REPUBLIC OF CYPRUS

MINISTRY OF COMMERCE INDUSTRY AND TOURISM

ANALYSIS OF CYPRUS SUCCESS IN MEETING THE NATIONAL INDICATIVE TARGETS FOR PRODUCTION OF ELECTRICITY FROM RENEWABLE ENERGY SOURCES

OCTOBER 2009

1. INTRODUCTION

Article 3 of Directive **2001/77/EC** of the European Parliament and of the Council of 27th September 2001, on the promotion of electricity produced from renewable energy sources (RES) in the internal electricity market, requires all Member States, to publish a report stating their national targets and indicating their future consumption of electricity produced from renewable energy sources.

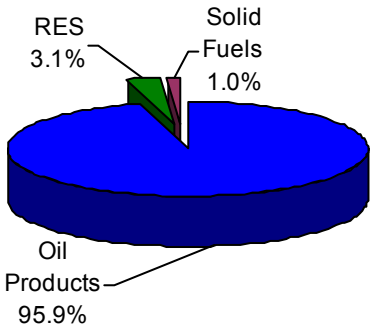
Member States published their first progress report on 27 October 2003 and thereafter every two years. The report includes an analysis of success in meeting the national indicative targets taking into account; in particular, the climatic factors that may affect the achievement of those targets and indicates to what extend the measures taken are consistent with the national climate change commitment. This is the final report required from the European Commission according to the Directive 2001/77/EC.

2. BACKGROUND

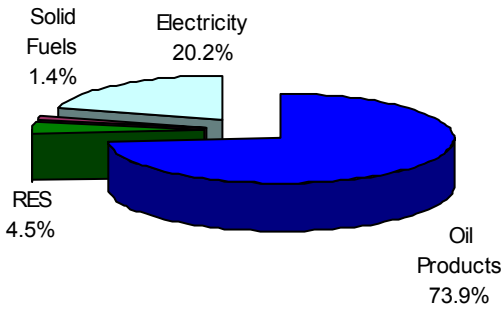
Cyprus has a small and isolated energy system without any gas, oil or electricity interconnections with other countries. Moreover, Cyprus has no indigenous sources of energy and at the moment, it is almost entirely dependent on imported energy. In year 2008, imports of oil products, coal and pet coke for home consumption, amounted to 1.4 billion Euros, representing approximately 19% of the country's domestic imports. Energy is therefore, of vital importance to the island's economy.

The energy consumption in Cyprus is predominantly oil-based and amounts to 95.9% of the total primary energy consumption. Other forms of commercial energy used are Solid Fuels (coal and pet coke) for the production of cement, amounting to 1.0% of the total primary energy consumption. The remaining 3.1% is the substantial contribution of renewable energy sources, in the country's energy consumption.
In addition the transport sector (both air and road) amounts to 55% of the total final energy consumption.

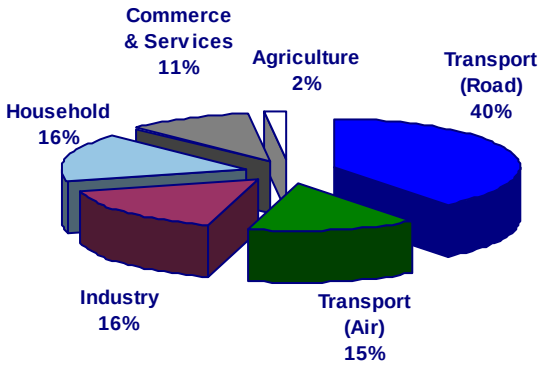
Primary Energy Consumption



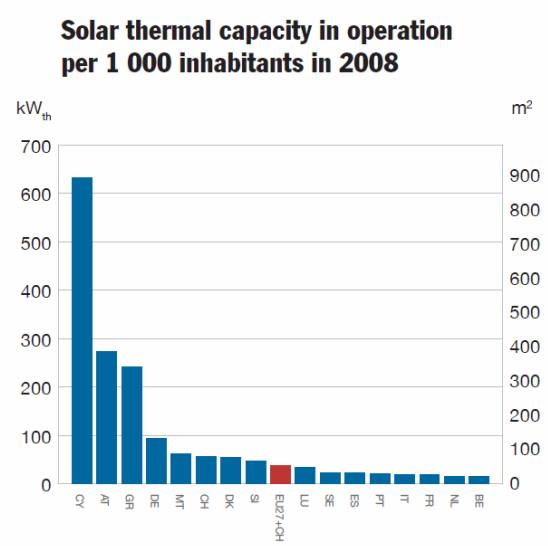
Final Energy Consumption



Final Energy Consumption by Sector – 2008



Solar Hot Water Systems Success Story



Cyprus is one of the leading countries in the use and construction of solar water heating systems. 92% of households are equipped with solar water heaters and 53% of hotels have installed large solar water heating systems. According to ESTIF (European Solar Industry Federation), Cyprus has the largest number of solar collector installations per capita.

3. RES POLICY

The Cyprus Government energy policy has the following main objectives:

- Compliance with the relevant European Directives
- Securing energy supply
- Meeting energy demand
- Energy conservation and promotion of renewable energy sources
- Minimization of the negative impact of energy consumption on the environment.

