ENERGY EFFICIENCY ACTION PLAN , ARTICLE 14 OF DIRECTIVE 2006/32/EC FOR THE ENERGY SERVICES

EXECUTIVE SUMMARY AND SUMMARY TABLE

Final energy consumption in Cyprus for year 2005 is 1,506,438 toe (under the scope of ESD). The undertakings falling in the Emission Trading Scheme consume 216,000 toe and they are exempted. The energy consumption for industries outside ETS is around 150,000 toe. The energy consumption for military operations (transport) is also excluded. The electricity energy consumption is 321,620 toe. The share of different sectors in end-use energy consumption (scope of ESD) is: households 20%, tertiary 14%, transport 52%, industry 11%, and agriculture 3%. Electricity consists of the 25% of final energy consumption. Electricity consumption has increased around 80% in the period 1995-2005.This increase is mainly due to the household and tertiary sectors. For energy savings and electricity a coefficient of 3.1 is applied which corresponds to the efficiency of electricity generation in Cyprus (steam, gas turbines).

Cyprus being an island state has a small and isolated energy system without any interconnections. There are no indigenous energy sources except a small contribution of solar thermal and is totally dependent to energy imports. Prior to accession in 2004 the government did not have a comprehensive energy efficiency policy and no energy performance building regulations existed.

The potential for energy savings in the building and transport sector is significant. The industrial sector has less potential which is also documented from the energy efficiency indicators (IEE project Energy Efficiency Indicators-NMC).The ODEX indicator for industry shows improvement in energy efficiency in the period 1995-2004.

From the energy balance is clear that transport is the most energy consuming sector (52%) which has big potential for energy savings. Cyprus has no rail infrastructure and the public transport system (buses) is not developed and its use has decreased drastically the last ten years. Furthermore in Cyprus there is no established school bus system.

Cyprus has adopted a target of 10% or 185,000 toe energy savings up to 2016.The intermediate energy savings target is 3% or 60,000 up to 2010. It is noted that for energy savings in electricity the coefficient applied is 3.1.

The first NEEAP includes policies and measures which have high impact in exploiting the significant potential. The priorities set are firstly the building sector, transport and secondly industry. In the building sector the implementation of the provisions of EPBD 2002/91/EC according to energy saving estimates can exceed the overall target set. Cyprus is expected to apply energy performance building regulations by the end of 2007. It is underlined that this is a completely new measure since there were no building codes and standards prior to accession, and therefore it does not consists a baseline measure. For the existing buildings (household, tertiary) government with the assistance of the Cyprus Institute of Energy, is operating a a multiannual financial support scheme for investments in energy efficiency. The scheme includes technologies such as thermal insulation, solar thermal, geothermal heat pumps etc. For the tertiary sector (hotels, offices, etc) every energy efficiency technology is eligible provided it can achieve a 10% energy savings after the investment.

Electricity consumption is increasing by average 7.5% annually and in June 2007 maximum demand recorded the highest value ever (1040MW). In order to provide incentives to simple consumers to save electricity, government will provide 1,500,000 CFL lamps for free. The supply will start by the end of 2007 and it will last for 5 years. This measure will have an impact of saving 32,400 toe (without coefficient).

As mentioned earlier industry is not top priority but still the measures implemented will contribute proportionally in achieving the target. Every year 15 energy efficiency projects are subsidised by the government and the objective is with the proper education and training to increase this number to 20 proposals annually. Since the operation of the scheme in 2004 the energy savings expected up to 2016 is 20,000 toe.

Particularly for CHP technologies a study for analysis of the national potential is in progress(2004/8/EC). Based on the results and recommendations of the study the government will adopt an action plan for the promotion of high efficiency cogeneration including triple generation if it is proved to have technical and economic potential. Presently there is a scheme for the promotion of CHP which includes a feed in law and grants for the capital investments (maximum 170,000 euro). National utility company is obliged to buy all electricity produced from high efficiency CHP electricity at set tariffs. The study for the potential will propose which measures fiscal, administrative and other are the optimum to increase the share of CHP in the energy balance. Thus far the experts carrying out the study have informed us that there is potential in the industrial sector whereas in the residential sector the potential is negative. The analysis for combined heating, cooling, power is of particular importance to Cyprus due to the high demand for cooling loads (air conditioning). The study will analyse in depth the existence of potential for using triple generation in buildings of the tertiary sector. All barriers will be investigated. The absence of natural gas is a major obstacle for the development of CHP technologies in Cyprus. Since the adoption

of the CHP directive there is interest from industry for investments in this technology. The number of applications for investments received are 6 since 2004. We anticipate that the energy savings from CHP will be in the range of 5000-10000 toe up to 2016 but the exact figure will be calculated after we have the results from the study of the national potential.

For the transport sector the government provides incentives for the purchase of hybrid, electric cars. Today 200 vehicles are subsidised and the target is to increase this number to 400 annually. The expected energy savings from this measure is around 13,000 toe up to 2016.

A second measure is the new tax law for cars which includes low tax coefficients when purchasing low emissions , low engine capacity cars. This instrument will have impact in energy saving but it has not been estimated yet.

The most important policy for energy savings in the transport sector is the development of public transport system. The Government has decided to prepare an action plan for the development of public transport initially for the city of Nicosia with the aim to reduce the traffic congestion problems and reduce atmospheric pollution. The planned measures include buying new, modern, clean buses (no rail exists), establishing the school bus system as well as improving or building new transport infrastructure (bus lanes, central stations, roads etc). The public transport policy will be realised in the long term and requires severe capital investments and the financing will come partly from structural funds of the EU. We estimate that the energy savings from public transport development will be minimum 50,000 toe up to 2016.

