

Energy, Transport and Waste Management: A Review of Maltese Policies to Combat Climate Change

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Malta's State of the Environment Report and Updates

- First Version in 1998

Malta's Challenges: air quality, use of natural resources including water, biodiversity, waste management, marine and coastal hazards, land use and transport

- Updates in 2002 and 2005
- SOER Indicator Updates in 2006 and 2007
- Today's Pressures: electricity generation, transport and waste management
- www.mepa.org.mt

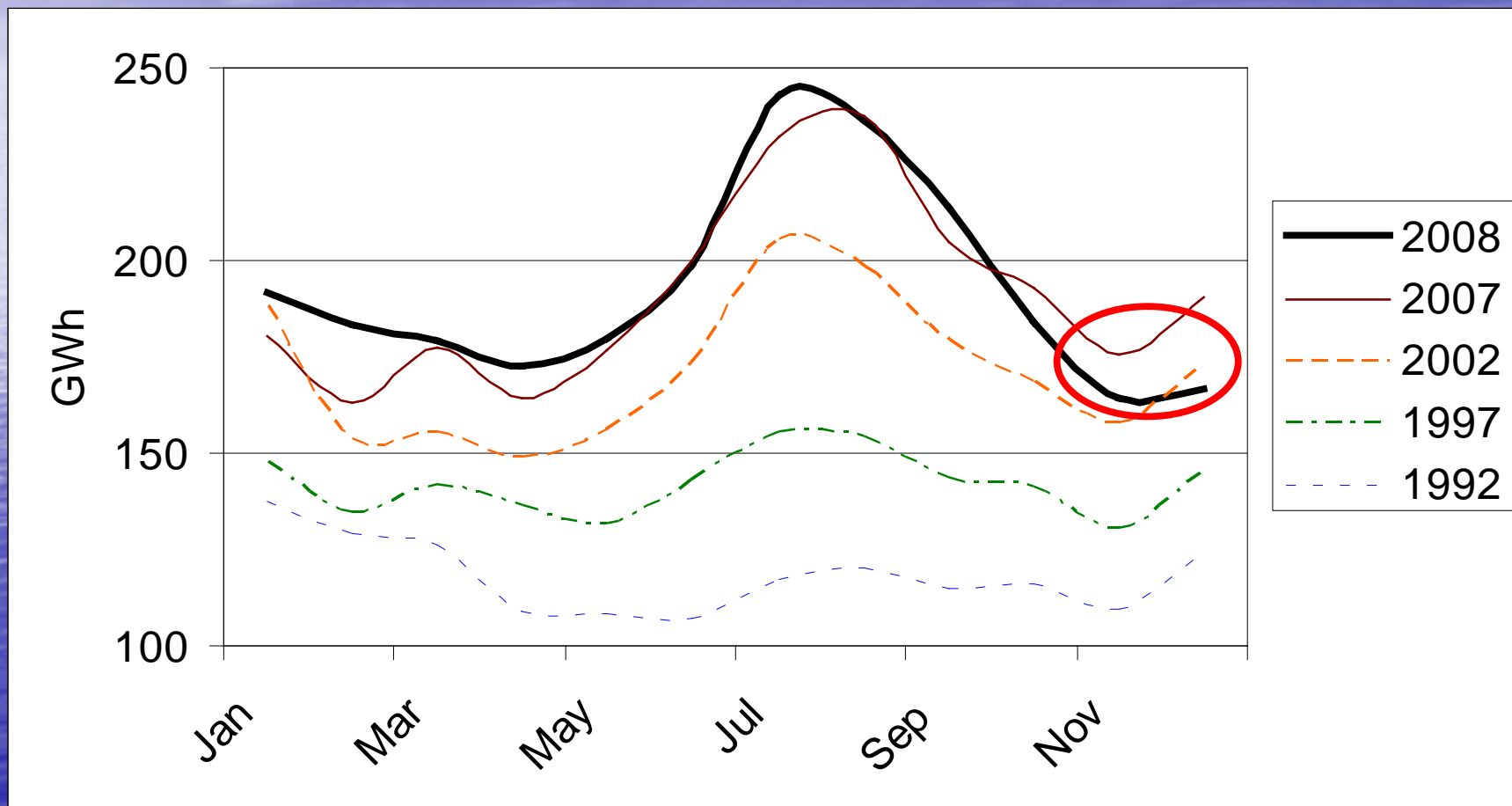


Electricity Generation

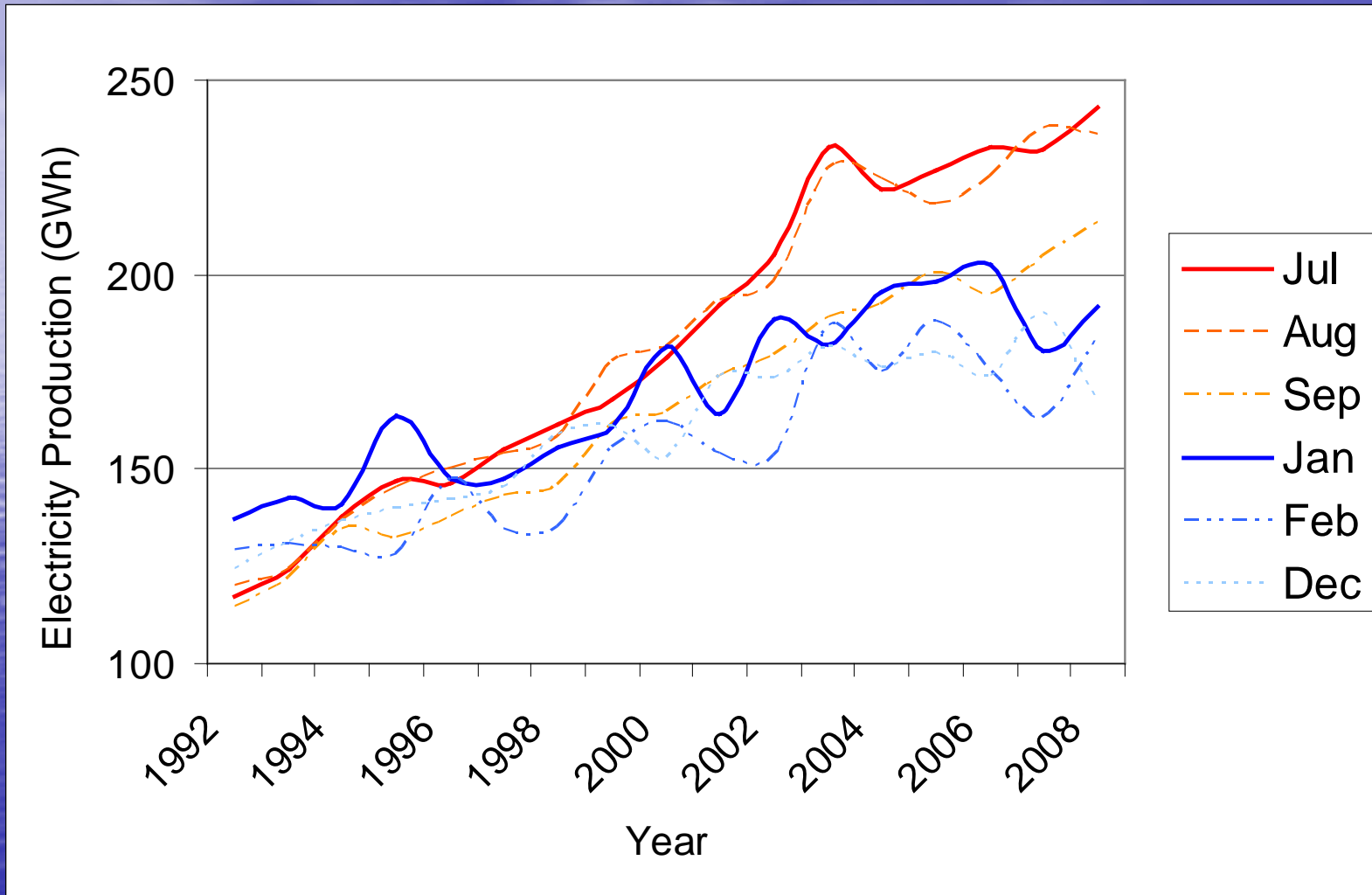
- 2 power stations with 571 MW
- EU Directive 2001/80/EC will force Marsa Power Station to close down by 2015 (possibly 2012)
- New 140 MW combined-cycle at Delimara by 2011
- 200 MW link to European Network by 2012
- Use of Natural Gas instead of oil by 2015