In order to promote the uptake of RES, the Cyprus government adopted a framework for support measures which included the first Action Plan, 2002-2010 and the first Support Scheme 2004-2010 for the Promotion of Renewable Energy Sources. Based on the experience gained during the first years of operation of the Action Plan, a New Action Plan for the period 2009-2013 and a new Support Scheme was approved by the Council of Ministers and set in operation as soon as is it was approved by DG Competition of European Union. The Action Plan also includes a financial mechanism to encourage the use of renewable energy sources and proposes strategies to eliminate administrative obstacles.

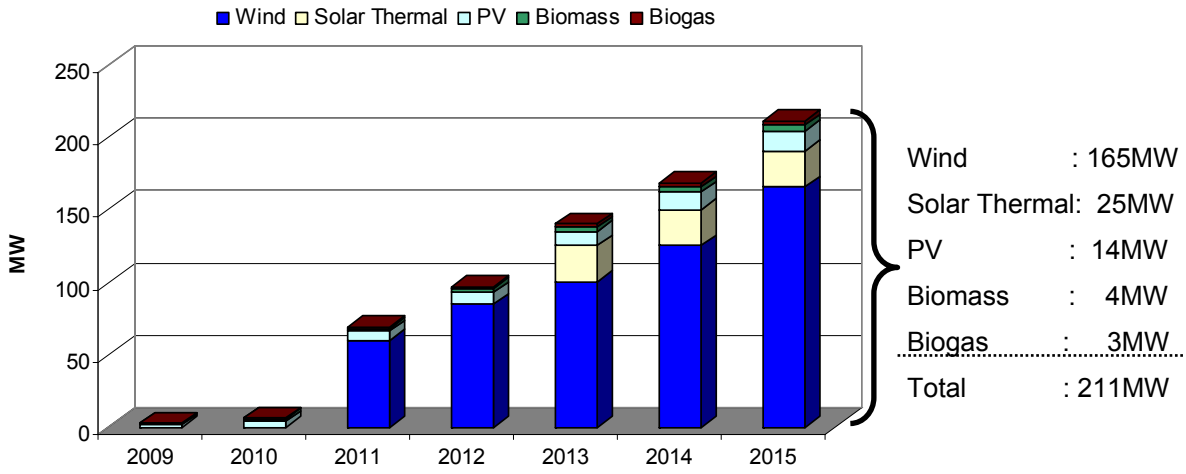
4. ACTION PLAN

The first Action Plan that was published covers the period 2002 – 2010. It provides the creation of a special financing mechanism to promote and encourage energy conservation and to increase the exploitation of renewable energy sources and proposes strategies to eliminate administrative obstacles. It also sets the following indicative targets:

- Increase the share of renewable energy sources to the country's energy balance to 3,8% by 2010.
- Increase of electricity generated from renewable energy sources, from the zero level (0,01%) in 2006, to 6% by 2010.

Due to the fact that in recent years the maximum power demand has increased by almost 6% per year and that the electricity from RES was less than 1% of the national electricity consumption by 2008, the government of Cyprus decided to formulate a new Action Plan and Support Scheme which includes large scale RES

projects for electricity generation for the period 2009-2013 with the possibility of implementing the projects by 2015. The expected contribution from each RES technology according to the new Action Plan and Support Scheme is shown below.



5. MEASURES FOR THE PROMOTION AND ENCOURAGEMENT OF RES

To enforce the provisions of Directive 2001/77/EC of the European Parliament, Cyprus has introduced relevant legislation for the implementation and monitoring of the announced energy policy.

The Law 33(I), voted in 2003 was amended in 2004, 2005, 2006 and 2007 so as to fully comply with the provisions of Directive 2001/77/EC. Its implementation is the responsibility of the Energy Service of the Ministry of Commerce, Industry and Tourism.

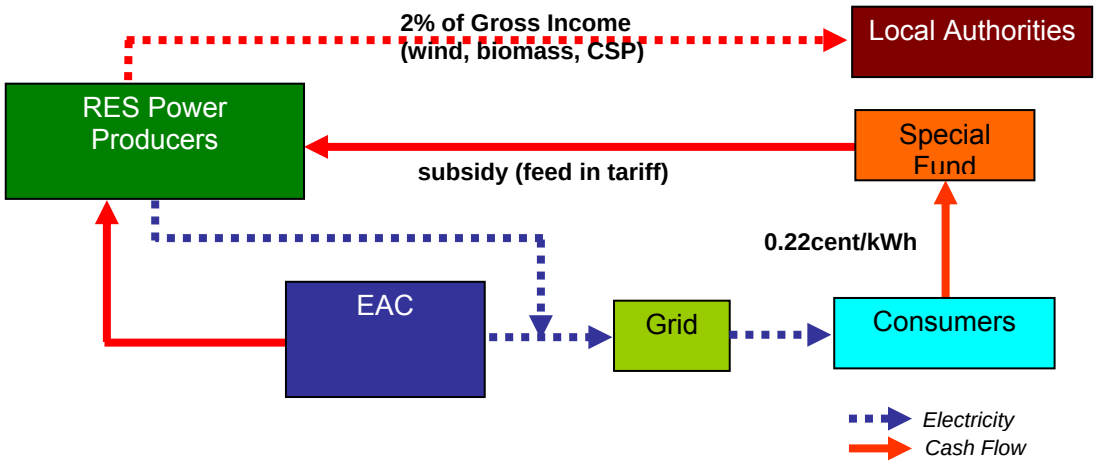
The Law 33(I)/2003, provides the creation of a Special Fund whose proceeds come from: (a) a levy of €0.0022 per KWh on all electricity consumers, (b) donations and (c) government grants. This Fund is used to finance programmes for the promotion of renewable energy sources and energy conservation, which are approved by the Council of Ministers. A Committee, headed by the Permanent Secretary of the Ministry of Commerce, Industry and Tourism, manages this fund.

