 for each collector installed. Still, more needs to be done in order to illustrate the possibilities of renewable energy sources and energy efficiency.

The Energy Agency of Macedonia recently published a regulation on labeling of energy efficient appliances for the households. According this Agency, the regulation on construction of buildings with regards to energy efficiency is under preparation and should be developed in 2008. The Energy Agency has also focused on the determination of feed-in tariffs which in Macedonia would stimulate foreign investment in renewable and energy efficiency.

The Ministry of economy, in charge of the legislation within the energy sector has started the development of the Strategy for use of renewable energy sources. It is also expected that this Strategy will be adopted in late 2008, or early 2009.

The most practical example in the country for renewable energy use and energy efficiency is the small house in Kadino, near Skopje. The house has a wind turbine, solar panels and a system with batteries supplying the house with electricity over 9 months a year, and a special insulation that enables the house to stay warm in winter and cold in summer.

Conclusions

Current energy legislation in Macedonia does not allow connection of renewable energy sources to the grid and thus it does not enable the distribution of energy produced in an "environmentally friendly way".

Still, it's clear that positive initiatives such as the renewable and energy efficient house need to multiply. People are not convinced it works until they see it next door. This is exactly what the Government should start in line with existing subsidies - it should financially support renewable energy projects and initiatives in order to trigger similar projects all over the country. Moreover, the Government of Macedonia should start promoting energy saving home appliances (class "A") and introduce financial ease for purchasing energy efficient appliances in order to help households save energy and contribute to the overall energy saving in the country.

Recommendations

The recommendations from Eco-sense target many institutions and they go to:

The Government of Macedonia

- To plan strategically the development of the energy sector of Macedonia and to make space for renewable energy and energy efficiency investments, rather than make fast decisions on capital investments in various fossil fuels or energy projects;
- To undertake a special public awareness raising campaign to save energy and invest in renewable energy;
- To take special measures in preserving the climate and stopping climate change by decreasing the CO_2 emissions.

The Ministry of economy

- To make sure that the new legislation is according the EU Directives and European Energy Treaty and is complemented with regulations that enable its implementation in reality;
- In the preparation of the new law on energy, to pay special attention to the possibilities for renewable energy production and the connection with the grid, to enable selling of extra energy produced with the renewable sources;
- In the preparation of the new law, to introduce special measures for the socially disabled citizens;
- To make sure that there is a strong commitment to increase the % of biogas used in public transport and so, limit the greenhouse gas emissions and contribute to saving the climate.

The municipalities:

- To enable local and foreign investments in renewable energy sources, by providing information and issuing permissions for installations;
- To invest in local biomass plants, or increase light efficiency in the municipality, to insulate the administration and school buildings, to inform the citizens on how to save energy in their own homes.

The Macedonian citizens

- To take serious measures in their households for saving energy, by changing light bulbs, improving insulation and making sure they use less electricity;
- To invest in renewable energy in their houses and install solar panels or small wind turbines.

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