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REPUBLIC OF CYPRUS

MINISTRY OF COMMERCE, INDUSTRY AND TOURISM
CYPRUS INSTITUTE OF ENERGY

NATIONAL ENERGY EFFICIENCY ACTION PLAN

IN COMPLIANCE WITH DIRECTIVE 2006/32/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON ENERGY END-USE EFFICIENCY AND ENERGY SERVICES AND REPEALING COUNCIL DIRECTIVE 93/76/EEC

Nicosia

28 JUNE 2007

Introduction

The national action plan is submitted to the Commission in compliance with Article 14 of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC. The Directive fixes 30 June 2007 as the deadline for submission of the action plan. Cyprus has used the template for the structure of the plan, and this meets the minimum report and progress requirements set by the Directive. However, since member countries do not necessarily have to follow the template prepared for the EMEEES programme, we have thought it advisable, while giving what is absolutely essential for some aspects and/or specific energy consumption/transformation sectors, to provide fuller and additional information, particulars and data for other, specific, aspects. In every case we have endeavoured to cover all the particulars that must be included in the action plan under the Directive.

Because of its national peculiarities, namely of having a small and isolated system (as an island state) without interconnections to European or other energy networks (electricity, petroleum, natural gas) and no indigenous energy sources except a small contribution from renewable sources, Cyprus attaches great importance to energy saving and energy efficiency as a clear, effective and swift means to achieving all the energy policy objectives, namely of improving the security of energy supply (reduction of dependence on energy imports, which currently stands at almost 100%), of increasing competitiveness and of ensuring sustainable development and protection of the environment.

There is significant potential for energy savings in buildings and in the transport sector, and also in industry to an extent. Cyprus is a new member country and prior to accession did not have a comprehensive energy efficiency policy, with national legislation, building regulations with energy requirements, targets and other such facets. Hence the applicable legislation of the Union, in particular the Buildings Directive, can make a big contribution to energy saving and lead to many other benefits for the economy and employment.

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Abbreviations

EEI: Energy Efficiency Improvement

RES: Renewable Energy Sources

EXE: Energy Saving

EU: European Union

toe: tonnes oil equivalent

MCIT: Ministry of Commerce, Industry and Tourism

1. Executive summary and summary table

Final energy consumption in Cyprus in 2005 was 1 506 438 toe (within the scope of the Directive). Undertakings in the emissions trading scheme and exempt consumed around 216 000 toe. Industries outside the emissions trading scheme consumed around 150 000 toe. The energy consumption of the military, which has been excluded, related only to transport for military operations. Consumption of electrical energy was 321 620 toe, excluding 17 000 toe consumed by industries in the emissions trading scheme.

The shares of the sectors in final energy consumption (within the scope of the Directive) were: residential 20%, tertiary 14%, transport 52%, industry 11%, agriculture 3%.

Electrical energy accounted for 25% of final consumption. Final consumption of electrical energy increased by about 80% in the period 1995-2005. The increase was most pronounced in the residential and tertiary sectors. A conversion factor of 3.1 has been applied for electricity savings, which corresponds to electricity production efficiency of 32% (thermal steam turbine stations, gas turbines; Annex II to the Directive).

Cyprus has a small and isolated energy system without interconnections with other networks. Except for a very small solar energy contribution, there are no indigenous energy sources, and the country is wholly dependent on energy imports. Prior to accession in 2004 the government did not have a comprehensive energy saving policy, and there were no building regulations laying down minimum energy efficiency requirements.

The studies and energy inspections carried out to date indicate substantial potential for energy savings in the building and transport sectors. The industrial sector which is included in the Directive has smaller potential, as is shown also by the energy efficiency indicators of the IEE programme (Energy Efficiency Indicators-NMC). The relevant ODEX index shows that the energy efficiency of the industrial sector improved significantly in the period 1995-2004.

It is clear from the energy balance that there is substantial potential for energy savings in the transport sector, which is the biggest energy consumer (52%). Cyprus has no rail infrastructure. The public transport system (buses) is not developed. Use of the system has fallen sharply in the last 10 years, according to traffic figures (passenger-kilometres). In addition there is no large-scale school bus system.

Cyprus has adopted an energy savings target of 10% of average final consumption, which corresponds to 185 000 toe by 2016. The intermediate target is 60 000 toe by 2010. A factor of 3.1 is used for electricity (efficiency of 32%).

The measures, programmes, schemes and policies of the first action plan will contribute greatly to exploitation of the existing potential.

The priorities are buildings and the transport sector, followed by industry.

As far as buildings are concerned, implementation of the provisions of Directive 2002/91/EC on the energy performance of buildings can itself cover the overall target (185 000 toe), according to the estimates. Introduction of compulsory thermal insulation and of other requirements is expected by the end of 2007. It should be stressed that this will be a completely new measure for new buildings and not a baseline, since there have not been any previous energy performance regulations (building codes, minimum efficiency standards for equipment, etc.).

The government operates a multiannual financial support scheme for investment in energy efficiency in existing buildings (residential, tertiary), aided by the Cyprus Institute of Energy (an NGO which promotes and helps with the application of energy savings and the use of RES and with technical assistance). The projects include the use of basic technologies, such as thermal insulation, solar energy and heat pumps, etc. In the tertiary sector (hotels, offices, etc.) any energy efficiency technology which can achieve a 10% energy saving is eligible.

Electricity consumption is increasing by an average of 7.5% annually, and in June 2007 maximum demand reached the highest value ever. In order to give ordinary consumers an incentive, the government will distribute at least 1 500 000 economy fluorescent lamps to the residential and tertiary sectors. Distribution will start by the end of 2007 and last for five years. This measure will bring an electricity saving of about 32 400 toe (without the 3.1 factor and with a 250 kWh savings value – white certificate value).

As mentioned earlier, industry is not the leading priority. Nevertheless, the measures in that sector will make a proportionate contribution to achievement of the target. About fifteen energy efficiency proposals are accepted through the government grants scheme every year, and the objective, with fuller information provision and education, is to increase the figure to 20 proposals annually. It is estimated that the energy savings by 2016 from the commencement of the scheme in 2004 will be up to 20 000 toe. As regards cogeneration (CHP) technology in particular, the results of a study of the potential (Directive 2004/8/EC) are awaited, from which the potential will be determined by sector so that a new action plan with other incentives for exploitation will be drawn up. It is estimated that the energy savings from cogeneration will add around 6 000 toe up to 2016.

In the transport sector, with its very high energy consumption, the current measures provide grants for the purchase of hybrid, electric, etc, vehicles. Currently around 200 vehicles are subsidised annually, and the target is to increase the figure to 400 annually. The current scheme will run until 2010. The expected energy saving is 13 750 toe.

A second measure is the new taxation policy for cars, which provides low tax rates for small, efficient vehicles with low emissions. This measure will have an impact, but no quantitative estimate has been made.

With a view to upgrading the public transport system, the government has been preparing an action plan which will bring radical solutions to the traffic problem in Nicosia (initially). The measures will require large capital investments (purchase of a bus fleet and creation of other transport infrastructure) and will be implemented over the medium to long term. A school bus system will be established, in view of the current limited arrangements. The government will seek financing from the European Union for the implementation of the package of measures. We estimate that the energy savings from the development of public transport services will be at least 50 000 toe by 2016.

The national action plan includes actions to demonstrate the exemplary role of the public sector in energy saving. Energy consumption by this sector is estimated to be less than 50 000 toe, which represents 4% of final energy consumption. Although the percentage is low, the measures that have been taken and others that are planned are much more ambitious than the target for the sector. Firstly, there is the action plan for green public procurements which has been in place since 5/2007 and includes energy efficiency criteria (equipment, buildings, vehicles).

In addition, civil servants are being educated in the implementation of simple energy saving measures in the workplace. The energy savings from this sector are expected to be around 6 000 toe by 2016.

