

EXPLORING RENEWABLE ENERGY FOR SUSTAINABLE DEVELOPMENT: THE LOLLAND-FALSTER EXAMPLE (1)

Story: Frederick Baffour Opoku (opoku2002eg@yahoo.co.uk)

(Back from Copenhagen, Denmark)

The islands of Lolland – Falster are situated south of Zealand, the Danish main island hosting Copenhagen, the capital.

With a travel distance of only 150 kilometers to Copenhagen, this twin island considered as peripheral region in Denmark with lower levels of education and economic growth than the national average, has by dint of hard work and determination been able to transform itself into a haven for the production of renewable or green energy, to turn round its fortunes.

This positive development has won Lolland – Falster an enviable reputation in Denmark and Europe as a haven and destination for safe energy through the establishment and operation of a number of renewable energy projects including wind energy, hydrogen fuel and bio-fuel.

Green Energy Project:

The ‘Green Energy Lolland – Falster’ project has over the years been focusing on how the municipalities of Lolland and Gulborgsund (covering the islands of Lolland and Falster) can generate jobs, increase education and decrease the emission of carbon dioxide (CO₂) by supporting local renewable energy activities.

Silvia Magoni is the Project Manager (International Affairs) of Baltic Sea Solution, the non – profit organization with expertise in consultancy and project management within the field of sustainable development in renewable energy and environment, which is in charge of the ‘Green Energy Lolland – Falster’ project.

Silvia tells a group of visiting Science Journalists, after conducting them round the islands’ green energy projects, that the aim of the projects were to present a strategic and action plan which enables Lolland – Falster to create growth based on local preconditions. The journalists embarked on this field visit to these strategic islands as participants of a three week’s capacity building course in climate change which took place in Copenhagen from June 15 to July 3, this year under a fellowship programme at the instance of DANIDA and the Danish Ministry of Foreign Affairs.

Organized by the Nordic Agency for Development and Ecology (NORDECO) and Danish Development Commission and Media Network (DANICOM), the course aimed at building the capacity of the journalists from a number of developing countries including Ghana, to provide coverage of the impending United Nations Climate Change summit, to be hosted by Denmark in Copenhagen from the 7th to 18th December.

The project manager says, Lolland, a deprived community was once faced with enormous difficult challenges such as being situated on a very low land with so much wind blowing. The community also faced incessant flooding which destroyed their farms and other property which made the inhabitants to leave the place to settle elsewhere. Hence the people decided to do something and address the issue of depopulation of the community as a result.

Firstly, the people tried to protect their own land by building dams to check the flooding of the area, and as a second step, decided to go in to the production of renewable energy, to attract people and businesses to the community, and as a means of providing employment to the people, a wish which had come true due to the immense dedication and resilience displayed by the people.

She observes that besides working on off shore wind farms where wind mills have been stationed in their numbers to generate electricity, the people have also been producing algae which is used to produce alternative energy, and are also working on a number of adaptation and mitigation projects in designated 'climate parks' to counter climate change in the community.

Progress:

Preliminary conclusions of the 'Green Energy Lolland – Falster' project has a strong position within renewable energy. This is exemplified in the district heating system which comes from waste, straw and wood chips, says Silvia.

Furthermore, wind power alone produces 50 percent more electricity more than the islands consumes, the project manager contends, and adds that the interesting news has been that the community sells the excess electricity which is connected to the national grid and distributed to other consumers in Denmark

Furthermore, the electricity produced from the wind mill during day time is enough to satisfy the needs of the people, and as a result, power produced during the night is also connected to the national grid and sold to neighboring Germany, bringing great benefits to the community, Sylvia further explains.

With a high rate of employment some years back, Lolland – Falster now presents lower rates of unemployment at four percent than other parts of Denmark. This is because Lolland – Falster now has a well developed business in energy tourism, in the field of agriculture and machinery.

This has been made possible because Lolland – Falster hosts a number of strong companies with an international profile in the fields of renewable energy technology.

Hydrogen energy:

Lolland's commitment to promote energy and environment efficient technologies is starting a new chapter. As far back as 2008, the village of Vestenskov begun to be transformed into a community where more of the village house hold will be integrated in to a system which provides electricity and heating distribution based on sustainable energy sources combined with hydrogen and fuel cell technology.

The project vision is that from 2009 onwards, Vestenskov will become Europe's first hydrogen city. Journalists were shown one of the demonstration hydrogen fuel cell units in action, which distribute hydrogen fuel to one household. The unit contains a two kilo watt fuel cell stack and an alternative current converter. The unit is the size of a refrigerator and can replace an existing boiler.

Phase one of the project involves a testing facility in which excess wind energy is converted into hydrogen and oxygen through electrolysis which has been stored in low pressure tanks. Hydrogen is used in fuel cells to generate electricity and heat supplying the public energy grids.

Phase two involves the decentralized placement of a fuel cell unit in each home. There will also be a distribution network for hydrogen installed in each household. The hydrogen distribution will cover both the domestic electricity and heating consumption. This is the equivalent of natural gas distribution. The energy supply will be completely CO₂ neutral, and will be the primary energy source for domestic consumption.

Silvia explains that the project in its pilot stage is connected to only four houses at the moment, adding that about 25 houses will be enjoying the hydrogen fuel facility by 2010.

The purpose of the project is to create the best possible conditions for a full scale "hydrogen community" by optimizing the use of existing resources in Lolland, such as wind power, bio fuels, etc by creating new synergies and symbiosis with existing energy and environmental facilities, and demystifying hydrogen technology for future end users.

Bio – Fuel Project:

The vision behind Lolland's commitment to biomass – related projects entail the establishment of a full scale physical platform for exploitation of biomass resources from several technological generations.

The agenda for this community is Lolland's over all commitment to Lolland CTF (Lolland Community Testing Facilities) and also partly due to the fact that Lolland exports 50 percent green energy from wind power that – with great advantage, will be able to be stored in bio-fuels.

An energy firm, BSG Bio Energy, is establishing a biogas facility in the agricultural industrial area of Stenso which is situated south of Nakskov. The biogas is produced by manure, straw and other vegetable matter and is therefore a CO2 neutral energy source, not using fodder.

To ensure that straw and other vegetable matter can be gasified, innovative technology for pre – treatment will be integrated. In this facility, the vegetable matter will pressure cooked to enable the micro – organisms to convert it into biogas. Because of its accessibility, the production of biogas from this second generation materials, rich in fiber, has a promising potential.

The establishment of a full scale facility which utilizes this exact technology will be the first of its kind in the world. The community has been receiving a lot of funding for the green energy projects from the European Union, Silvia discloses, and contends that preliminary conclusions also indicate that Lolland – Falster was faced with a number of challenges, like the fact that competition is already fierce among regions eager to promote themselves as front runners on renewable energy.

“Consequently, it becomes equally important that a strategy such as ‘Green Energy Lolland – Falster’ takes its starting point in the local strength example, the large production of renewable energy, the local commitment from strong companies and previous successful campaigns on energy savings in the local municipalities”, the project manager says.