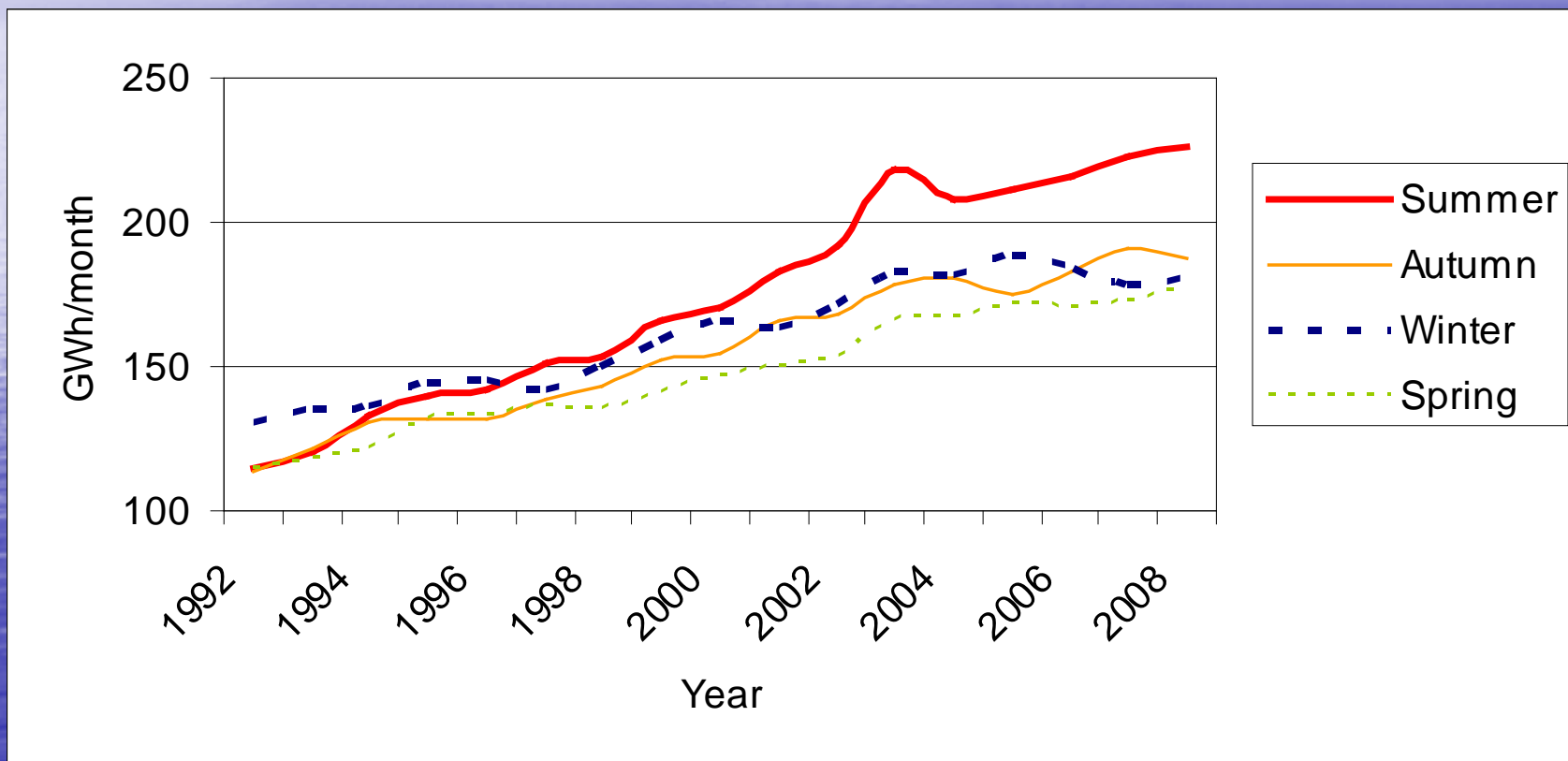
Electricity Generation



Summer Versus Winter



The Crux problem is Summer!