It is obvious that Cyprus can far exceed the adopted target of 185 000 toe by 2016, as well as the intermediate target of 60 000 toe, by implementing the few energy efficiency improvement measures described above, which are cost efficient and have high energy-saving impact. It should be noted that there are other energy saving measures, such as the horizontal and cross-sectoral measures, which are already being implemented or are planned for the future but have not been quantitatively evaluated. For example, energy labelling is being applied in Cyprus for at least 80% of appliances and is being promoted systematically with various information leaflets.

The Ministry of Commerce and Industry, together with the Cyprus Institute of Energy, organises at least five seminars annually on energy efficiency and RES for all the market players and professional bodies and consumers etc.

Lastly, an education and awareness-raising programme is being operated to cultivate energy consciousness among school pupils.

National indicative annual energy savings target adopted for 2016 (TOE)		**185 000**
National intermediate indicative annual energy savings target adopted for 2010 (TOE)		**60 000**
Energy efficiency improvement programmes, energy services, and other measures to improve energy efficiency planned for achieving the target	**Annual energy savings expected by end of 2010 (TOE)**	**Annual energy savings expected by end of 2016 (TOE)**
Measures in the residential sector		
1) All new dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	1) 57 297 toe	1) 171 891 toe
2) All existing dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), which undergo comprehensive renovation (as specified in the relevant law) must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	2) ---------	2) ---------
3) Maintenance and inspection of boilers and heating installations at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	3) 10 000 toe	3) 26 667 toe
4) Maintenance and inspection of air conditioning systems with effective rated output greater than 12 kW at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	4) ---------	4) ---------
5) Grants scheme for energy savings in the residential sector (existing dwellings).	5) 8 000 toe	5) 20 000 toe
6) Distribution of free fluorescent lamps.	6) 10 000 toe	6) 32 200 toe
7) Grants scheme to encourage the use of RES (end use) in the residential sector.	7) 9 930 toe	7) 13 220 toe

Measures in the tertiary sector		
1) National action plan for green public procurement.	1) 2 000 toe	1) 6 000 toe
2) Government grants scheme for energy savings/RES in the public sector and the wider public sector.	2) 200 toe	2) 1 000 toe
3) Five-year action plan for energy savings in existing public buildings.	….	….
4) All new tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	4) 9 168 toe	4) 27 504 toe
5) All existing tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), which undergo comprehensive renovation (as specified in the relevant law) must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	5) ---------	5) ---------
6) Maintenance and inspection of boilers and heating installations at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	6) 1 325 toe	6) 5 300 toe
7) Maintenance and inspection of air conditioning systems with effective rated output greater than 12 kW at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	7) ---------	7) ---------
8) Grants scheme for energy savings (end use) in the tertiary sector (existing buildings).	8) 800 toe	8) ---------
9) Grants scheme to encourage the use of RES (end use) in the tertiary sector.	9) 610 toe	9) 1 530 toe

Measures in the industrial sector		
1) Grants scheme for energy savings (existing undertakings).	1) 10 000 toe	1) 20 000 toe
2) Implementation of Directive 2004/8/EC via Law 142/2006. Grants scheme for energy savings and to encourage the use of renewable energy sources. (Cogeneration of heat and power and/or high efficiency cooling).	2) 500 toe	2) 5 000-10 000 toe
3) Education/information programmes run by organised industry bodies for technical staff in industry on energy saving/energy management subjects.	3) 500 toe	3) 3 000 toe
4) Grants scheme to encourage the use of RES (end use) in the industrial sector and agriculture.	4) 1 250 toe	4) 1 900 toe
Measures in the transport sector		
1) Grants scheme for energy saving in transport (purchase of hybrid, electric vehicles).	1) 2 500 toe	1) 13 750 toe
2) Action plan to strengthen public transport.	2) ---------	2) 50 000
Horizontal and cross-sectoral measures		
1) Education/information provision for awarding authorities on the green procurement policy, with seminars and preparation of training material. Provision of information to entrepreneurs and organised bodies (traders' association, industrialists' association) to enable them to supply the public sector with green products. Provision of information to and awareness-raising among large private sector organisations/suppliers concerning the importance of the policy. Information and awareness-raising aimed at the general public.	1) ---------	1) ---------
2) Information, awareness-raising and training for civil servants to promote energy saving in the workplace, energy consciousness and simple good habits. Organisation of seminars and provision of information leaflets. Designation of an officer to monitor the energy-saving	2) ---------	2) ---------

programme. 3) Information campaign on energy saving.	3) ---------	3) ---------
Total ESD energy savings expected:	**121 000**	**385 000**
Measures to implement Article 7 on availability of information 1) Detailed billing and advice from energy suppliers. 2) Creation of local energy agencies. 3) Energy certification of buildings.		
Measures to implement Article 5 on the public sector 1) Action plan for green public procurement. Incorporation of energy efficiency/energy saving/RES in specifications for the purchase of products and services and as an evaluation criterion in public tendering procedures: a) requirements to purchase energy-efficient equipment, electrical/electronic appliances and vehicles/internal combustion engines; b) requirements to purchase equipment with low energy consumption in standby mode; c) energy study concerning the construction/renovation of public buildings. The analytical action plan for green public procurement is attached to the Annexes. 2) A government grants scheme for investment in energy efficiency and RES in the public sector and the wider public sector. 3) A five-year government action plan, including 900 000 euro annually for investment in energy saving in existing public buildings.		

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2. Overall national indicative target

2.1. Calculation of the national target

Tables for the calculation of the national saving target

Year 2001										
	Liquid gas	Transport fuels (except armed forces, aviation and shipping)	Internal combustion oil (gas oil)	Mazout (fuel oils)	Pet-coke	Coal	Waste	Biomass	Electrical energy	**Overall**
	Unit toe									
Final inland energy consumption	58 478	609 624	199 235	53 971	94 786	35 069	730	4 642	268 727	**1 325 262**
Exemption: energy consumption in installations involved in activities covered by the Emissions Trading Directive.	0	209	209	26 920	94 786	35 069	730	1 222	16 800	**175 736**
Final inland energy consumption for ESD purposes	**58 478**	**609 624**	**199 026**	**27 051**	**0**	**0**	**0**	**3 420**	**251 927**	**1 149 526**
Residential sector	36 840		95 774	0	0	0	0	1 790	89 597	**224 001**
Tertiary sector	13 320		17 741	4 000	0	0	0	1 630	115 479	**152 170**
Industry (ESD purposes)	6 543		57 971	23 051	0	0	0	0	38 890	**126 455**
Transport	0	609 624	0	0	0	0	0	0	0	**609 624**
Agriculture	1 775		27 540	0	0	0	0	0	7 961	**37 276**

Electricity in toe:	251 927
Electricity conversion factor:	3.1
Electricity with a factor of 3.1 in toe:	780 974
Final inland energy consumption for ESD purposes in toe:	**1 678 573**

Year 2002										
	Liquid gas	Transport fuels (except armed forces, aviation and shipping)	Internal combustion oil (gas oil)	Mazout (fuel oils)	Pet-coke	Coal	Waste	Biomass	Electrical energy	**Overall**
	Unit toe									
Final inland energy consumption	59 213	632 898	212 141	67 030	102 484	37 352	0	5 246	292 495	**1 408 859**
Exemption: energy consumption in installations involved in activities covered by the Emissions Trading Directive.	0		51	29 902	102 484	37 352	0	1 601	16 850	**188 240**
Final inland energy consumption for ESD purposes	**59 213**	**632 898**	**212 090**	**37 128**	**0**	**0**	**0**	**3 645**	**275 645**	**1 220 619**
Residential sector	37 304		99 173	0	0	0	0	1 872	99 473	**237 822**
Tertiary sector	13 450		18 168	4 500	0	0	0	1 773	123 534	**161 425**
Industry (ESD purposes)	6 680		67 209	32 628	0	0	0	0	43 962	**150 479**
Transport	0	632 898	0	0	0	0	0	0	0	**632 898**
Agriculture	1 779		27 540	0	0	0	0	0	8 676	**37 995**

Electricity in toe:	275 645
Electricity conversion factor:	3.1
Electricity with a factor of 3.1 in toe:	854 500
Final inland energy consumption for ESD purposes in toe:	**1 799 474**

