

Report to the Commission as required by
Article 7 (9) of Directive 2012/27/EU
of the European Parliament and of the Council
on energy efficiency,
amending Directives 2009/125/EC and 2010/30/EU
and repealing Directives 2004/8/EC and 2006/32/EC

4 December 2013

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1 Introduction

This report follows the report submitted in April of 2013 with regard to Malta's Indicative national energy efficiency target for 2020 and is pursuant to Article 7 of the said Directive.

Paragraph 1 of Article 7 of Directive 2012/27/EU on energy efficiency requires that each Member State shall set up an energy efficiency obligation scheme on certain designated operators. This scheme shall be designed to achieve a set cumulative new end-use energy savings target between 1 January 2014 and 31 December 2020.

The Directive further stipulates that the target is to be calculated by one of two options;

either

- equivalent to achieving new savings each year from January 2014 to December 2020 of 1.5% of final energy consumption (possibly excluding all or part of the energy used in the transport sector) averaged over the last 3 years of available data. This option is in Paragraph 1 (sub-paragraph 2) of Article 7 and is referred to as 'Option 1' in this report;

or

- as above, but using other values for annual energy savings as specified in the Directive (other than the 1.5% in Option 1). This option also allows certain other exclusions from the calculation. It is set in paragraph 2 of Article 7 and is referred to as 'Option 2' in this report.

Malta is adopting 'Option 2'.

The Directive also stipulates that the energy efficiency obligation scheme can be replaced/combined in whole or in part, provided that equivalence is maintained, by other policy measures that achieve the required energy savings.

Malta opts to achieve the targets by establishing an obligation scheme on Enemalta Corporation for certain measures that have a bearing on its commercial interests and that are more appropriately carried out by it through its own infrastructure, and supplementing this by other measures carried out directly by end users.

This report, as required by the third sub-paragraph of Article 7, is designed to notify to the Commission the policy measures that are being adopted and show how these are sufficient to meet the required targets.

It is further pointed out that:

- the specifications and criteria set out in the Directive for the calculation of the targets, for ensuring the standards of the measures, and on the quality of the verification and monitoring procedures have been taken into account;
- further work is ongoing to detail the proposals in this report;
- the Maltese Government will be setting up a 'Sustainable Energy and Water Conservation Unit', which shall carry out functions related to the design, implementation, and dissemination of water, conventional energy and alternative energy policy. This Unit shall be responsible for:
 - the design, development and cohesive coordination of conventional and alternative energy policies and measures together with water policy and secure governance across and within Ministries, Departments and Government entities;
 - the monitoring, reviewing and updating of conventional energy, alternative energy and water policy in accordance with European Union and international requirements;

- leading and coordinating co-funded projects relating to conventional energy, alternative energy and water across Ministries;
 - the design, development and management of a sustained knowledge, education, information and communications framework directed to influence behaviour with regard to alternative energy use;
- this ‘Sustainable Energy and Water Conservation Unit’ will be coordinating and chairing a cross-Ministerial team of experts, made up of representatives of the National Statistics Office (NSO) and various other relevant local entities such as the Institute for Sustainable Energy (ISE) within the University of Malta, and the Malta Intelligent Energy Management Agency (MIEMA) charged with collecting and analysing information and data in order to have a better understanding and quantitative assessment of energy consumption patterns and better identification of trends. This team will also carry out more robust monitoring of impacts of policies and measures and other investigations as necessary.

2 The Energy Efficiency Target to be Achieved

2.1 The Average Annual Energy Sales to Final Customers

As stipulated in the Directive, the average annual energy sales to final customers over the most recent three-year period for which statistical data is available – 2009, 2010 and 2011 – is the base figure.

Malta opts to exercise the option to deduct the final energy consumption in transport from the total final energy consumption, as in Table 1 below.