5.1 *Arrangements for Financing*

A special law for the promotion of RES establishes the financing mechanism for programs in the field of renewable energy sources and energy conservation. The first Support Scheme covered the period 2004-2010 with revisions every year. Based on the experience gained from the first 5 years of operation of the Support Scheme a new Support Scheme was set in operation covering the period 2009-2013.

The financial flows of the scheme are presented in the figure below and are as following:

All electricity consumers pay a fixed RES levy to the RES Fund (currently 0,22eurocents per KWh consumed). Electricity Authority of Cyprus (EAC) is obliged by law to buy all electricity produced from RES and pay the **marginal cost** price which is calculated by the Cyprus Energy Regulatory Authority. The Feed-in tariffs are comprised of two parts, the EAC price and the RES Fund subsidy. EAC does all the administrative work (collection of the levy, distributes the 2% of the total earnings - where is applicable - to the local authorities, and pays the producers the subsidy on account of the RES Fund) with no extra cost to the RES Fund.



5.2 *Reducing Administrative Obstacles*

Cyprus government, with the cooperation of all competent authorities and bodies has established the legal framework and prepared the necessary infrastructure for the liberalization of the electricity market. The Electricity Market was liberalised by 65% on 1st January 2009. This percentage includes around 110.000 customers which are non-domestic consumers (Commercial, Industrial, Agricultural and Street Lighting).

These consumers are now free to select their Electricity Supplier. With effect from January 1st, 2014 all consumers of electrical energy will be able to select their Supplier according to what is in their best interest.

Following a decision by the Council of Ministers, the Cyprus government created the Cyprus Energy Regulatory Authority (CERA), an independent authority, responsible to secure the competition, in the energy market, and to protect the consumers. CERA also is responsible for the regulation of the electricity and gas market with exclusive rights to issue licenses for all activities relating to electricity and gas, to approve tariffs, to dissolve disputes, to protect consumers and to secure a reliable electricity system.

To speed up licensing procedures, for the following cases only an application for exemption from license is required from CERA (according to the provisions of the amended Law regarding the electricity market N.239 (I) / 2004):
(1) Production of electricity up to 1MW for internal consumption.
(2) Electricity from renewable energy up to 5 MW
(3) Supply of electricity up to 500 KW for each plant

Moreover, for the construction, production and supply of electricity from RES up to 20KW, neither an application nor an exception from license is required. In addition to this, information regarding the licensing procedures, the necessary application license forms and also lists with all the applications received, approved or rejected are published at CERA's website.

In order to expedite examination and facilitate authorization and licensing of large-scale RES installations a special Ministerial Committee was appointed by the Council of Ministers. The committee comprises of the Ministers of Interior, Commerce, Industry and Tourism, and Agriculture Natural Resources and Environment.

In parallel the one-stop-shop which comprises of representatives of all bodies involved in processing the applications for licensing RES plants is convened to overcome bottlenecks in the examination procedure. The one stop shop was established by Ministerial decision.

With the participation of investors the Cyprus Government prepared a legal

framework for defining an integrated Land Planning policy for installing wind parks, photovoltaic systems and other renewable energy plants. This framework has been adopted and published as Rule 2/2006 based on the urban and regional planning law (laws 90 of 1972, 56 of 1982, 7 of 1990, 28 of 1991, 91(I) of 1992, 55(I) of 1993, 72(I) of 1998, 59(I) of 1999, 142(I) of 1999, 241(I) of 2002 και 29(I) of 2005).

Additionally, in order to facilitate the investors, the department of Town Planning and Housing prepared a map that shows the prohibited regions for wind park installations.

Moreover, the Ministry of Interior also prepared a Ministerial Order 3/2008, which sets out the criteria by which the small photovoltaic installations on new or existing buildings don't require planning permission.

5.3 *Facilitating Grid Connection*

Moreover, after a decision from the Council of Ministers, the Cyprus government created the Transmission System Operator (TSO), as an independent authority, to facilitate and guaranty the access to the country's transmission and distribution system, with duty to operate, synchronize and control the transmission system with objective, non-discriminatory criteria. In addition, TSO is responsible to take actions for the proper maintenance and development of the electricity network and to arrange the trading of electricity on a daily basis.