Year 2003										
	Liquid gas	Transport fuels (except armed forces, aviation and shipping)	Internal combustion oil (gas oil)	Mazout (fuel oils)	Pet-coke	Coal	Waste	Biomass	Electrical energy	**Overall**
	Unit toe									
Final inland energy consumption	62 460	644 909	196 369	69 686	101 415	35 665	1 000	7 355	314 445	**1 433 304**
Exemption: energy consumption in installations involved in activities covered by the Emissions Trading Directive.	0		54	36 231	101 415	35 665	1 000	3 681	16 900	**194 946**
Final inland energy consumption for ESD purposes	**62 460**	**644 909**	**196 315**	**33 455**	**0**	**0**	**0**	**3 674**	**297 545**	**1 238 358**
Residential sector	39 350		90 324	0	0	0	0	1 887	111 321	**242 882**
Tertiary sector	14 220		18 445	5 000	0	0	0	1 787	131 380	**170 832**
Industry (ESD purposes)	7 015		59 266	28 455	0	0	0	0	45 122	**139 858**
Transport	0	644 909	0	0	0	0	0	0	0	**644 909**
Agriculture	1 875		28 280	0	0	0	0	0	9 722	**39 877**

Electricity in toe:	297 545
Electricity conversion factor:	3.1
Electricity with a factor of 3.1 in toe:	922 390
Final inland energy consumption for ESD purposes in toe:	**1 863 203**

Year 2004										
	Liquid gas	Transport fuels (except armed forces, aviation and shipping)	Internal combustion fuel (gas oil)	Mazout (fuel oils)	Pet-coke	Coal	Waste	Biomass	Electrical energy	**Overall**
	Unit toe									
Final inland energy consumption	62 157	660 943	205 859	78 475	109 442	39 153	2 850	5 558	320 795	**1 485 232**
Exemption: energy consumption in installations involved in activities covered by the Emissions Trading Directive.	0		0	44 864	109 442	39 153	2 850	2 048	17 100	**215 457**
Final inland energy consumption for ESD purposes	**62 157**	**660 943**	**205 859**	**33 611**	**0**	**0**	**0**	**3 510**	**303 695**	**1 269 775**
Residential sector	39 160		99 517	0	0	0	0	1 835	113 238	**253 750**
Tertiary sector	14 150		18 510	5 000	0	0	0	1 675	135 341	**174 676**
Industry (ESD purposes)	6 982		60 045	28 611	0	0	0	0	45 029	**140 676**
Transport	0	660 943	0	0	0	0	0	0	0	**660 943**
Agriculture	1 865		27 778	0	0	0	0	0	10 087	**39 730**

Electricity in toe:	303 695
Electricity conversion factor:	3.1
Electricity with a factor of 3.1 in toe:	941 455
Final inland energy consumption for ESD purposes in toe:	**1 907 535**

Year 2005										
	Liquid gas	Transport fuels (except armed forces, aviation and shipping)	Internal combustion oil (gas oil)	Mazout (fuel oils)	Pet-coke	Coal	Waste	Biomass	Electrical energy	**Overall**
	Unit toe									
Final inland energy consumption	59 112	677 323	195 990	76 911	112 368	36 405	5 514	4 195	338 620	**1 506 438**
Exemption: energy consumption in installations involved in activities covered by the Emissions Trading Directive.	0		0	45 014	112 368	36 405	5 514	671	17 000	**216 972**
Final inland energy consumption for ESD purposes	**59 1122**	**677 323**	**195 990**	**31 897**	**0**	**0**	**0**	**3 524**	**321 620**	**1 289 466**
Residential sector	37 240		90 364	0	0	0	0	1 771	123 486	**252 861**
Tertiary sector	13 448		18 343	5 000	0	0	0	1 650	142 206	**180 647**
Industry (ESD purposes)	6 650		60 000	26 897	0	0	0	0	45 542	**139 089**
Transport	0	677 323	0	0	0	0	0	0	0	**677 323**
Agriculture	1 774		27 283	0	0	0	0	103	10 386	**39 546**

Electricity in toe:	321 620
Electricity conversion factor:	3.1
Electricity with a factor of 3.1 in toe:	997 022
Final inland energy consumption for ESD purposes in toe:	**1 964 868**

Calculation of the national energy saving target

	2001	2002	2003	2004	2005
Final inland energy consumption for ESD purposes in toe	1 678 573	1 799 474	1 863 203	1 907 535	1 964 868

Average over 5-year period in toe	**1 842 730**
9% energy saving target in toe in 2016	**165 846**
10% energy saving target in toe adopted	**185 000**
Intermediate target in toe in 2010 adopted	**60 000**

Notes:

1. The transport fuels do not include the fuels used by aviation, shipping and the armed forces. The transport fuels were motor petrol and diesel.
2. The quantities of fuels other than transport fuels used by the armed forces have not been subtracted from each category.

2.2. Specific aspects in the calculation of the national target

2.2.1. Peculiarities of the data generation on final inland energy consumption

The figures for final inland consumption of liquid gas, transport fuels, gas oil, fuel oils, pet-coke, coal and electrical energy are precise only for 2005. For the years 2001 to 2004 only the figures for the final consumption of liquid gas, fuel oils, pet-coke, coal and electrical energy are precise; the figures for consumption of transport fuels and gas oil are estimates. This is because diesel-engine vehicles could use low sulphur content motor diesel and/or gas oil, which is also used for heating and other purposes, before the accession of Cyprus to the European Union on 1 May 2004. From 2005 onwards the two fuels have been separated, and there are precise annual figures for the final consumption of each of them. The consumption figures for those fuels in 2001 to 2004 were estimated from the 2005 figures.

As regards waste, there are data for its use as a fuel by one cement factory, which also burns biomass. The final consumption figures for biomass include charcoal used for roasting food but do not include biomass used in private fireplaces for space heating because there are no figures.

The figures for the consumption of gas oil in agriculture are precise from 2003 onwards, because that fuel is coloured for tax purposes. The figures for the consumption of gas oil in agriculture in 2001 and 2002 are estimates.

Except for electrical energy, there are no precise figures for the distribution of the consumption of each fuel in the various sectors. The figures for the consumption of fuels per sector given in the tables are estimates.

2.2.2. Interface with the sectors covered by the ET Directive and military use

Emissions Trading (ET)

The portion of the industrial sector covered by the Emissions Trading Directive is defined. It consists of two cement factories and eight brick-making and pottery plants. The figures for the consumption of fuels by those installations are precise, but the figures for electricity consumption by the installations are estimates.

2.2.3. Overview of conversion factors

Electricity consumption in kwh has been converted to toe by using the factor of 1 kwh = 0.086 toe, as laid down in Annex II to the ES Directive. Because the electricity is produced by using heavy fuel oil, and the average efficiency is estimated at 32%, the final consumption of electricity is multiplied by the conversion factor of 3.1.

The conversion factors used for the other fuels are those listed in Annex II to the ES Directive, except for motor diesel and gas oil for which the factors of 1 kg fuel to 1.02 and 1.032 kg petroleum equivalent, respectively, were used.

2.2.4. Definition of the boundary between final inland consumption and the supply (or transformation) sector

There are no urban cooling/heating networks in Cyprus.

Auto-production and cogeneration of heat and power are done by undertakings which are exempted on account of the emissions scheme.