Transport

- End of 2008, 7 cars for every 10 citizens
- Almost 50% of newly registered cars are second-hand
- Newly registered electric cars dropped from 11 to only 4 in 2008, in spite of Govt. incentive.
- Measures taken: Eliminated leaded petrol in 2003, Supply bio-diesel since 2006 (reached 1% by 2007), using low sulphur diesel EN590, new car taxation based on size, CO emissions etc..
- Subsidy on electric cars (2006) and bicycles (2009)



Waste Management 1/3

- 1. Setting up of the Company, Wasteserv Malta Ltd. in 2002, to oversee all activities in the field of waste management.
- 2. The closure of the Maghtab (Malta) landfill in 2004 and the initialization of a rehabilitation project for the site as well as for the older Wied Fulija landfill. Simultaneously the Qortin (Gozo) landfill has also been closed down and is currently used as a transfer station for domestic waste, before it is sent to Malta for treatment. It is also in the process of being rehabilitated.
- 3. Building of temporary engineered landfills known as ta' Zwejra and Ghallis, with the scope of collecting domestic waste and using it to generate biogas and electricity.
- 4. Upgrading of San Antnin waste treatment facility to become not only a waste separation centre but also to treat organic waste, generate biogas and use it to generate electricity. When completed, the fully enclosed facility will treat one-third of Malta's waste.



Waste Management 2/3

- 5. Proposals to build two new municipal and agricultural waste treatment plants, one in Malta and another in Gozo, as well as an incinerator at Delimara (to treat the remaining 20% of waste that cannot be recycled). The scope is to fully treat waste to generate electricity (33,000 MWH per annum) and avoid any further need for new landfills.
- 6. Earmarking old quarries to receive construction and inert waste.
- 7. Establishing a number of bring-in sites for waste separation and civic amenities centre for the deposit of bulky refuse. Most of the separated waste is currently being exported to China [26]. Also, house to house service known as 'Recycle Tuesday' has been established to collect mixed recyclable waste (paper, plastic and metal) from homes.



Waste Management 3/3

- 8. Introduction of a scheme to collect used cooking oil from establishments to be converted into bio-diesel.
- 9. Introduction of eco-contribution tax on many products and establishment of a packaging waste management scheme, following on the 'polluter pays' principle.
- 10. Building of a state-of-the-art abattoir facility to incinerate clinical and slaughterhouse waste, as well as refuse from the airport, sea ports and other hazardous waste.