5.4 *Other Measures for the Promotion of Res*

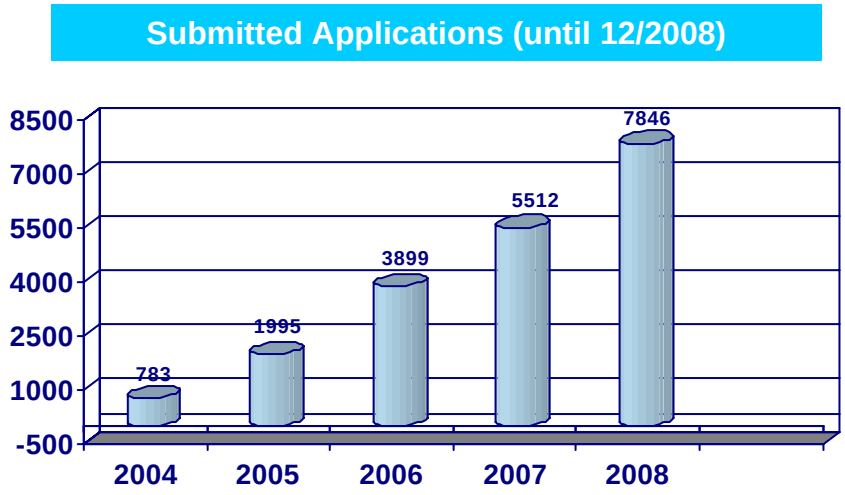
The Energy Service operates its own Applied Energy Centre (AEC), which in close collaboration with the Cyprus Institute of Energy (CIE), serves as the focal point for all efforts in the field of energy conservation and renewable energy sources. The laboratories of the Applied Energy Centre, equipped recently (2007) with more advanced technology and now AEC can perform tests on the efficiency of solar panels and issue certificates of approval based on the European standards.

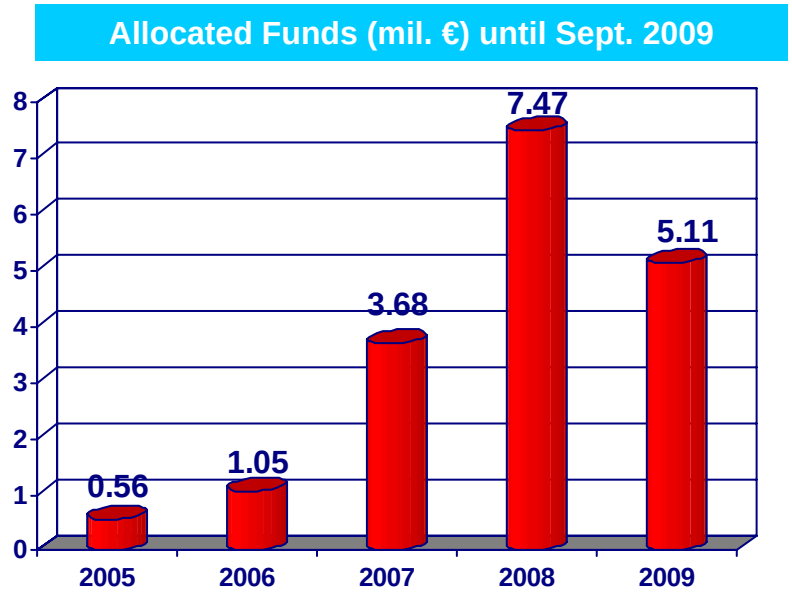
The Cyprus Institute of Energy was established in 2000 by the Minister of Commerce Industry and Tourism and its primary objectives are to promote the utilization of Renewable Energy Sources and the saving/conservation of energy. It has the flexibility to cooperate with the private sector. Both the AEC and the CIE played a

significant role in the implementation of the national support scheme for the promotion of RES.

6. GRANT SCHEMES

The review of the first Support Scheme that was made in 2008, showed that there was a growing investor interest in renewable energy installations for the period 2004-2008. The charts below shows the applications received and the amounts granted per year.





In 2009, Cyprus has introduced a New Support Scheme. This New Support Scheme (2009-2013) provides more generous incentives than the previous Scheme and sets more ambitious targets for the increase of the utilisation/contribution of the country's main renewable energy sources, to the total electricity consumption and overall to the total energy balance.

The Support Schemes cover investments regarding utilization of RES for electricity production, heating/cooling, cogeneration and investments under three different schemes. The beneficiaries of the first scheme are individuals and organizations not engaged in economic activities. The second scheme addressed to individuals and organizations engaged in economic activities, while the third scheme encourages electricity production by large wind, solar thermal and photovoltaic systems and the utilization of biomass.

In the third scheme, which was introduced in July 2009, the maximum capacity allowed for subsidy of PV systems increased from 20KW to 150KW and a new category was introduced that of solar thermal plants.

The percentage of subsidy and the funding per category as well as the form of public aid per category are shown in detail in Table 1.

Table 1.

Resource	Beneficiaries	Technology	% Investment grands	Feed-in tariff*	Duration [years that an investor is entitled to support]
PV	Individuals and Organizations, Engaged in Economic Activities	Capacity up to 20 KW, connected to the network	40% de minimis. Maximum amount €48000 per unit	0.205 €/KWh	15
			0%	0.36 €/KWh	20
		Capacity 21-150 KW connected to the network	0%	0.34 €/KWh	20
		Capacity up to 20 KW, NOT connected to the network	15-35% of eligible costs (according to the size of the enterprise). Maximum amount €50000 per unit or 40% de minimis Maximum amount €50000 per unit	0	-----
	Individuals and Organizations, NOT Engaged in Economic Activities	Capacity up to 20 KW, connected to the network	55% of eligible costs. Maximum amount €65000	0.225 €/KWh	15
			0%	0.383 €/KWh	15
		Capacity up to 20 KW, NOT connected to the network	55% of eligible costs. Maximum amount €65000	0	------