3. Sectoral presentation and assessment of energy efficiency improvement programmes and energy services

3.1. Energy efficiency improvement measures in the residential sector

3.1.1. Overview table of all EEI measures

No	Title of the EEI measure	EEI actions targeted	Duration	Annual energy savings expected in 2016
1	All new dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).	2008-2016	171 891 toe
2	All existing dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), which undergo comprehensive renovation (as specified in the relevant law) must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).	?-2016	Not estimated
3	Maintenance and inspection of boilers and heating installations at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).	2009-2016	26 700 toe
4	Maintenance and inspection of air	• The Regulation of	2009-2016	Not estimated

	conditioning systems with effective rated output greater than 12 kW at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).		
5	Grants scheme for energy savings and to encourage the use of RES (end use) in the residential sector (existing dwellings).	Provision of grants	2008-2010	4 000 toe
6	Distribution of free fluorescent lamps; information campaign.	Government grants scheme.	2007-2011	32 400 toe (without a factor for electricity)
7	Grants scheme to encourage the use of RES (end use) in the residential sector.	State grants (20-55%)	2004-2010	13 220 toe

3.1.2. Description of individual EEI measures

Title of the EEI measure	All new dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations The Regulation of Streets and Buildings Law (Law 101(I)/2006). The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).
Regional application	All of Cyprus
Target group	New dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006).
EEI actions	Heat insulation
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	57 297 toe by 2010 171 891 toe by 2016
Status of implementation and exact timeframe	Not estimated

Title of the EEI measure	All existing dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), which undergo comprehensive renovation (as specified in the relevant law) must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations The Regulation of Streets and Buildings Law (Law 101(I)/2006). The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).
Regional application	All of Cyprus
Target group	Existing dwellings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006).

EEI actions	Heat insulation
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	Not estimated
Status of implementation and exact timeframe	Not estimated

Title of the EEI measure	Maintenance and inspection of boilers and heating installations at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations The Regulation of Streets and Buildings Law (Law 101(I)/2006). The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).
Regional application	All of Cyprus
Target group	Existing dwellings
EEI actions	Assessment of the effectiveness of the boiler and of its effective rated output in the light of the requirements of the building, on the basis of the inspection carried out. The inspector advises the user, where necessary, about replacement of the boiler, modifications to the heating system or other alternatives.
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	10 000 toe by 2010 26 667 toe by 2016
Status of implementation and exact timeframe	Not estimated

Title of the EEI measure	Maintenance and inspection of air conditioning systems with effective rated output greater than 12 kW at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations The Regulation of Streets and Buildings Law (Law 101(I)/2006). The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).
Regional application	All of Cyprus

Target group	Existing dwellings
EEI actions	Assessment of the effectiveness of the air conditioning system and of its effective rated output in the light of the requirements of the building, on the basis of the inspection carried out. The inspector advises the user, where necessary, about replacement of the air conditioning system or other alternatives.
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	Not estimated
Status of implementation and exact timeframe	?

Title of the EEI measure	Grants scheme for energy savings and to encourage the use of RES (end use) in the residential sector (existing dwellings).
Category	Financial incentives in the form of grants. Decision No 65.183 of the Council of Ministers of 21/03/2007 on natural and legal persons not exercising an economic activity.
Regional application	All of Cyprus
Target group	Existing dwellings
EEI actions	Heat insulation covers
Effectiveness	There are about 4 000 applications annually, with a calculated average energy saving of 0.4 toe per application.
Expected annual energy savings in 2016 and 2010	4 000 by 2010
Status of implementation and exact timeframe	The grants scheme for energy savings and to encourage the use of RES came into force in 2004 and will run for six years (to 31.12.2010). The grant for heat insulation in new buildings will be abolished from 2008. A revised form of the scheme will be operated after 2010 until 2020.

Title of the EEI measure	Free fluorescent lamps Information campaign
Category	Financial incentives in the form of grants.
Regional application	All of Cyprus
Target group	Households

EEI actions	Replacement of conventional lamps by economy lamps; information campaign to promote the measure.
Effectiveness	The economy fluorescent lamps have gained wide public acceptance as one of the most effective ways of saving energy.
Expected annual energy savings in 2016 and 2010	More than **1 500 000** lamps (six per household) will be distributed. 32 400 toe (without an electricity factor of 3.1). With the factor the energy saving is 100 000 toe.
Status of implementation and exact timeframe	2007-2011 Distribution of the lamps will begin no later than August 2007.

Title of the EEI measure	Grants scheme to encourage the use of RES (end use) in the residential sector.
Category	Financial incentives in the form of grants. Decision **No 64.825** of the Council of Ministers of **03.01.2007** on natural and legal persons not exercising an economic activity.
Regional application	All of Cyprus
Target group	Investors in the following categories may apply: 1. natural persons residing permanently in areas under the control of the Republic of Cyprus, insofar as they do not exercise an economic activity; 2. bodies which provide services to society as a whole and other services of a social or individual nature (school boards, charitable institutions, monasteries, churches, municipalities, communities, state agencies, etc.) which are active in areas under the control of the Republic of Cyprus, insofar as they do not exercise an economic activity.
EEI actions	• Windmills for pumping water • Small wind energy electricity generating systems with capacity of up to 30 KW • Space heating and cooling by solar energy • Central solar energy systems for heating domestic water • Household solar systems • Swimming pool water heating • Autonomous photovoltaic systems (not joined to the network) with overall capacity of up to 20 KW, whether or not combined with other systems generating electricity from RES.
Effectiveness	A total of **529** applications for the end-use RES sectors were submitted in 2004, the first year of the scheme, and in 2005 the total number of applications reached **1 600**. The big public response to the scheme continued in 2006 and the total of applications reached **2 620**. There have been **500** applications in the one month of the scheme in 2007.

<table>
<tr><td></td><td></td></tr>
<tr><td>Expected annual energy savings in 2016 and 2010</td><td>It is estimated that the implementation of the grants scheme to encourage the use of RES (end use) in the residential sector will lead to annual energy savings of 9 930 toe in 2010 and to savings of 13 220 toe in 2016.
<table>
<tr><th>Basic categories</th><th>2010 (TOE)</th><th>2016 (TOE)</th></tr>
<tr><td>Household solar systems</td><td>7 670 (85 000 m^2</td><td>7 670 (85 000 m^2)</td></tr>
<tr><td>Space heating/cooling by solar energy</td><td>1 290 (18 900 m^2)</td><td>3 155 (47 500 m$^{2)}$</td></tr>
<tr><td>Autonomous photovoltaic systems</td><td>595 (1.5 MW)</td><td>1 300 (3.2 MW)</td></tr>
<tr><td>Central solar energy systems for heating domestic water</td><td>170 (4 300 m^2)</td><td>420 (10 600m$^{2))}$</td></tr>
</table>
Assumptions:

a factor of 3.1 is used for electricity (degree of efficiency of electricity generation = 32%);
as regards household solar systems, it has been assumed that electricity accounts for 30% of the heating of domestic water by conventional means and that oil-fired boilers account for 70%;
the subsidisation of household solar systems will end in 2010, and thus the contribution of these systems in 2010 will not increase by 2016.
</td></tr>
<tr><td>Status of implementation and exact timeframe</td><td>A grants scheme to encourage the use of RES (end use) has been in force since 2004 and will run for six years (to 31.12.2004). A revised form of the scheme, from which the grant for the heating of domestic water in household systems will be removed, will be applied after 2010 until 2020.</td></tr>
</table>

3.1.3. Assessment of total energy savings in the residential sector for the period 2008-2016 and for the intermediate period 2008-2010

Cyprus is perhaps the only Member State which does not have mandatory regulations covering the heat insulation of buildings. Additionally, because of the lack of data on energy consumption in buildings and on building methods, precise conclusions cannot be drawn about the savings percentage that will be achieved through this measure. However, studies carried out by the Energy Service of the Ministry of Commerce, Industry and Tourism indicate that the measure will bring a substantial saving in electricity consumption in buildings.