Final Energy Consumption¹	Year	2009	2010	2011
Total Final Energy Consumption: Final energy consumption includes all energy delivered to the final consumer's door (in the industry, transport, households and other sectors) for all energy uses. It excludes deliveries for transformation and/or own use of the energy producing industries, as well as network losses.	toe	443,000	454,000	446,000
Final Energy Consumption by Transport: Final energy consumption by transport covers the consumption of energy products in all types of transportation, i.e. rail, road, international and domestic air transport and inland navigation/coastal shipping, with the exception of maritime shipping.	toe	245,000	279,000	268,000
Final Energy Consumption Excluding Transport	toe	198,000	175,000	178,000
Average over the three years	183,667toe (2,136GWh)			

Table 1: Final Energy Consumption

¹ Eurostat data: http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables

2.2 Calculating the Savings using the Method specified in Article 7 Paragraph 2 – ‘Option 2’

Malta opts to work out the target for achieving the savings using the method specified in Article 7 paragraph 2.

The savings, evaluated using the annual percentage target work out as in Table 2 below.

<i>Year</i>	<i>No. of years from start</i>	<i>Individual Percentage (%)</i>	<i>Cumulative Percentage (%)</i>	<i>Savings required per Annum (GWh)</i>
2014	1	1	1	21
2015	2	1	2	43
2016	3	1.25	3.25	69
2017	4	1.25	4.5	96
2018	5	1.5	6	128
2019	6	1.5	7.5	160
2020	7	1.5	9	192
<i>Cumulative Energy savings: 710GWh</i>				

Table 2: Energy savings required as per Article 7 paragraph 2(a) - Option 2

2.3 Adjustments allowed by the Directive

Article 7 paragraph 2 of Directive 2012/27/EU allows certain adjustments to the ‘Cumulative Energy Savings’ target as derived in Table 2 above. The maximum downward adjustment is 25% of the target that would have been set had Option 1 been selected.

The Option 1 target works out as in Table 3 below.

<i>Year</i>	<i>No. of years from start</i>	<i>Annual Percentage (%)</i>	<i>Cumulative Percentage (%)</i>	<i>Savings required per Annum (GWh)</i>
2014	1	1.5	1.5	32
2015	2	1.5	3	64
2016	3	1.5	4.5	96
2017	4	1.5	6	128
2018	5	1.5	7.5	160
2019	6	1.5	9	192
2020	7	1.5	10.5	224
<i>Total Savings required: 897GWh</i>				

Table 3: Energy savings required as per Article 7 paragraph 1 - Option 1

Maximum downward adjustment (25%) - 224GWh

Final adjusted target - 673GWh

In order to adopt the adjusted target, however, it has to be shown that the deduction from the Option 2 target (i.e. 710 less 673 = 37GWh) is in line with conditions in paragraph 2(b), (c) and (d) in Article 7, paragraph 2. This is considered below.

Condition (b) - There is no industrial activity in Malta similar to that listed in Annex 1 to Directive 2003/87/EC. No adjustment therefore needs to be made in this regard.

Condition (c) - It is unlikely that cost-effective district heating and cooling or that cost-effective use of large-scale centralised cogeneration can be made in Malta.

Again, no adjustment to the calculated target savings needs to be made in this regard².

Malta had used cogeneration extensively for thermal seawater desalination in the late 1960's to late 1980's. That technology is now superseded by high efficiency reverse osmosis technology and is no longer used.

Condition (d) - Early actions after end-2008 that still deliver savings in 2020.

Various initiatives to promote energy efficiency had been undertaken prior to this Directive. From those that qualify for this adjustment, savings greater than 37GWh have been achieved, for example through the:

- distribution of energy saving lamps in the domestic sector;
- subsidy schemes for building envelope improvement;
- 2011, 2012 and 2013 grant schemes (scrappage schemes) to improve vehicle fleet efficiency; and
- major reform in the motor vehicles registration tax that encourages the use of cleaner and smaller vehicles.

2.4 *Final Target*

It is therefore confirmed that the target to be achieved to satisfy Directive 2012/27/EU is 673GWh over the period 2014 to 2020.

3 **Malta Specific Issues that have a Significant Impact on Energy Use and Energy Efficiency**

3.1 *Efforts by Malta in terms of delivering Significant Savings in Electricity Generation*

Although not taken into account in the workings arising out of this Directive 2012/27/EU, it is correct to record the very significant gains in energy conversion efficiency being achieved by Malta through massive investments in upgrading its infrastructure to generate electricity.