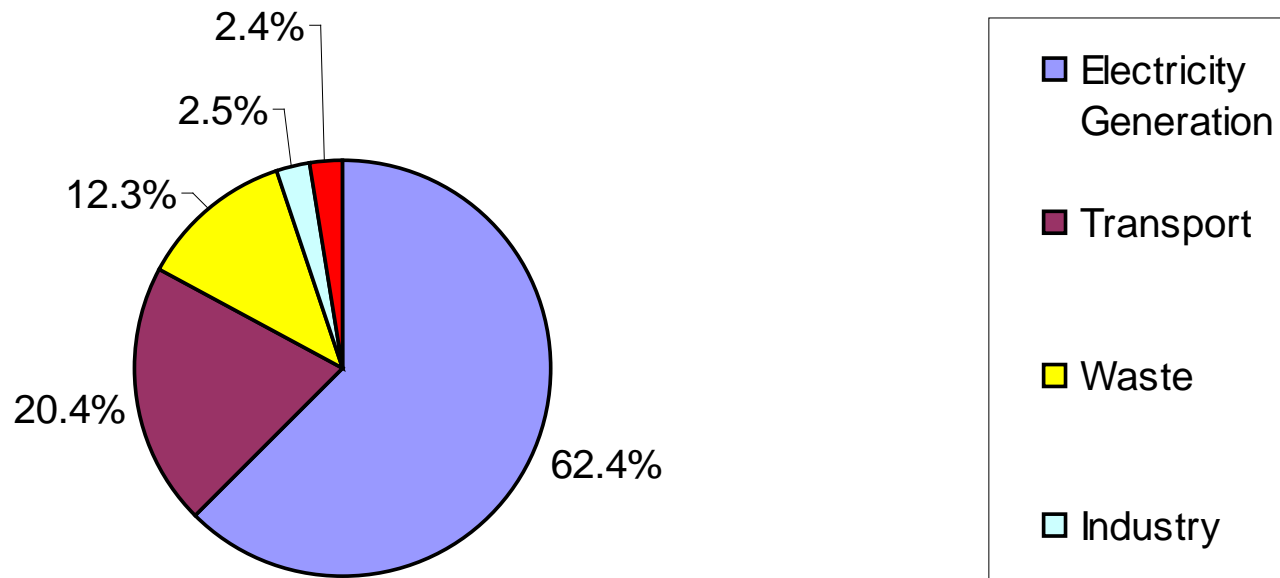


Other Initiatives 1

- **“Draft” National Strategy for Policy and Abatement Measures Relating to the Reduction of Greenhouse Gas Emissions (2009)** – to see how to curb CO₂ emissions. Malta’s limit is 2.1million tonnes but today we are already at 3.2 million tonnes and we could reach 3.5 million tonnes by 2010.



The Carbon Dioxide Contribution 2008



Other Initiatives 2

- **A "Draft" Solid Waste Management for the Maltese Islands (2009)** dealing with waste recycling, waste minimisation and energy recovery.
- 2008/98/EC aims at making Europe a recycling society
- mandates that at least 50% of domestic paper, metal, plastic and glass waste is recycled by 2020
- incineration with heat and electricity recovery is now considered as contributing towards the EU Packaging Directive 2004/12/EC
- 2004/12/EC requests that at least 55% of packaging should be recycled and at least 60% recovered.
- 199/31/EC aims at reducing the dumping of biodegradable municipal waste (BMW) in landfills to 35% of the 1995 base year volume, by 2020.



Malta's Actions

- Green Leaders of the OPM in 2005 for greening public buildings
- Energy efficiency awareness campaign 'Switch', featuring a number of local television celebrities.
- Offering electronic services to the public through e-Government portal.
- During 2009 a National Green ICT Action Plan shall be produced to complement the other existing initiatives and plans, which together will fulfill the exigencies of the EU Directive 2006/32/EC [36].
- The waste management strategy emphasizes that the current recycling measures have only succeeded in attracting 28% of the full potential of recyclable material. A number of proposals for all sectors have been made to achieve the required targets as stipulated by the different EU Directives.



The National Energy Efficiency Plan 2008 – Domestic Incentives

| Application | Time Frame |
|---------------------------------------|--|
| Energy Efficient Appliances - Class A | Implemented 2006-2008 |
| Solar Water Heaters | Ongoing, since 2005, upgraded in 2006 and 2009 |
| Photovoltaic Electricity Generation | Ongoing, since 2006, upgraded in 2009 |
| Micro-wind Electricity Generation | Ongoing, since 2006 |
| Insulation for roofs | Ongoing since 2006, upgraded in 2009 |
| Double-glazing | Started 2009 |
| Compact fluorescent lights | Once only offer launched March 2009 |



Incentives to Industry

| | |
|--|--|
| <p>European Regional Development Fund- Operational Programme 1 (ERDF-OP1), aimed at supporting energy audits, environmental consultations and acquisition of environmental certification, licences and new more efficient machinery.</p> | <p>Calls started in 2009, continue till 2013</p> |
| <p>EU-ERDF grant to acquire Renewable Energy Installations and carry out energy audits</p> | <p>Calls started in 2008 continue till 2013</p> |



Transport

| | |
|---|-----------------------------|
| Capital grants for the purchase of electric cars | Ongoing since 2005 |
| Excise tax on fuel to fund Alternative Energy Schemes (6.3 million Euros/annum) | Ongoing since November 2008 |
| Rebates on purchase of bicycles | Started 2009 |



Energy Use in Buildings

Implementation of the Legislation of the Minimum Requirements for the Energy Performance of Buildings Regulations, 2006 in line with EU Directive 2006/32/EC.