3.2. Energy efficiency improvement measures in the tertiary sector

3.2.1. Overview table of all EEI measures

No	Title of the EEI measure	EEI actions targeted	Duration	Annual energy savings

				expected in 2016
1	Action plan for green public procurement (package of measures).	A) Education/ information; B) Provision of information to and cooperation with the private sector; C) EEI/RES measures; D) Monitoring of the progress of the action plan.	21/3/2007 to 31/12/2009. To be renewed after that date.	1 000 toe in electricity and petroleum products.
2	Government grants scheme for energy savings/RES for the public sector and wider public sector.	Financial support for investment in energy efficiency/RES technologies (grants of 30-50%). Any energy efficiency technology which can achieve a post-investment primary energy saving of at least 10% is eligible. The grants scheme will apply until the end of 2010. Afterwards another scheme will be drawn up in compliance with the EU obligations arising from the 'energy package' and the energy saving/RES targets to be undertaken by Cyprus.	1/1/2004 to 31/12/2010. 1/1/2011 to 31/12/2020.	500 toe in electricity and petroleum products.
3	Five-year action plan for energy savings in existing public buildings.	Budget of 900 000 euro for energy saving through intervention in existing public buildings.	1/1/2006 to 1/1/2011.	200 toe in electricity and petroleum products.
4	Provision of information to and awareness raising among civil servants to promote energy saving in the workplace.	Information seminars and distribution of leaflets on the implementation of simple energy saving measures in the workplace. Designation of an officer to be responsible for energy saving in each ministry/agency.	Annual seminars	200 toe in electricity and petroleum products.
5	All new tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), must satisfy the minimum energy	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006).	2008-2016	27 504 toe

	efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	• The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).		
6	All existing tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), which undergo comprehensive renovation (as stipulated in the relevant law) must satisy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).	?-2016	Not estimated
7	Maintenance and inspection of boilers and heating installations at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).	2009-2016	5 300 toe
8	Maintenance and inspection of air conditioning systems with effective rated output greater than 12 kW at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).	2009-2016	Not estimated
9	Grants scheme for energy saving and to encourage the use of RES (end use) in the tertiary sector (existing	Grants	2008-2010	800 toe

	buildings).			
10	Grants scheme to encourage the use of RES (end use) in the tertiary sector.	State grants	2004-2010	1 530 toe

3.2.2. Description of individual EEI measures in the tertiary sector

Title of the EEI measure	Action plan for green public procurement (package of measures).
Category	Decision No 65191 of the Council of Ministers of 21/3/2007. Exemplary role of the public sector. Energy efficient public procurement. Financing from the public budget. Information and training.
Regional application	All of Cyprus
Target group	The action plan covers the public sector and the wider public sector (public administration, health, local government, public law bodies, etc.). Final consumption in the public sector is estimated at 7%.
EEI actions	Education and provision of information on the implementation of green public procurement. Incorporation of energy efficiency as an evaluation criterion and in specifications. Provision of information to and cooperation with the private sector to enable suppliers to offer ecologically efficient products and services. EEI Measures: energy efficient office equipment, electrical and electronic appliances, water saving, energy studies for new and renovated buildings; vehicles and internal combustion engines which are efficient and have low emissions; monitoring of the progress of the implementation of the action plan and making of annual improvements.
Effectiveness	The EEI measures in the action plan for green public procurement will be effective in saving energy, given that prior to accession Cyprus had no regulations and energy efficiency requirements for buildings and that the energy efficiency criterion was not used in tendering procedures. The gradual replacement of street lighting by high efficiency sodium lighting, the use, where possible, of fluorescent lamps in offices, the purchase of energy efficient office equipment with the energy star, the use of category A electrical appliances, the use of photovoltaic road signs, the fitting of light sensors in public buildings, energy studies in public buildings, the purchase of efficient vehicles and machines and the use of solar heating are typical examples of the actions to be taken. The complete action plan for green procurement, with all the measures and actions for the period 2007-2009, is in the Annexes.

Expected annual energy savings in 2016 and 2010	Cyprus has no experience of implementing calculation/measuring/verification methodologies for the ex ante/ex post estimation of energy saving in accordance with the Energy Services Directive. However, studies and simulations for many measures, such as economy lamps, category A appliances and insulation etc., have been carried out by other member countries. On that basis we estimate that there will be an energy saving of around 6 000 toe in 2016 and of around 2 000 toe in 2010 (electricity and petroleum products). Prior to 2007 there were no robust EEI measures on procurement in the public sector. A factor of 3.1 is used for electricity (degree of efficiency of electricity generation = 32%).
Status of implementation and exact timeframe	The action plan for green procurement (package of measures) has been in force since 21/3/2007 and will run for three years. It will be reviewed and assessed each year and modified or improved as necessary. The action plan attached to the Annexes states an exact timeframe for each measure and action.

Title of the EEI measure	Government grants scheme for energy savings/RES for the public sector and wider public sector.
Category	Decision No 64.825 of the Council of Ministers of Decision of 2007. Exemplary role of the public sector. Financing from the public budget and the RES/energy saving fund.
Regional application	All of Cyprus
Target group	The action plan covers ministries/agencies, public bodies, schools, municipalities and communities etc. Final consumption in the public sector is estimated at 5%.
EEI actions	The scheme provides grants of 30-50% for investment in energy saving/RES. Any energy efficiency technology which can achieve a post-investment primary energy saving of at least 10% is eligible.
Effectiveness	The energy saving investments made so far have been very effective and have led to large savings. They involve very basic things such as boiler insulation, solar heating and efficient municipal lighting.
Expected annual energy savings in 2016 and 2010	Cyprus has no experience of implementing calculation/measuring/verification methodologies for the ex ante/ex post estimation of energy saving in accordance with the Energy Services Directive. That said, the proposals for investment in energy saving have not yet been evaluated. A factor of 3.1 is used for electricity (degree of efficiency of electricity generation = 32%).
Status of implementation and exact timeframe	The measure has been in force since 2004 and will run until 2010. Afterwards another measure will be drawn up

	in accordance with the EU requirements for the energy saving/RES package.

Title of the EEI measure	Five-year action plan for energy savings.
Category	Decision No 62.738 of the Council of Ministers of Decision of 2005. Exemplary role of the public sector. Financing from the public budget and the RES/energy saving fund.
Regional application	All of Cyprus
Target group	The five-year action plan covers existing public buildings (ministries/agencies/departments). Final consumption in the public sector (excluding the wider public sector) is estimated at 4%.
EEI actions	The five-year action plan for energy savings was formulated on the basis of the results of energy inspections at five public buildings. The findings indicated energy-saving potential of more than 25%. The plan provides financing for the realisation of investments in inefficient existing and old public buildings.
Effectiveness	The results of the energy inspections show that large energy savings can be achieved through simple measures such as boiler insulation, efficient lighting, fitting of thermostats and improvement of the output factor etc.
Expected annual energy savings in 2016 and 2010	Cyprus has no experience of implementing calculation/measuring/verification methodologies for the ex ante/ex post estimation of energy saving in accordance with the Energy Services Directive. However, the results of the energy inspections at existing public buildings show potential of more than 25%. The measure has not been implemented at a building as yet, and so there are no energy savings results, only the results of the energy inspections. So far not a lot of interest in submitting investment proposals for existing public buildings has been shown. A factor of 3.1 is used for electricity (degree of efficiency of electricity generation = 32%).
Status of implementation and exact timeframe	The measure has been in force since 2006 and will run until 2011. So far it has not been implemented at a public building.

Title of the EEI measure	All new tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations

	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).
Regional application	All of Cyprus
Target group	New tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006).
EEI actions	Heat insulation
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	9 168 toe by 2010 27 504 toe by 2016
Status of implementation and exact timeframe	Not estimated

Title of the EEI measure	All existing tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006), which undergo comprehensive renovation (as stipulated in the relevant law) must satisfy the minimum energy efficiency requirements laid down in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations
Regional application	All of Cyprus
Target group	Existing tertiary sector buildings, except those described in the Annex to the Regulation of the Energy Efficiency of Buildings Law (Law 142(I)2006)
EEI actions	Heat insulation
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	Not estimated
Status of implementation and exact timeframe	Not estimated

Title of the EEI measure	Maintenance and inspection of boilers and heating installations at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations

	• The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).
Regional application	All of Cyprus
Target group	Existing tertiary sector buildings.
EEI actions	Assessment of the effectiveness of the boiler and of its effective rated output in the light of the requirements of the building, on the basis of the inspection carried out. The inspector advises the user, where necessary, about replacement of the boiler, modifications to the heating system or other alternatives.
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	1 325 toe by 2010 5 300 toe by 2016
Status of implementation and exact timeframe	Not estimated