During the period 2009 to 2011, the reference period used to calculate the target savings, the amount of fuel used to generate electricity was 1,580,552mt heavy fuel oil (HFO) and 233,514mt gasoil. Electricity was generated through using combine cycle gas turbine (CCGT) (gasoil fired) and classical steam turbines (HFO).

As from 2012, electricity in Malta will be generated from new infrastructure/plant as follows:

- 8 x 15MW Diesel engines (efficiency 47.6%) as from 2012
- 1 x 200MW CCGT (efficiency 53%) as from 2016
- Importation from mainland Europe as from October 2014.

² Individual cogeneration initiatives by various operators are considered in Tables A, B and C in Section 5 and the Annex of this notification.

Based on projections of the make-up of the electricity mix in the period of interest of Directive 2012/27/EU, it is calculated that the average overall efficiency of electricity generation in Malta will be 50.2%, equivalent to an annual average of 400,000toe.

This represents a significant percentage reduction in the annual amount of fuel used to generate electricity between the effective period of the Directive (2014-2020) and the reference period (2009-2011).

3.2 *Energy Use for Sea Water Desalination*

Malta uses desalination of sea water by Reverse Osmosis (RO) to provide fresh potable water. This desalination process contributes to about 55% of Malta's national piped water supply. It is energy intensive (about 3.5kWh per m³) and consumes about 5% of the total energy exported by the power stations. Accordingly, all initiatives and processes that provide water with lesser energy intensity are employed to provide a more energy efficient water supply service.

The Water Services Corporation (WSC) is conscious of the impact of this service. Traditionally, its RO plants were equipped with the latest available state of the art energy recovery technology. This notification includes other examples of the WSC's efforts to provide water to the community as energy efficiently as possible.

3.3 *Early Action to Introduce Smart Meters*

The Government has for a long time been conscious of the benefits of introducing smart metering as a measure to encourage energy efficiency, increase tariff effectiveness, responsiveness and energy market trends.

Smart meters are being installed for every electricity consumer in Malta. This is expected to lead to a reduction in energy consumption by changing consumer behaviour through information on energy consumption. This project was started in 2009 and it was expected that the complete replacement of all 277,090 electricity meters (originally 245,000 but increased due to new consumers and PV systems) should have been completed within three years. However, the current target is to complete the installation of meters by the end of 2014.

The smart meters that will be deployed are the same as those used by Enel in Italy and Endesa in Spain with a total of about 60 million installed in Europe, i.e. almost the de-facto European standard. The meters will offer the possibility of multiple tariffs, with separate registers segregated by time of day, and with the facility to remotely change the tariff structure. They have non-volatile memory registers for storage of data and load profile for at least 30 days, two way encrypted communication by power line carrier to an automatic meter reading system with the ability to exercise remote control of the meter including remote on/off and power curtailment functions. The meters have a reasonably clear keypad operated menu for the customer to be able to have access to real time data. The meters have advanced anti-tamper and fraud detection and prevention hardware installed and the profile data may be analysed for ambiguities indicating external fraud. The meters are also equipped with import export registers for use with distributed generation.

4 Policy Instruments and Criteria

4.1 *Energy Efficiency Obligation Scheme*

Enemalta Corporation is the only distribution system operator and the only licensed electricity supply company in Malta. It is therefore appropriate that the Corporation is charged with ensuring an efficient distribution system that minimises losses, that it operates the system in an efficient manner in accordance with European Directives and local legislation, that, amongst others, favours renewable energy sources (RES) and energy efficiency (EE), and that it fosters such behaviour in final consumers.

Enemalta Corporation is therefore the designated entity obligated to:

- Roll out a smart meter scheme that covers 100% of consumers connected to the national grid, and including monitors for effective communication with consumers in due course.
- Use these smart meters in innovative ways:
 - to instruct consumers in wise energy use in the home through appropriate messages;
 - to interact intelligently with consumers and point out high energy consumption as it occurs, prompting reflection towards energy efficiency;
 - to use the smart meter as a tool to overcome consumer complacency towards energy efficiency in the long term and to maintain the momentum towards energy efficiency;
 - to control fraud in electricity consumption, which is usually accompanied by waste and avoidable use; and
 - to ensure that the smart meter system is maintained up to date.

