Mediterranean and National Strategies for Sustainable Development
Priority Field of Action 2: Energy and Climate Change

Energy Efficiency and Renewable Energy
Malta - National study's summary

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March 2007

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1. Challenges and energy sustainability

Malta is practically totally dependent upon imported fossil fuels for its energy needs. Currently over 63% of the primary energy is used for power generation. The remaining oil consumption is mainly used for transportation (85%) and only a minor share is used for other purposes (15%). Heavy fuel oil and light distillate are used for power generation. Transport fuel consists of petroleum products and a small percentage of biodiesel (0.52%) (1.5 million litres of biodiesel).

Consumption of electrical energy has been increasing steadily over the years and this is due to various factors including economic growth and higher living standards. The average annual increase in electricity generation between 1981 – 1990 was 11 % and between 1991 – 2000 it was around 5.5%. The active power maximum demand in summer has over the past few years surpassed the winter maximum demand in terms of magnitude, indicating increases in air conditioning demand.

Malta ratified the United Nations Framework Convention on Climate Change (UNFCCC) as a non-Annex I party on 17th March 1994, and on the same basis, subsequently ratified the Kyoto Protocol on 11th November 2001. Malta is a non-Annex I party to the Kyoto Protocol. It is also excluded from the list of EU Member States forming part of the burden-sharing agreement under Council Decision 2002/358/EC concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the UNFCCC and the joint fulfilment of commitments.

Though currently Malta does not have any quantified mandatory targets for the limitation or reduction of greenhouse gas emissions, it is however obliged to comply to various EU Directives including the Emission Trading Directive as well as other various EU Directives on emission limitations, air and fuel quality.

2. Indicators

Detailed studies on the potential of renewable energy sources in Malta have since been carried out and taking into account various aspects. These studies indicate that for Malta, wind, solar photovoltaic (PV), biomass wastes, landfill gases and sewage treatment plant gas offer some potential for exploitation. On the other hand tidal flow, geothermal, hydropower, biomass energy crops and wave do not appear to offer significant opportunities for exploitation on a commercial scale.

Malta's production of biofuels from waste cooking oil has been very successful. This has led to very positive developments in relation to EU Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport which requires Member States to set national indicative targets based upon reference vales of 2% for 2005 and 5.75 % for 2010.

The "unconstrained" PV resource potential in Malta is enormous given the geographical location and relatively high incident solar radiation particularly when compared to other European countries. The main constraint relating to PV is the high costs of PV at present.

The potential of electricity from the treatment of municipal solid waste has been assessed by Government. Malta is in the process of constructing mechanical biological treatment plants to treat municipal solid waste. The total potential electricity generated from treatment of this municipal waste is estimated at around 25 GWh/annum.

With regards to offshore wind energy, the bathymetry of Maltese waters imposes severe difficulties and limitations on wind farm development, since the 25 meter contour

extends to just around 2 to 3 km off the coast. Government has just issued a call for expressions of interest for development of deepwater offshore wind farms, and the feedback is being analysed. Concerns on the impacts associated with large scale on-land wind farms in a small country and particularly the intrusive visual impact in a landscape such as Malta's, have been expressed. Government has therefore concluded that authorization of windfarms on land is inappropriate at present.

Rational energy use provides a feasible potential for greater saving. With effect from 2008 and in line with EU Directive 2006/32/EC, Malta is obliged to set an energy efficiency target by 1% per year and has to report to the European Commission by mid 2007 through an Energy Efficiency Action Plan.

3. The currently established policies in terms of RE and URE

Sustainable energy use is the prime objective of any energy policy. As reported earlier the Government of Malta in 2005 highlighted its intention to evaluate the implications of Malta's dependency on fossil fuels and adopt such necessary measures in order to reduce this dependency. Government has embarked on a series of measures to address this situation including:

- carrying out feasibility studies on the purchase of electricity through the European grid as well as through the installation of a pipeline or gas storage plant in order to introduce gas as another source for the generation of electricity;
- greater use of alternative sources of energy;
- raising public awareness on energy efficiency and alternative energy sources.

Specific measures to promote RUE and use of RES that have been undertaken include:

- Educational Campaign on Sustainable Energy Use
- Promotion of Combined Heat and Power and RES
- Legislative measures to improve Energy Performance in Buildings
- Financial Instruments to promote take up of RES and use of efficient appliances.

4. Difficulties, possible solutions, needed reforms

The National Commission for Sustainable Development (NCSD) was established by the Environment Protection Act. Its functions include identification of relevant processes or policies which may be undermining sustainable development and propose alternative processes or policies to the Government for adoption and preparation of a National Strategy for Sustainable Development.

The NCSD has since 2002 been involved in proposing and drafting a National Strategy for Sustainable Development. The sustainable development strategy proposes 20 priority areas for Malta, as they were considered to be warranting foremost attention for the attainment of sustainable development goals in Malta. In particular, the NCSD is recommending action in the climate change and air quality priority areas.

5. Success story

Water in the Maltese islands is a scarce resource and with high population density, small surface area and high percentage of urban development as well as a semi-arid climate, pressures on existing water resources are intense. Water to meet the needs of the population is obtained from two main sources: groundwater and desalination. Desalination facilities were introduced in the 1980s in response to water scarcities arising

from increasing demand and insufficient natural supplies. Today desalination contributes to around 50% of the potable water supply in Malta.

Various projects have also been undertaken by the Water Services Corporation to improve the energy efficiency of the RO plants. Modern energy recovery technology was incorporated in existing plants as follows:

- Pelton wheels were installed on 6 trains employing reverse running pumps at Pembroke Phase II. This consisted in a simple replacement of the latter equipment. This project contributed to a reduction in the specific energy consumption from 4.5 kWh/m3 to 3.6 kWh/m3.
- Pressure exchangers as incorporated in Lapsi R.O. Plant. This required a complete re-engineering of the equipment including replacement of the high pressure pump and two trains of previous rating were incorporated in the process. The specific energy consumption was reduced from 4.8 kWh/m3 to 3.2 kWh/m3 through this project.

This has contributed to an annual electricity savings of approximately 13 million kWh (Water Services Corporation, 2006).