CSP	Individuals and Organizations, Engaged in Economic Activities	Capacity up to 25 MW, connected to the network	0%	0.260 €/KWh	20
Wind	Individuals and Organizations, Engaged in Economic Activities	Wind farms**	0%	0.166 €/KWh	20
		Wind turbines <30kW	15-35% of eligible costs (according to the size of the enterprise). Maximum amount €45000 per unit or 40% de minimis Maximum amount €45000 per unit	EAC subsidy only when connected to the network	------
Wind	Individuals and Organizations, Engaged in Economic Activities	Windmills for water pumping	15-35% of eligible costs (according to the size of the enterprise). Maximum amount €20000 per unit or 40% de minimis Maximum amount €20000 per unit	0	------
	Individuals and Organizations, NOT Engaged in Economic Activities	Wind turbines <30kW	55% of eligible costs. Maximum amount €51500 per unit	EAC subsidy only	-------
Biomass/biogas	Charity institutions, municipalities, and other non-profit organizations	Central systems for heating and cooling	55% of eligible costs. Maximum amount €19000 per unit	0	------
	Individuals and Organizations, Engaged in Economic Activities	Co-generation of heat and electricity using biomass.	15-35% of eligible costs (according to the size of the enterprise). Maximum amount €680000 per unit or 40% de minimis Maximum amount €200000 per unit	0	--------
		Electricity production from Biomass	0%	Up to 0.135 €/KWh according to the type and size of the installation	20
		Electricity production from biogas	0%	Up to 0.1145€/KWh according to the type and size of the installation	20
Desalination with RES	Individuals and Organizations, Engaged in	-	15-35% of eligible costs (according to the size of the	-	-

	Economic Activities		enterprise). Maximum amount €175000 per unit or 40% de minimis Maximum amount €200000 per unit		
Geothermal heat-pumps for space heating/cooling	Individuals and Organizations, Engaged in Economic Activities		15-35% of eligible costs (according to the size of the enterprise). Maximum amount €850000 or 40% de minimis Maximum amount €200000 per unit	-	-

7. RES POTENTIAL AND OBSTACLES

The main renewable sources for production of **electricity** in the republic of Cyprus, are the following:

1 Wind

2 Solar

3 Biomass

7.1 Wind Potential

- Off shore

Studies showed that the cost of the installation of the wind turbines would be very high, due to the high depth of the sea at relatively short distance from the shore (more that 30m depth at a distance of 300m from the shore). So that the elevated wind resort, which exists at those areas, will not be enough to compensate with the increase in revenue so that these kinds of projects are economically feasible.

- On shore

In Cyprus there are some areas with mean wind velocity of 5-6 m/s and few areas with 6,5-7m/sec. A technical study, carried out by the National Technical University of Athens on behalf of the Transmission System Operator, places a framework regarding the maximum wind penetration than can be integrated in the Cyprus electricity system

- 31% penetration with existing conditions and regulatory framework or

- 42% penetration if regulatory framework change and an operation limit established

The estimated maximum exploitable potential with the existing conditions and framework is around 300MW.

The wind in Cyprus is affected by the following factors:

- From anticyclones moved from west to east, from the Siberian anticyclone during the winter and from the low pressure created in the area of India and expanded until the area of Cyprus during the summer.
- See breezes generated in coastal areas because of the different heat capacities of see and land, which give rise to different rates of heating and cooling.
- Mountain valley winds, created when cool mountain air warms up in the morning and begins to rise while at the same time cool air from the valley moves to replace it. During the night, the flow reverses.

Cyprus Energy Regulatory Authority has accepted applications for the installation of wind parks of more than 1000MW. Until now 480MW have been approved but only one Wind Park of 82MW at Oreites district has obtained all the licenses required to receive the subsidy. The owners of the park have already signed a subsidy agreement with the Committee of the Special Fund and the park is expected to be fully operational by the end of 2010. The wind park contribution to the electricity production of the country will be 2-3%.

Applications submitted under the grant scheme for the promotion of wind energy

Category	Applications Submitted	Approved	Installed	Existing	Total installed capacity end of 2008
B1.1 Large commercial Systems	82MW*	82MW	None	None	None
B1.2 Small systems of up to 30 KW capacity	24KW	24KW	24KW	203KW	227KW

* Currently, there is only one application with a capacity of 82MW, because the beneficiaries, in order to apply for a subsidy they must first obtain all the licenses required.

This delay for the implementation of investments in wind energy was primarily due to:

- Limited potential of wind energy
- Land planning problems (Cyprus, developed tourism country)
- Oppositions of local communities – Problems with acceptance of people –Conflict with real estate (touristic) development
- Limitation on account of system stability