Enemalta Corporation has also been obligated to:

- Adopt a tariff for electricity consumption designed to promote energy efficiency amongst its consumers. In the effective period of the Directive, Enemalta adopts a rising block tariff. It also incorporates in its tariff an 'eco-mechanism' that rewards consumption by households that is lower than a stipulated level. The tariff is designed to yield the target revenue (cost-recovery, return on capital investment, etc.) and so higher consumption is relatively penalised.
- This is without prejudice to the Corporation providing electricity at the most competitive rates.

4.2 *Other Policy Measures*

The following 'other policy measures' are being adopted.

4.2.1 *Financing schemes or instruments and fiscal incentives*

Malta has been adopting financing schemes for several years with successful results.

Malta will continue to support such schemes and several such measures are included in Tables A, B and C of Section 5 and the Annex of this notification.

The Ministry responsible for Energy and/or the Malta Resources Authority (the energy regulator) have been entrusted with the implementation of schemes for households, while Malta Enterprise and the Malta Tourism Authority have been entrusted with schemes for industry and commerce. Transport

Malta (Authority) has been entrusted with schemes relevant to transport. All are subject to audit by the National Audit Office.

4.2.2 *Training and education, including energy advisory programmes*

Numerous training and advisory programmes have taken place and there will continue to happen.

These range from:

- Tertiary and post-tertiary level courses in environmental sciences (including energy efficiency) which have greatly been expanded at the University of Malta.
- Practical training courses at the Malta College of Arts, Science and Technology (MCAST) and the ISE directed at operators and installers of RES and EE equipment.
- Participation by experts in popular interactive radio and TV programmes at household level to explain issues and reply to questions related to wise energy use directly to individual consumers.

4.2.3 *Government leading by example*

Government is conscious of the need to improve the efficiency of energy use throughout its buildings, in its infrastructure and in the services it provides. It is investing accordingly and promoting energy efficiency throughout the public service.

Government investments are visible and serve as examples of good practice and direction to the private sector. Government-controlled entities are expected to use their initiative to propose good practice and energy use efficiency.

4.2.4 *Direction to the public sector through the budgeting process*

Government is using its budgeting process, and its interaction with that of its entities to drive towards energy use efficiency.

4.2.5 *Regulation*

Regulators – e.g. the Malta Resources Authority, Malta Enterprise and the Malta Tourism Authority – are in constant dialogue with the regulated entities and sectors to promote energy efficiency, through direct regulation or otherwise. State industries also use their expertise and initiative to advance energy-use-efficiency.

4.2.6 *Spreading the energy savings obtained from the alternative policy measures over the seven-year obligation period*

Having due regard to the projections in Table B, as set out in the Annex, it is intended that two intermediate periods are identified as follows:

- Intermediate period 1 – January 2014 to December 2017 - during which 45% of the target should be achieved; and
- Intermediate period 2 – January 2018 to December 2020 - during which the remainder should be achieved.

5 Notification of methodology for calculating the impact of energy efficiency obligation schemes or other policy measures under Article 7(1), (2) and (9) and Article 20(6)

Annex V, paragraph 4 of the Directive sets out the details that this notification to the Commission should include. These details are provided in this document and in Tables A, B and C contained in the attached Annex, as summarised in the table below.

<u>Reporting Detail</u>	<u>Table where included</u>
(a) obligated, participating or entrusted parties, or implementing public authorities	A
(b) target sectors	A
(c) the level of the energy saving target or expected savings to be achieved over the whole and intermediate periods	B
(d) the duration of the obligation period and intermediate periods	B
(e) eligible measure categories	A
(f) calculation methodology, including how additionality and materiality are to be determined and which methodologies and benchmarks are used for engineering estimates	C
(g) lifetimes of measures	B
(h) approach taken to address climatic variations within the Member State	not applicable to Malta
(i) quality standards	to be determined
(j) monitoring and verification protocols and how the independence of these from the obligated, participating or entrusted parties is ensured	C
(k) audit protocols	C
(l) how the need to fulfil the requirement in the second subparagraph of Article 7(1) is taken into account	described in this document