Title of the EEI measure	Maintenance and inspection of air conditioning systems with effective rated output greater than 12 kW at regular intervals determined in the relevant decree issued by the Minister for Commerce, Industry and Tourism.
Category	Laws/Regulations • The Regulation of Streets and Buildings Law (Law 101(I)/2006). • The Regulation of the Energy Efficiency of Buildings Law (Law 142(I)/2006). • The Streets and Buildings (Energy Efficiency of Buildings) Regulations (RAA 429/2006).
Regional application	All of Cyprus
Target group	Existing tertiary sector buildings.
EEI actions	Assessment of the effectiveness of the air conditioning system and of its effective rated output in the light of the requirements of the building, on the basis of the inspection carried out. The inspector advises the user, where necessary, about replacement of the air conditioning system or other alternatives.
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	Not estimated
Status of implementation and exact timeframe	Not estimated

Title of the EEI measure	Grants scheme for energy savings and to encourage the use of RES (end use) in the tertiary sector (existing buildings).
Category	Financial incentives in the form of grants. Decision No 65.183 of the Council of Ministers of 21/03/2007 on natural and legal persons exercising an economic activity.
Regional application	All of Cyprus
Target group	Existing tertiary sector buildings.
EEI actions	Heat insulation covers.
Effectiveness	Not estimated
Expected annual energy savings in 2016 and 2010	800 toe by 2010
Status of implementation and exact timeframe	The grants scheme for energy savings and to encourage the use of RES entered into force in 2004 and will run for six years (to 31/12/2010). The grant for heat insulation in new buildings will be abolished from 2008. A revised form of the scheme will be applied after 2010 until 2020.

Title of the EEI measure	Grants scheme for energy saving and to encourage the use of RES (end use) in the tertiary sector.
Category	Financial incentives in the form of grants. Decision **No 65.813** of the Council of Ministers of **21.03.2007** on natural and legal persons exercising an economic activity.
Regional application	All of Cyprus
Target group	Investors in the following categories may apply: 1. natural persons and legal persons, insofar as they exercise an economic activity; 2. public sector bodies, insofar as they exercise an economic activity.
EEI actions	• Central solar energy systems for heating service water • Space heating and cooling by solar energy • Swimming pool water heating.
Effectiveness	**36** applications for the end-use RES sectors were submitted in 2004, the first year of the scheme, and total applications reached **110** in 2005. In 2006 the number of applications reached **370**. There have been **100** applications in the one month of the scheme in 2007.
Expected annual energy savings in 2016 and 2010	It is estimated that the implementation of the grants scheme to encourage the use of RES (end use) in the tertiary sector will lead to annual energy savings of **610** toe in **2010** and of **1 530**

	toe in **2016**. **Basic categories** / **2010 (TOE)** / **2016 (TOE)** Central solar energy systems for heating service water: 340 (8 600 m^2) / 840 (21 200 m^2) Solar energy heating of swimming pool water: 160 (2 600 m^2) / 3 155 (6 900 $m^{2)}$ Space heating/cooling by solar energy: 110 (1 650 m^2) / 270 (4 100 m^2)
Status of implementation and exact timeframe	A grants scheme to encourage the use of RES (end use) in the tertiary sector has been in force since 2004 and will run for six years. A revised form of the scheme will be operated after 2010 until 2020.

3.2.3. Assessment of total energy savings in the tertiary sector expected for the period 2008-2016 and for the intermediate period 2008-2010.

Cyprus is perhaps the only Member State which does not have mandatory regulations covering the heat insulation of buildings. Additionally, because of the lack of data on energy consumption in buildings and on building methods, precise conclusions cannot be drawn about the savings percentage that will be achieved through this measure. However, studies carried out by the Energy Service of the Ministry of Commerce, Industry and Tourism indicate that the measure will bring a substantial saving in electricity consumption in buildings.

3.3. Energy efficiency improvement measures in the industrial sector

3.3.1. Overview table of all EEI measures

No	Title of the EEI measure	EEI actions targeted	Duration	Annual energy savings expected in 2016
1	Grants scheme for energy savings and to encourage the use of renewable energy sources (energy saving in existing undertakings).	State grants (30%)	2004-2010 Revision 2011-2020	20 000 toe
2	**Implementation of Directive 2004/8/EC – Law 142/2006.** Grants scheme for energy savings and encouragement of the use of renewable energy sources. (Cogeneration of heat and power and/or high efficiency cooling).	State grants. Obligation to purchase electricity from cogeneration.	2004-2010 Revision 2011-2020	5 000-10 000 toe
3	Education/information programmes run by organised industry bodies for technical staff in industry on energy saving/energy management	Education of the staff of industrial units about the possibilities for energy saving.	2007-2010	3 000 toe

	subjects.			
4	Grants scheme to encourage the use of RES (end use) in the industrial sector and agriculture.	State grants	2004-2010	1 900 toe

3.3.2. Description of individual EEI measures in the industrial sector

Title of the EEI measure	Grants scheme for energy savings (existing undertakings).
Category	Financial incentives in the form of grants. Decision **No 65.183** of the Council of Ministers of **21/03/2007** on natural and legal persons exercising an economic activity.
Regional application	All of Cyprus
Target group	Investors in the following categories may apply: 1. natural persons and legal persons, insofar as they exercise an economic activity; 2. public sector bodies, insofar as they exercise an economic activity.
EEI actions	• Purchase/installation of new equipment for the recovery of wasted energy, either directly or indirectly by recovery/recycling of discarded materials, product or employed medium. • Purchase/integration of new materials and equipment to reduce unproductive energy consumption and energy losses. • Purchase of new equipment for the production, transmission, distribution and use of energy. • Purchase/installation of a new energy management IT system and/or integration of automated direct energy regulation/switch-off devices • Replacement of existing materials and/or equipment connected with the above subcategories.
Effectiveness	A total of **15** applications for energy saving in industry were submitted in 2004, the first year of the scheme, and **16** applications were submitted in 2005. From the indications regarding completed investments in industry in 2006 it can be assumed that the number of applications will remain constant. The ultimate objective is a small increase in the number of applications to **20-22** per year.
Expected annual energy savings in 2016 and 2010	Cyprus has no experience of implementing calculation/measuring/verification methodologies for the ex ante/ex post estimation of energy saving in accordance with the Energy Services Directive. However, from calculations that have been done it is estimated that the implementation of the grants scheme for energy saving and to encourage the use of renewable

	energy sources **(energy saving in existing undertakings)** will produce annual energy savings of **10 000** toe in **2010** and of **20 000** toe in **2016**. Assumptions: • the figures indicate the following energy savings: electricity 35% and thermal 65%; • life cycles have been used for the different investments in the estimation of the annual energy savings.
Status of implementation and exact timeframe	The grants scheme for energy savings and to encourage the use of RES came into force in 2004 and will run for six years (to 31.12.2010). A revised form of the scheme will be operated after 2010 until 2020.

Title of the EEI measure	Implementation of Directive 2004/8/EC via Law 142/2006. Grants scheme for energy savings and to encourage the use of renewable energy sources. (cogeneration of heat and power and/or high efficiency cooling).
Category	Financial incentives in the form of grants. Decision **No 65.183** of the Council of Ministers of **21/03/2007** on natural and legal persons and public sector bodies exercising an economic activity.
Regional application	All of Cyprus
Target group	Investors in the following categories may apply: 1. natural persons and legal persons, insofar as they exercise an economic activity; 2. public sector bodies, insofar as they exercise an economic activity.
EEI actions	• Priority of access to the grid. • Purchase of electricity at fixed prices by the national grid. • Scheme offering grants of 30% for investment in cogeneration.
Effectiveness	The current financial incentives for cogeneration investments need to be revised. The study being carried out to determine the potential (Directive 2004/8/EC) encompasses, inter alia, an assessment of the existing grants scheme and the framing of an action plan with new measures to make investments in cogeneration financially efficient.
Expected annual energy savings in 2016 and 2010	It is estimated that the grants scheme for energy savings and to encourage the use of renewable energy sources (cogeneration of heat and power and/or high efficiency cooling) will produce overall energy savings of 5 000-10 000 toe.
Status of implementation and exact timeframe	The grants scheme to encourage the use of RES in the tertiary sector came into force in 2004 and will run for

	six years. A revised form of the scheme will be operated after 2010 until 2020.