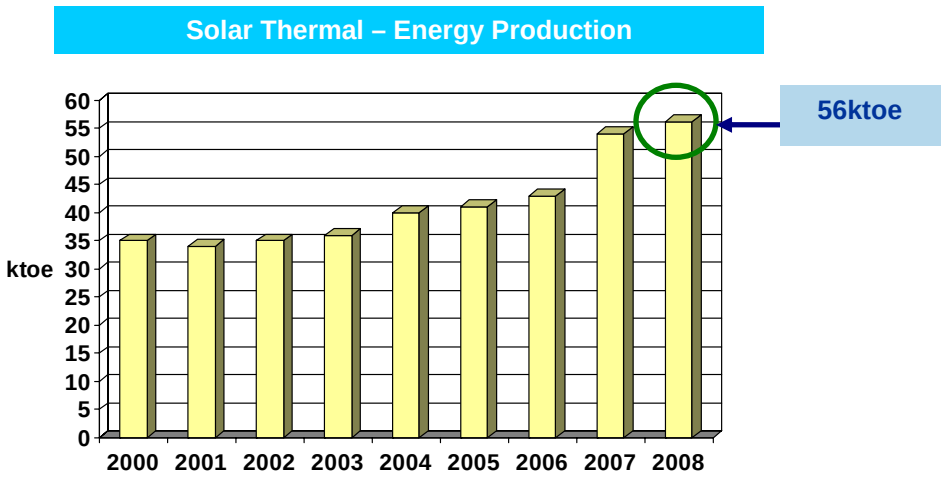
7.2 Solar Potential

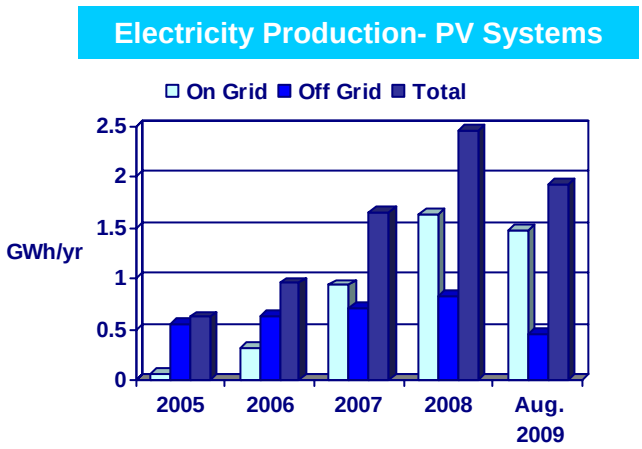
The Meteorological service of Cyprus has classified the island in 14 zones from a climatic point of view. However, from the considerations, affecting the use of solar energy, the classification can broadened to 3 zones – coastal, central plains and mountains.

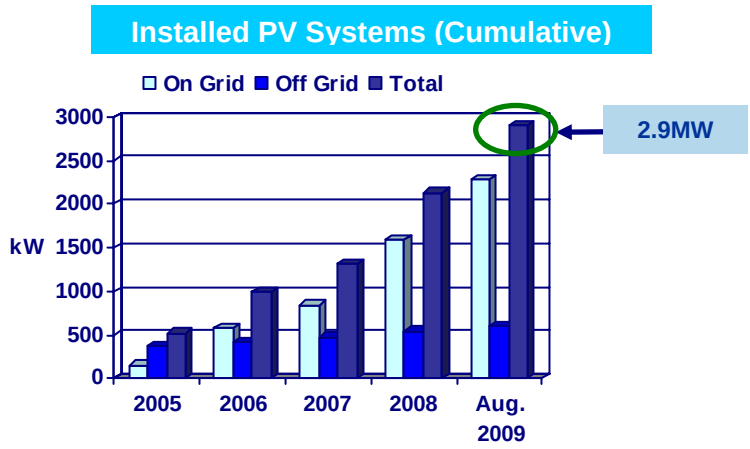
The collection of sunshine duration data at a number of meteorological stations started in 1959. Statistical analysis shows that all parts of Cyprus enjoy a sunny climate (75% sunshine for more than 300days). The mean daily sunshine, i.e. the time interval from sunrise to sunset, for Cyprus varies from 9.8 hours in December to 14.5 hours in June.

Cyprus holds the unofficial "World Record" in solar water heating with almost every household having a system installed (more that 750,000m^2 of solar collectors installed). Moreover, per capita, Cyprus ranks 6th highest in the EU with 2Wp per head of population and with more than 2.9MW of PV systems installed until the end of September 2009.

The energy from solar thermal and PV systems as well as the installed capacity is given below







The major drawbacks of this technology are the very high cost of initial investment, the low efficiency and the need for very high subsidies in order to be economically feasible.