2nd Jan. 2009



Voluntary Actions

| | |
|--|---------------------------|
| <p>The Housing Authority decision to follow a policy of building more environmentally-friendly social housing projects</p> | <p>Ongoing since 2003</p> |
| <p>Public Procurement Green Initiatives to reduce energy consumption in public buildings and install photovoltaic grid-connected systems</p> | <p>Ongoing since 2006</p> |



The Draft Malta Energy Policy 2009

- Energy Efficiency;
- Reduced dependence on imported fossil fuels;
- Stability in energy supply;
- Delivering energy efficiently;
- Safeguarding future stability of this Energy Policy



Energy Performance of Buildings Regulations (2008)

- 1/ Devising a common procedure to calculate the energy performance of buildings;
- 2/ Setting minimum standards for new and renovated buildings;
- 3/ Energy certification of buildings;
- 4/ Inspection and evaluation of large heating and cooling equipment.



The RE Potential

| Sector | Energy GWh _e /year |
|--|----------------------------------|
| Photovoltaic systems on domestic rooftops | 165 |
| Photovoltaic systems in industrial zones | 35 |
| Photovoltaic systems in public and other buildings | 3.5 |
| Onshore wind farms | 110 |
| Offshore wind farms | 75 |
| Energy from waste | 120 |
| Domestic solar heating (savings) | 100 |



Solar Heating

- Total Domestic Households 130,000
- The 2005 Census reported 5,000 SWH
- Schemes boosted installations through 2006, 2007 2008 and 2009 (grant+technical)
- Today there are 15,000 systems
- Savings 1% of 2008 electricity generation or 0.7% of final energy used base year 1990.



Solar Photovoltaics

- First System tested at IET in 1993 and 1996
- Today a total of 230 kWp are installed, 115 kWp in public buildings
- Over 70 suppliers are registered
- Savings 0.01% of total electricity production in 2008



Wind Energy Systems

- No planning policy for medium and large-wind projects
- A single 2 kW turbine tested at University
- Few Micro-wind turbines installed
- Issues with planning authority with regards to permits
- Draft Micro-turbine policy published for public consultation



Energy from Waste

- A 300 kW gas generator will be installed at Maghtab, followed by 1 MW in 2010.
- Cooking oil is being converted to biodiesel. 1% of sales achieved in 2007.
- By 2013, 2.1% of electricity demand could be generated from waste.



RE Scenarios: Wind Energy

- Low Penetration: Onshore Wind Farms
(41 GWh/year)
- Medium Penetration: Onshore + Large Offshore
(260 GWh/year)
- High Penetration: Onshore + Large Offshore +
Micro-wind
(265 GWh/year)



RE Scenarios: Solar Heating

- Low: 25% of Domestic
(60 GWh_e/year)
- Medium: 50% of Domestic
(120 GWh_e/year)
- High: 80% of Domestic + some Hotels
(210 GWh_e/year)



RE Scenarios: Photovoltaics

- Low: 5% of Domestic
(19.5 GWh/year)
- Medium: 10% of Domestic + 10 MWp Public
(54 GWh/year)
- High: 20% of Domestic + 20 MWp Public
(108 GWh/year)



RE Scenarios: Energy from Waste

- Low: 1% of total electricity production
(32.5 GWh_e/year)
- Medium: 2% of total electricity production
(65 GWh_e/year)
- High: 3% of total electricity production
(97.5 GWh_e/year)