Title of the EEI measure	Education/information programmes run by organised industry bodies for technical staff in industry on energy saving/energy management subjects.
Category	Education and training of technical staff.
Regional application	All of Cyprus
Target group	Industrial units with significant energy saving potential. Final consumption is about 15%.
EEI actions	• Education of energy managers. • Energy inspections.
Effectiveness	The education programmes for energy managers and the energy inspections carried out at industrial units which use a lot of energy (food factories, creameries, etc.) point to energy saving potential of the order of 20%.
Expected annual energy savings in 2016 and 2010	The energy saving resulting from the above measure is expected to be 3 000 toe by 2016.
Status of implementation and exact timeframe	A measure providing education for energy managers and involving energy inspections four times a year at industrial units is already being implemented. The measure will apply for the period 2007-2010.

Title of the EEI measure	Grants scheme for energy saving and to encourage the use of RES (end use) in the industrial sector and agriculture.
Category	Financial incentives in the form of grants. Decision **No 65.183** of the Council of Ministers of **21/03/2007** on natural and legal persons exercising an economic activity.
Regional application	All of Cyprus
Target group	Investors in the following categories may apply: 1. natural persons and legal persons, insofar as they exercise an economic activity; 2. public sector bodies, insofar as they exercise an economic activity.
EEI actions	• Small wind energy electricity generating systems with capacity of up to 30 KW • Central solar energy systems for the heating of service water • Autonomous photovoltaic systems with capacity of up to 20 KW for the pumping of water • Small hydroelectric projects on rivers and water courses in general. • Solar systems for the heating of service water.

<table>
<tr><td></td><td></td></tr>
<tr><td>Effectiveness</td><td>72 applications for the end-use RES sectors were submitted in 2004, the first year of the scheme. In 2005 the total number of applications reached 212. In 2006 the total reached 661.</td></tr>
<tr><td>Expected annual energy savings in 2016 and 2010</td><td>It is estimated that the grants scheme to encourage the use of renewable energy sources. (end-use) in the industrial sector will produce annual energy savings of 1 250 toe in 2010 and of 1 900 toe in 2016.
<table>
<tr><th>Basic categories</th><th>2010 (TOE)</th><th>2016 (TOE)</th></tr>
<tr><td>Central solar energy systems for the heating of service water</td><td>340 (8 600 m^2)</td><td>840 (21 200 m^2)</td></tr>
<tr><td>Solar systems for the heating of service water</td><td>850 (9 500 m^2)</td><td>850 (9 500 $m^{2)}$</td></tr>
<tr><td>Autonomous photovoltaic systems with capacity of up to 20 KW for the pumping of water</td><td>38 (95 KW)</td><td>108 (270 KW)</td></tr>
</table>
<u>Assumptions</u>
• a factor of 3.1 is used for electricity (degree of efficiency of electricity generation = 32%);
• as regards solar systems for the heating of service water, it has been assumed that electricity accounts for 30% of requirements for the heating of service water by conventional means and that oil-fired boilers account for 70%.

The subsidisation of solar systems for the heating of service water will end in 2010, and thus the contribution of these systems in 2010 will not increase by 2016.</td></tr>
<tr><td>Status of implementation and exact timeframe</td><td>The grants scheme to encourage the use of RES (end use) in the industrial sector has been in force since 2004 and will run for six years. A revised form of the scheme will be operated after 2010 until 2020.</td></tr>
</table>

3.3.3. Assessment of total energy savings in the industrial sector expected for the period 2008-2016 and for the intermediate period 2008-2010

The industrial sector (within the scope of the Directive) consumes around 150 000 toe (45 000 toe of electricity). Undertakings outside the emissions scheme consume 215 000 toe. Cyprus does not have industries which consume very high amounts of energy (steel, paper, glass, etc.). Food factories offer the greatest potential for energy savings. The government grants schemes are the main instrument for assisting the financing of investment in energy saving. Any energy efficiency technology which can achieve a post-investment primary energy saving of **10%** is eligible. Heat recovery, cogeneration, efficient electric motors, automation devices, insulation and efficient lighting etc are typical applications. So far between 15 and 20 investment energy efficiency improvement proposals have been included annually in the grants

schemes. The schemes are expected to make a substantial contribution to energy saving, bearing in mind the structure of industry in Cyprus, in which 50% of energy consumption is exempted on account of the Emissions Trading Directive, and the fact that Cyprus has developed an energy policy only since its accession in 2004.

The provision of information to and the education and training of technical and scientific staff in energy management, with training in the conducting of energy inspections, is another measure which can contribute to energy saving in industry. The trade and industry associations of Cyprus have been running training/education courses for personnel who are responsible for energy with the help of experts from abroad for some time (about four courses a year with 100 participants).

3.4. Energy efficiency improvement measures in the transport sector

3.4.1. Overview table of all EEI measures

No	Title of the EEI measure	EEI actions targeted	Duration	Annual energy savings expected in 2016
1	Grants scheme for energy saving (purchase of hybrid and electric vehicles)	State grants (£400 or £700 per vehicle).	2006-2010	13 750 toe
2	Action plan to strengthen public transport		2007-2020	

3.4.2. Description of individual EEI measures

Title of the EEI measure	Grants scheme for energy saving (purchase of hybrid and electric vehicles).
Category	Financial incentives in the form of grants. Decision **No 64.825** of the Council of Ministers of **03.01.2007** on natural and legal persons not exercising an economic activity. Decision **No 65.183** of the Council of Ministers of **21/03/2007** on natural and legal persons exercising an economic activity.
Regional application	All of Cyprus
Target group	Investors in the following categories may apply: 1. natural persons residing permanently in areas under the control of the Republic of Cyprus, insofar as they do not exercise an economic activity; 2. bodies which provide services to society as a whole and other services of a social or individual nature (school boards, charitable institutions, monasteries, churches, municipalities, communities, state agencies, etc.) which are active in areas under the control of the Republic of

	Cyprus, insofar as they do not exercise an economic activity; 3. natural and legal persons, insofar as they exercise an economic activity. 4. public sector bodies, insofar as they exercise an economic activity.
EEI actions	• Hybrid vehicles • Vehicles with dual propulsion systems • Electric vehicles • Vehicles with carbon dioxide emissions below 120 g/km.
Effectiveness	**73** applications for hybrid vehicles and **16** applications for electric vehicles were submitted in 2006, the first year of the scheme. **71** applications for hybrid vehicles and **80** applications for vehicles with carbon dioxide emissions below 120 g/km have been submitted in the one month of the scheme in 2007.
Expected annual energy savings in 2016 and 2010	The implementation of the grants scheme for energy saving and to encourage the use of RES (end use) in the transport sector is expected to lead to energy savings of **2 500** toe in **2016** and of **13 750** toe in **2016**. Assumptions: • it is expected that grants will be provided for about 500 vehicles per year.
Status of implementation and exact timeframe	The grants scheme for energy saving and to encourage the use of RES (end use) in the transport sector came into force in 2004 and will run for six years. A revised form of the scheme will be operated after 2010 until 2020.

Title of the EEI measure	Action plan to strengthen public transport.
Category	Decision No 62.859 of the Council of Ministers of 9.11.2005.
Regional application	All of Cyprus, with Nicosia as the initial epicentre.
Target group	Promotion of the proposals/measures/projects referred to in the 'Study concerning Decongestion in Nicosia and the Development of Public Transport' and in the 'Study concerning Traffic Assessment and Viability with regard to the Use of the New-Technology Vehicles in Nicosia', examination and promotion of short-term measures and securing of the necessary appropriations.
EEI actions	• Upgrading of public transport • Purchase of new buses • Establishment of a school bus system • Creation of bus lanes
Effectiveness	Cyprus does not have a developed public transport system at present, and there is serious traffic congestion in the major cities. Given that transport accounts for 52% of final

	energy consumption, the sector is high on the list of government priorities. Nevertheless, the planned measures are long term because of the large capital investment required. Establishment of a school bus system and the upgrading of urban buses will bring substantial energy savings.
Expected annual energy savings in 2016 and 2010	The savings have not been estimated because the plan is long term and its implementation requires political decisions and intensive capital investment.
Status of implementation and exact timeframe	The plan is long term (time horizon of 10-12 years).