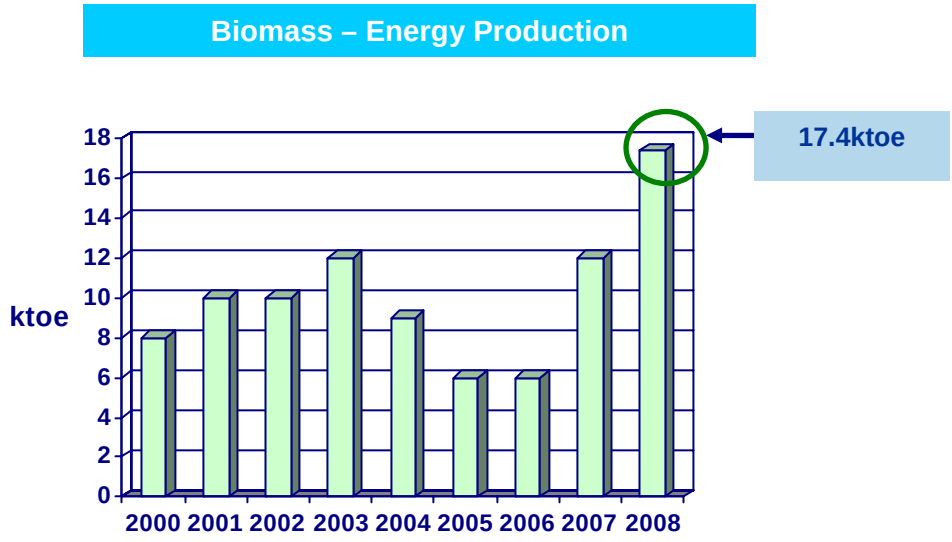
7.3 Biomass Potential

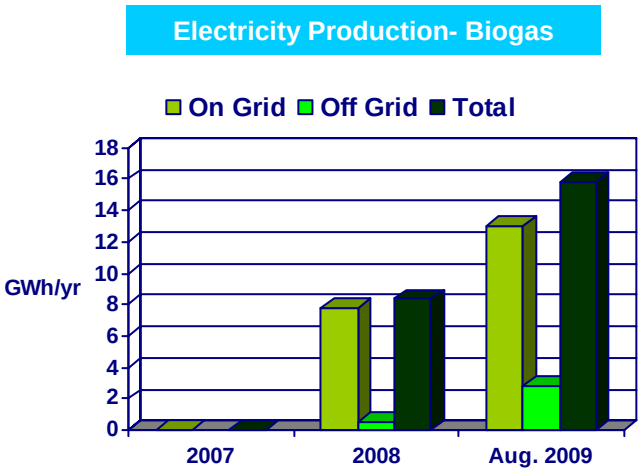
Biomass resources in Cyprus include a wide range of biomass residues, agricultural and forest, municipal solid waste, sewage water sludge and a considerable potential of energy crops, which include traditional herbaceous corps, or short rotation woody crops. A moderate energy potential exists from energy crops that grown on deforested or otherwise degraded lands.

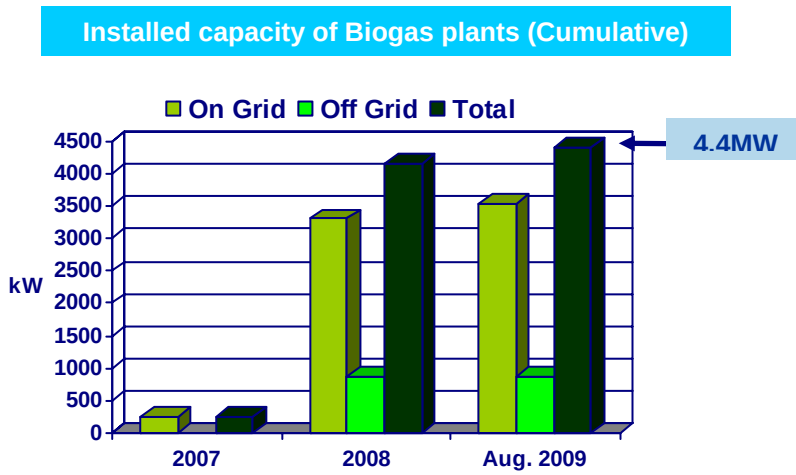
Since the interest for investment associated with the exploitation of biomass for electricity production during the three first years of operation of the support scheme was low, a new support scheme was developed in 2007. This new version of the plan includes the option of an increased subsidy on the produced kWh from biomass and biogas. These modifications made such investments more attractive to investors and as a result, the number of applications increased considerably.

Currently eight installations are producing electricity from the anaerobic digestion of animal waste. There capacity is 3,55MW and there production for the 2009 will be around 25 - 26 GWh. It is estimated that by the year 2010 the electricity production from biomass will be about 1,4% of the total electricity consumption in the same year. In addition, another 950kW not connected to the grid, are already installed using municipal sewage and producing electricity.

The energy from biomass plants as well as the installed capacity is given below.







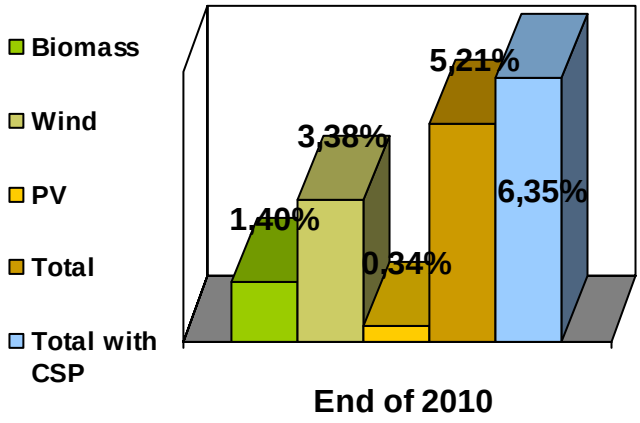
8. EXPECTED RESULTS PER CATEGORY

The following table shows the expected installed capacity of each RES technology by the end of 2010. Until 2008 the numbers are showing the actual installed capacity.

	2005	2006	2007	2008	2009	End 2010	Total KW
PV systems	155	423	266	746	1089	6951	9629
Biomass	-	-	250	3060	245	6000	9555
Wind	-	-	-	-	-	124000	124000
CSP	-	-	-	-	-	25*	

*CSP is expected to be installed at the end of 2010 and the system will generate in 2011.

