Presentation to the Media

Development of a Strategy for the Exploitation of Renewable Energy Sources for Electricity Generation

MRA

MALTA RESOURCES AUTHORITY

Antoine Riolo
May 2002

RES has penetrated market in Europe & elsewhere. Why also Malta?

Contributes to Government policies

- Security of supply;
- Environmentally friendly & leads to sustainable energy system;

RES has penetrated market in Europe & elsewhere. Why also Malta? (2)

International obligations to reduce air pollution including greenhouse gases:

- World Environment Conference – Kyoto;
- United Nations Framework Convention on Climate Change;
- EU Directives e.g. 2001/77/EC (promotion of electricity produce from renewable energy); 2001/81/EC (national emission ceilings for certain atmospheric pollutants).

Power generation today
Some statistics

Total capacity 582 MW:

- 272 MW at Marsa;
- 304 MW at Delimara;
- All plant is either conventional thermal plant or combined cycle gas turbine.

Power generation today
Some statistics (2)

Year 1999 / 2000:

- 1,901,562 MWhr generated;
- 467,800 tons heavy fuel oil;
- 69,800 tons gas oil.

Power generation today
Environmental issues

- Plant authorised prior to 1990 not designed to meet current environmental standards or legislation;
- Delimara plant post 1995 is compliant with European environmental legislation;
- Fuel oil with lower sulphur content is now being used;

Power generation today
Environmental issues (2)

- Estimated SO_2 & NO_x emissions are 26,000 and 2,000 tons respectively in 2000;
- Power sector is a major contributor to national greenhouse emissions (quantitative data in paper).

Renewable Energy Sources

- RES reduce the amount of fuels to be burnt to meet the country's national energy needs;
- RES are indigenous sources, contribute positively to import substitution and to security of supply;
- RES sources generally are capital intensive to exploit;

Renewable Energy Sources (2)

- RES running costs are dependent on site-specific natural characteristics and on technology employed;
- Generally require support measures for commercial exploitation justified on the basis of environmental benefits.

Past work

- List past studies, existing data and documentation;
- In particular, work by staff of the Institute of Energy Technology at the University of Malta.

General objectives of the proposed initiative

- Improvement in health and quality of life;
- Improvement in environmental quality;
- Determination of contribution of RES to internal energy balance and its integration with other technologies (seawater desalination, hydrogen production).

Specific objectives of the consultancy - large scale generation -

Technical Issues:

Determination of:

- availability and RES potential;
- most suitable energy harvesting technology;
- interfacing and delivery to grid;
- integrated exploitation systems;

Specific objectives
- large scale generation - (2)

Technical Issues:

Determination of:

- prioritised list of sites for large scale RES exploitation (contribution to full scale EIA);
- contribution to internal energy balance;
- impact on quality and reliability of supply;
- integration with other technologies;
- environmental impacts.

Specific objectives
- large scale generation - (3)

Financial Issues:

Determination of:

1. Energy production costs;
   - Capital costs;
   - Operational Costs:
     - Maintenance, manpower etc.
     - Environmental benefits.
   - Other specific costs:
     - Back-up costs, unpredictability premiums, transmission costs.

Specific objectives
- large scale generation - (4)

Financial Issues:

Determination of:

2. Need for market preference, economic & financial incentives
3. Methodology for determining tariffs.

Specific objectives
- large scale generation - (5)

Legislative, regulatory and administrative:

- Current mechanisms to be examined for adequacy & if necessary upgraded.
- Development of policies and procedures necessary for MRA to carry out its functions:
  - Ensuring the structured and orderly exploitation of RES in Malta;
  - Regulation and interconnectivity of RES;
  - Fair competition in all practices and activities.

Specific objectives
- large scale generation - (6)

Targets of penetration:

- Set technically and economically feasible targets;
- Develop strategic framework and roadmap.

Small scale generation

Technical objectives:

- Access potential of small scale generation and its possible contribution to the national energy balance;
- Report on available technologies, their reliability and track record;

Small scale generation (2)

Technical objectives:

- Report on other 'small scale' technologies e.g. solar heating and air conditioning;
- Report on accepted practices for delivering excess power to the grid (impact on safety);
- Realistic targets.

Small scale generation (3)

Economic and regulatory objectives:

- Identify costs and benefits for well conducted practices (including safety, security, monitoring etc.);
- Identify most suitable methodology for determining tariff / payment scheme;
- Assist MRA develop simple, customer-friendly regulation.