



ENERGY EFFICIENCY & RENEWABLES: POLICIES, APPLICATIONS & RESEARCH

29th January 2008, Salina, Malta

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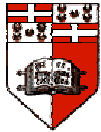
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Policy making, research and applications on energy efficiency and renewable energy were the main topics of a seminar that was held last week and organised by the Institute for Energy Technology of the University of Malta. Various EU Energy Directives focus on energy efficiency as the immediate measure required to curb increasing use of fossil fuels. More recently, the EU has proposed renewable energy targets to be reached by each member state by the year 2020. The target for Malta aims towards providing 10 % of its primary energy needs from renewable energy sources by 2020. So far, Malta remains fully dependent on imported fossil fuel supplies, and hence it would be the first to suffer the consequences of sudden changes in the provision or cost of this essential commodity. Consequently, Malta should be at the forefront of applying energy efficient measures to everyday life. Likewise, renewable energy technologies are important to diversify the energy mix of the Maltese Islands and reduce pollution. The Institute for Energy Technology aims at facilitating the process of implementing renewable energy and energy efficiency and disseminating information through teaching activities, courses and seminars. This seminar aimed at presenting existing policies in Malta and Spain, sharing experiences on energy efficiency applications, diffusing results of recent local case studies, raising awareness and stimulating further cooperation between interested parties. The seminar included presentations by national entities and experts from Malta, Spain and the UK and also presented results of research and projects carried out at the University of Malta.

In his opening speech, Prof. J. Camilleri, Malta University's Rector, highlighted the Institute's important role of bringing to light important energy-related issues, policies and research through applied research programmes and practical collaborations with local industries and home-owners. The University of Malta itself has embarked on a programme to reduce its electricity consumption, not only to curb the increasing electricity bill, but also to make its contribution towards a better environment. To date, almost 80% of the lights have been replaced by T5 energy-saving tubes or compact fluorescent lights. The electrical consumption of the air-conditioning systems of the Library were significantly reduced by the introduction of timers. These measures alone contributed to a reduction of electricity usage that would save 450 tonnes of carbon dioxide annually, which would have otherwise been emitted in local power stations.

In the first session of the Seminar, a presentation by a representative of the Malta Resources Authority showed the different targets that Malta has to meet in accordance with the EU Directives. The targets are mainly: saving 9 % of electricity end-use in 9 years, the mandatory 10 % share of bio-fuels by 2020 and a 10 % renewable energy share in the final energy consumption of Malta to be attained in the next 12 years. So far, the specific measures taken on a national level included an energy efficiency awareness campaign and an energy efficiency action plan. The MRA also administers the rebate scheme on the purchase of energy efficient appliances and is

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actively working on the electricity generation expansion plan. The latter is deemed important in view of the fact that the Marsa Power Station will have to be shut down completely by 2020. A gradual phasing out is being planned by 2010 in step with the installation and commissioning of new combined heat and power plants at Delimara.

A presentation by the Institute for Energy Technology of the University of Malta demonstrated the strong contribution being made through its varied activities. This included studies of energy utilisation and energy efficiency, analysis of weather parameters, wind parameters and solar radiation, as well as research on thermal performance of buildings, photovoltaic applications, wind energy potential, solar heating, thermally-driven cooling and small-scale combined heat and power technology. The Institute is also actively involved in European projects and offers teaching courses to students and the general public. In fact, the next course aimed for solar water heater installers is scheduled to commence in February 2008.

Three presentations were given by Spanish experts that gave a detailed overview of the comprehensive Spanish policy regulating energy efficiency and the application of the solar directive for all new and renovated buildings. Spain is the first European country to implement specific solar ordinances that oblige all new buildings, and those undergoing major renovation, to have between 30 and 70 % of their hot water needs supplied by solar thermal systems according to their geographic location. A presentation from Loughborough University gave an overview of the UK's experiences in applying large and small wind turbines.

During the second session, a comparative study was made on the application of energy efficiency measures in Malta and Cyprus, two small island-states of the EU. This was followed by an informative talk from the Malta Standards Authority on energy efficiency standards and labelling, and on how these can stimulate the local market. The Energy Performance of Buildings Regulations were presented by a representative from the Building Regulations Office of the Services Division, while the Malta Enterprise described its incentive schemes for industries to achieve higher energy efficiency. These included the Eco-Innovation grant scheme that aims to offer financial support to projects in energy efficiency and renewables as well as the Business Advisors' scheme that offers up to 70 hours worth of assistance to industries to carry out an energy audit for their premises.

In the afternoon, a number of presentations were made on the Institute's collaboration projects in the field of poly-generation in an EU funded project (PolySMART®). A number of European partners are striving to develop and produce small-scale prototypes of thermally driven air-conditioning systems. Other contributions included participation in the International Energy Agency (IEA) Task 38 on solar air-conditioning and refrigeration.

This was followed by a presentation on analyses of energy use at ARKA Respite Centre in Gozo. Students from James Madison University, USA, under the direction of Institute experts, evaluated measures that would reduce Dar ARKA's energy bill. The Foundation shifted from kerosene-fired boilers to gas-fired boilers to heat

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the indoor pools and hydro-therapy area, installed solar heaters to provide hot water for several bathrooms, the kitchen and the laundry, reduced its lighting loads and is now considering other measures such as double-glazing, shading and control of air infiltration.

The last session involved results of three projects that were carried out by Erasmus students at the Institute, fruit of collaboration between the University of Malta and Universidad de Valladolid, Spain. The first project tackled real-life situations of energy use in buildings, whereby a specific house was evaluated. It transpired that two fridges were operating all the time and the back-up heating element in a solar water heater was left 'On' continuously were together consuming about 40 % of the household's electricity bill. A plethora of equipment left on 'Stand-by' was found to waste 13 % of the bill and the presence of high humidity was not making life any better within. Recommendations were made whereby at least 35 % on electricity consumption could be made. Another project studied 9 years' worth of wind and related parameters collected in one of the Institute wind measurement studies at Rabat, Malta. Details on wind speed behaviour on long term, seasonal, monthly and diurnal time frames were presented. The last project analyzed the performance of the solar water heaters that were installed as part of the first energy-saving housing project at Tal-Ftieh, Birkirkara. Substantial savings have been made both in the electricity bill as well as the high level of satisfaction of the users.

The proceedings of this seminar will be published shortly on a CD and applications to attend the forthcoming course on solar heating are now open. Further information may be accessed from the **Institute for Energy Technology**, Tel. **21650675** – **21652249** or by e-mail on ietmalta@um.edu.mt, <http://home.um.edu.mt/ietmalta>