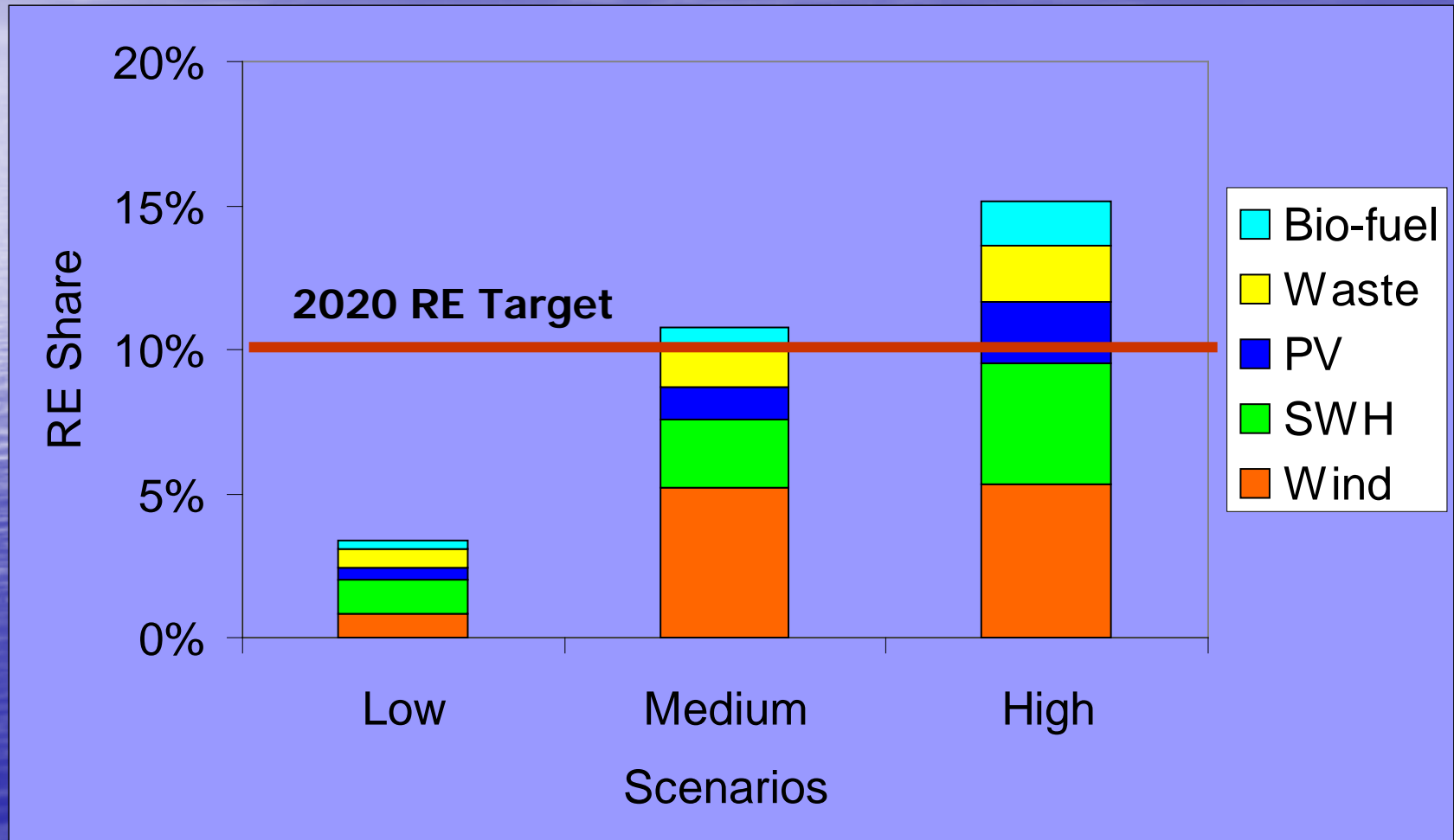


RE Scenarios: Bio-fuels for Transport

- Low: 1% biodiesel
(3,780 toe/year)
- Medium: 5% biodiesel
(9,450 toe/year)
- High: 10% of total fuel sales
(18,900 toe/year)



Scenarios of RE Penetration in 2020



Comments on RE Targets

- Low Scenario reflects current situation
- Medium Scenario Wind + High Scenario Solar Heating is sufficient to reach 10% RE target
- If Offshore wind does not materialise, other RE sources have the potential of securing 10% cumulative
- Potential beyond 2010 target could reach 15%



Conclusions

- Major Policies have been drafted and are awaiting to be legislated
- There is a need for stricter control over quality of air conditioning units on sale to curb summer electricity consumption
- Energy performance in buildings Directive still in its infancy
- Upgrading of public transport could be a major contributor towards less fuel consumption
- Waste management seems to be the most successful endeavour to date
- The cheapest technologies of wind farms and solar water heating collectively could amount to 9.5% RE contribution. These technologies should be fostered now.
- The collective contribution of all feasible RE sources could yield 15%, in the long term.
- The present RE contribution is less than 1% and Malta needs to strive and reach 10% by 2020



THE END

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