The NEEAP includes actions and measures to demonstrate the exemplary role of the public sector in energy savings. Energy consumption from this sector is around 4% of the final consumption (50,000 toe). Despite the small percentage the measures taken and others planned are more ambitious from the target. Firstly is the action plan already in force for the promotion of green public procurement. The plan includes many measures for purchasing products/equipment/vehicles taking into account the energy efficiency criterion. The requirements of the public sector as specified in annex VI of the directive are to a large extent satisfied.

In addition awareness raising and educating of civil servants on simple measures and behaviour to save energy in the workplace is important and seminars are organised every six months. Every department of government has a designated officer for energy savings who monitors and supervises the application of simple energy saving measures / practices.

The energy savings from this sector is estimated to be 6000-8000 toe up to 2016.

Based on the above measures described by sector it is obvious that Cyprus can exceed by far the target adopted of 10% which in terms of absolute numbers is 185,000 toe by 2016 as well as the intermediate target of 60,000 toe by 2010.

The method of achieving this is by implementing few essential energy efficiency improvement measures which are cost effective and have high impact in energy savings. Cyprus will exploit the significant energy savings potential primarily from the buildings sector by implementing the EPBD for the new buildings and by continuing the governmental financial support schemes for the efficiency improvement of the existing ones. Secondly it will implement in the long run the ambitious and costly action plan for the development of the public transport system.

It must be noted that there are other measures/programs which are already in force but not evaluated in terms of energy savings such as horizontal and cross sectoral actions. For example energy labelling program for the market transformation is operating successfully in Cyprus and market surveillance authorities provide data that a minimum of 80 % of appliances are labelled in shops. The policy is promoted systematically with informative leaflets and advertisements.

On annual basis Ministry of Commerce and Industry together with the Cyprus Institute of Energy organise at least 5 seminars for the promotion of RES and energy efficiency (policies, support schemes, technologies) with participants all market players, consumers organisations, professional engineer's associations etc.

Two major trade/services fairs are organised annually. The first one is the international trade / services fair organised in Nicosia where the Governmental Energy department has a information/advise stand and also there are many energy technologies exhibitors (RES and energy efficiency). The fair lasts for two weeks and is visited by a minimum of 200,000 people (Cyprus population is 750,000).

Secondly the Employers and Industrialists Organisation (OEB) with members from the industry and services sector organises annually an exhibition/trade fair named <save energy> for the promotion of energy efficiency and RES technologies. There are minimum 100 local exhibitors but also from overseas and the visitors in the venue are minimum 50,000 since the start (3 times). During the fair which is hosted by the Minister of Commerce and Industry there are presentations on many new technologies and best practices.

Due to the fact that education and awareness for energy and climate change issues must start at an early age the government is operating a program in schools for the promotion of RES and energy efficiency measures in order to

create energy consciousness of future citizens who can understand the significance of sustainable development.

National indicative annual energy savings target adopted for 2016 10%		185,000 toe
National intermediate indicative annual energy savings target adopted for 2010 3%		60,000 toe
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**	**Annual energy savings expected by end of 2016**
<u>Measures in the **residential** sector:</u> 1) Law /regulations for the energy performance of buildings (households) 2) Maintenance and inspection for heating, cooling systems (Ministerial decree) 3) governmental financial support schemes for households (thermal insulation, solar etc) 4) Free CFL lamps (minimum 1,5 million)	1) 57000 2) 10000 3) 8000 4) 10000	1) 172000 2)26000 3) 20000 4) 32,000

5) financial support schemes for RES in end use (solar heaters, PV etc.)	5) 9900	13,000
<u>Measures in the **tertiary** sector:</u> 1) Law /regulations for the energy performance of buildings 2) action plan for green public procurement 3) Ministerial decree for the maintenance and inspection of boilers/cooling systems 4) support schemes for RES in end use 5) governmental efficiency support schemes for tertiaty buildings	 1) 9000 2) 2000 3) 1325 4) 610 5) 800	 1) 27,500 2) 6000 5300 1530
<u>Measures in the **industrial** sector (ESD scope)</u>: 1) governmental financial support schemes in energy efficiency 2) law and support schemes for promoting industrial CHP 3) training and education of production engineers in energy management/audits 4) Finanial support schemes for RES in end use (including agriculture)	 1) 10,000 2) 500 3) 500 4) 1250	 1)20,000 2) 5000-10000 3) 3000 4) 1900
<u>Measures in the transport sector:</u> 1) Grants for purchasing hybrid, electric cars 2) action plan for promotion of public transport	 1) 2500 2) ……	 1) 13750 2) 50000

Horizontal and cross-sectoral measures: 1) Information and training for green public procurement 2) awareness of civil servants for energy savings in workplace 3) information campaigns for energy savings (general public) …	Not estimated	Not estimated
Total ESD energy savings expected:	**121,000**	**385,000**
Measures to implement Article 7 on availability of information: 1) analytical, informative billing from energy suppliers 2) creation of local energy agencies 3) energy certificate for buildings		
Measures to implement Article 5 on the public sector: 1) action plan for green public procurement (energy efficiency criterion) 2) governmental schemes for energy efficiency improvement in public buildings		

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