3.4.3. Assessment of total energy savings in the transport sector expected for the period 2008-2016 and for the intermediate period 2008-2010

Transport has the highest energy consumption of all the sectors in Cyprus. With final consumption of 677 323 toe it accounts for 52% of overall final consumption on the island. Decisive measures to achieve energy savings in transport are therefore essential.

At present public transport services in Cyprus are under-developed. There is also a large fleet of vehicles with big engines because of government subsidisation of diesel in the past, which made that fuel much cheaper than petrol. Following the liberalisation of the prices of petroleum products, the prices of diesel and petrol have come into balance.

Cyprus has drawn up a sweeping action plan to strengthen public transport in order to put in place vigorous measures to achieve energy savings. The plan provides for the development of measures such as the establishment of a school bus system, the development of public transport services, the purchase of new buses and the creation of bus lanes etc.

In that framework the Ministry of Communications and Works, in cooperation with the Planning Office, has negotiated with the Commission for co-financing from the Structural Funds for the package of measures and projects to strengthen public transport in the new programming period 2007-2013. As a result of those negotiations the funds have agreed to provide co-financing of up to €50 million for a set of public transport actions.

In order to maximise the benefit from the co-financing, it has also been agreed that the project should be focused on Nicosia, and that other actions that are required both for Nicosia and for the other areas of Cyprus should be promoted in parallel with financing from national and other sources.

In pursuit of the objective a set of measures relating to the design and implementation of the public transport programme will be put in place when the project guidance committee and the project management team have been formed.

In parallel with the action plan to strengthen public transport, Cyprus is promoting the purchase of more efficient and environmentally clean vehicles by providing grants for the purchase of hybrid and electric vehicles, vehicles with dual propulsion systems and vehicles with CO_2 emissions below 120 g/km. Tax reliefs, with lower rates for vehicles which use less fuel and have lower emissions, are also being offered.

3.5. Energy efficiency improvement measures in the agricultural sector

This sector has been included in the industrial sector. The share of agriculture in final energy consumption in 2005 was 38 000 toe (10 300 toe of electricity, 27 700 toe of petroleum products). There is no factor for electricity. Agriculture accounts for about 3% of final energy consumption.

4. Horizontal and cross-sectoral measures

4.1. Overview table of all horizontal and cross-sectoral EEI measures

EEI: Energy Efficiency Improvement
RES: Renewable Energy Sources

No	Title of the EEI measure	EEI actions targeted	Duration	Annual energy savings expected in 2016
1	Provision of information to and awareness raising among civil servants to promote energy saving measures and behaviour in the workplace.	Annual training seminars. Provision of informative material/leaflets to promote simple good habits. Designation of an officer to monitor energy saving in each government agency.	Annually from 2006	700 toe in electricity and petroleum products
2	Information campaign on energy saving subjects.	Preparation, publication and distribution of printed informative material on the efficient use of energy.	2007	

4.2. Description of individual horizontal and cross-sectoral EEI measures

Title of the EEI measure	Provision of information to and awareness raising among civil servants to promote energy saving measures and behaviour in the workplace.
Category	Exemplary role of the public sector Targeted information campaigns Training
Regional application	All of Cyprus
Target group	Public service personnel (in ministries, schools, hospitals, prisons, etc.).
EEI actions	Provision of information to personnel about the possibilities of energy saving in the workplace. Simple good habits and other measures of low cost; office equipment systems, lighting, thermostats, air conditioning/heating, etc. Designation of an employee to be responsible for energy saving in each service/building. Provision of material and leaflets providing information and guidance on energy saving.
Effectiveness	Experience shows that there is waste of energy in public buildings. The buildings were not constructed to be energy efficient, and unsound use of energy by personnel

	compounds the problem. Setting air conditioning thermostats at 19°C, leaving office equipment switched on outside office hours, resistance heating of spaces, leaving windows open while the air conditioning is on, pointless use of lifts and leaving lights on in unoccupied or sunlit rooms cause waste of energy which can be drastically reduced by a change in behaviour and the cultivation of energy consciousness. Implementation of very simple measures can achieve energy savings of at least 15% without cost interventions. Personnel have also been told that high energy performance (energy star, A class, CE marked) is essential where public procurement is done at the departmental level rather than centrally (purchase of computers and photocopiers etc.).
Expected annual energy savings in 2016 and 2010	Cyprus has no experience of implementing calculation/measuring/verification methodologies for the ex ante/ex post estimation of energy saving in accordance with the Energy Services Directive, especially with regard to horizontal measures. Looking at the situation, however, given the scale of energy waste, we estimate that at least 700 toe can be saved in 2016 (electricity and petroleum products) and that 700 toe can be saved in 2010. The final electricity consumption of the public sector (government agencies, health services, schools) in 2004 was 17 000 toe. A factor of 3.1 is used for electricity (degree of efficiency of electricity generation = 32%). Consequently the electrical energy consumption becomes 52 700 toe.
Status of implementation and exact timeframe	The measures has been in force since 2006 and will run until 2016.

Title of the EEI measure	Information campaign on energy saving subjects.
Category	Targeted information campaign.
Regional application	All of Cyprus
Target group	The general public
EEI actions	The information campaign consists of the preparation, publication and distribution to the public of printed informative material on energy saving subjects.
Effectiveness	Information campaigns can be very effective when targeted correctly using appropriate means. We believe that the objective of raising public awareness about sensible energy use and energy saving can be achieved effectively through the campaign.
Expected annual energy savings in 2016 and 2010	Cyprus has no experience of implementing calculation/measuring/verification methodologies for the ex ante/ex post estimation of energy saving in accordance with the Energy Services Directive, especially with regard to horizontal measures.

Status of implementation and exact timeframe	The measure has been in force since 2006 and will run until 2016.

5. Measures specifically required to be reported by the ESD

5.1. Article 5 on measures in the public sector

Title	Article 5(1) and (2)
Relevant EEI measures	Action plan for green public procurement (package of measures/actions).
Title of legislation or regulation	The Council of Ministers approved the national action plan for green public procurement by Decision 65191 on 21/3/2007. The legal framework is compliance with Directives 2004/17 and 2004/18 which were transposed in Cyprus by Laws N(I) 11/2006 and N(I) 12/2006 on the coordination of tendering procedures for works, supplies and services in the water, energy, transport and postal sectors.
Link to publication	The national action plan for green public procurement has been published in the domestic press and can be found on website www.moa.gov.cy of the Ministry of Agriculture (Environmental Service).
Date of entry into force	The national action plan for green public procurement covering the provisions of Article 5 of the Energy Services Directive entered into force in May 2007.

The national action plan for the promotion of green public procurement is attached in full in the Annexes. The plan covers the provisions of Article 5 on the public sector, and in particular measures (b) and (c) of Annex VI to the Directive.

5.2. Article 7 on availability of information

In order to exploit all the economically effective potential for energy savings among final consumers (the public and undertakings) it will be necessary to draw up programmes providing information and advice. Under the planned measures, suppliers of energy to final consumers will issue detailed bills stating the actual energy consumption, with historical data, comparisons with average values and addresses of websites that can be visited for information about energy efficiency practices and technologies (Article 13). Advice and information leaflets on simple ways of saving energy (purchase of class A domestic appliances, use of fluorescent lamps, air conditioning temperatures, etc.) will be sent out with bills.

A second effective measure will be energy certification providing information about the energy efficiency of homes and other buildings and indicating steps that are necessary for the improvement of efficiency and the reduction of energy costs. Certification will start from 2009.

In order to promote energy saving at the local level, the government is looking at the possibility of creating local energy agencies in accordance with the requirements of the Intelligent Energy for Europe programme. The local and regional agencies will seek to raise awareness about energy saving and RES among the public, undertakings and local authorities.