The following figure shows the estimation for the contribution of electricity production from each RES



9. FURTHER PROJECTS - STUDIES / Actions

9.1 *PV systems in public buildings*

Additionally with all the previous measures, the Energy Service is proceeding with the installation (during the next 8 months) of 65 photovoltaic systems in schools, governmental buildings and military camps of 1,1 MW capacity. This project will be co-funded by the European Structural Funds and the Government of Cyprus. The total cost is 4,5 million euros.

9.2 *Solar Heating and Cooling Systems in Governmental Buildings*

A second project that the Energy Service is planning to implement within the next year, also co funded by the European Structural Funds, is the installation of a solar heating and cooling system in a governmental building with a total capacity of 1MW.

9.3 *Public Awareness*

The Energy Service of the Ministry of Commerce, Industry and Tourism in order to inform the public about the renewable energy sources organizes exhibitions, public hearings and RES info days. Moreover, Cyprus Government established education programs to educate children about RES technologies, the benefits of RES etc. Part of this program is also the distribution of 50 educational photovoltaic modules to schools.

10. Transmission and Distribution Rules

The Transmission and Distribution Rules (Grid Code) were issued by the TSO and approved by the Regulator (CERA) under the national Law on Regulating the Electricity Market (harmonizing law with Directive 2003/54/EC). These rules set out the operating procedures and principles governing the TSO's relationship with all the Users of the Transmission and Distribution System and determine the exact procedures to be followed for the operation of the Cyprus electricity system through which the control of the system is achieved on a long, medium and short term basis within conditions of system security and reliability and with the minimum possible cost incurred.

In June 2006, the Transmission and Distribution Rules were amended and new provisions were included to provide for the implementation of articles 5 and 7 of Directive 2001/77/EC. A new chapter, T16, was included in the new edition of the Rules (Issue 2.0.0, June 2006) which main objectives are to describe, the Connection to the Electrical Network Charging Methodology and Use of System Charging Methodology for Power Stations using Renewable Energy Sources, the Guarantee of Origin mechanism, to set certain provisions for favorable treatment during Generation Dispatching for Power Stations using Renewable Energy Sources and to specify the minimum technical requirements and terms to be complied with by Wind Parks requesting connection to the System.

The Transmission and Distribution Rules are also available in english and are published on the TSO's website (www.dsm.org.cy) both in greek and english.

10.1 Grid Issues (article 5 of the Directive)

Article T16.6 of the Transmission and Distribution Rules includes provisions for implementation of article 5 of the Directive. These provisions are also included in the primary (amending) law for RES encouragement of 2006.

The Transmission System Operator issued a competition for the implementation of a system to guarantee the origin of renewable energy, according to Directives 2001/77/EC, 2004/8/EC, N. 33(I)/2003 and N. 174(I)/2006 and issue Guaranties of Origin (GO Certificates) in accordance to the above Laws and Directives. On June 2009 Exergia Energy & Environmental Consultants were awarded the consultancy services. The Regulatory Framework of GO Certificates & Preparation of Procedures and Templates for GO Certificates are completed and the Development of GO Electronic Register

Software is expected to be completed in November 2009.

10.2 Grid Issues (article 7 of the Directive)

Chapter T16 of Issue 2.0.0 of the Transmission and Distribution Rules includes provisions for the implementation of the above article of the Directive. These provisions include the connection and use of system charging principles for RES-e producers, in accordance with clauses 1 and 3 of article 7 of the Directive. Particularly:

- RES-e producers are charged based on the shallow connection methodology. Any additional payments that may be required beyond the point of connection to the transmission system are not charged to the producer but are included in the ten-year development plan of the transmission system (4.0). The cost of implementing the program is recovered through charges using the system operator.
- RES-e producers bear only 50% of the connection costs. The remaining 50% is born by the Transmission System Owner. This provision was effected in accordance with clause 3 of article 7 of the Directive.
- RES-e producers are not charged with Transmission or Distribution Use of System charges, or for ancillary services. This provision was partly effected in accordance with clause 6 of article 7 of the Directive.

RES-e producers also have a priority for connection to the system and energy dispatch, in accordance with clause 1 of article 7 of the Directive (this is affected through article T16.5 of the Transmission and Distribution Rules).

For compliance with clauses 2, 4 and 5 of article 7 of the Directive, the TSO has published on his website the unit prices for High (132kV, 66kV) and Medium (22kV, 11 kV) Voltage equipment. In addition, a typical document of the Connection Agreement for Wind Farm connections to the network is also published on the TSO's website. The Connection Agreement sets out, among other things, the obligations of each Party (the TSO and the Producer) with respect to the execution of the connection works and also includes the cost of connecting the Wind Farm to the network. At present the practice applied is a 50% reduction on the capital expense of the connection with the remaining 50% being born by the Transmission System Owner (TO) that is the Electricity Authority of Cyprus (EAC). The Producer though has to submit to the TSO a bank guarantee for

the remaining 50% (the amounts of the guarantee are withdrawn gradually and after a five year period of operation of the Wind Farm the guarantee is completely withdrawn).

10.3 Ten Year Transmission Development Plan

According to the primary legislation regarding the liberalization of the electricity market in Cyprus (Laws Regulating the Electricity Market of 2003 to 2006), the TSO prepares together with the Transmission System Owner (TO) the Ten Year Transmission Development Plan, which then has to be approved by CERA. This plan includes all the transmission system projects (e.g. transmission substations and high voltage lines) that are planned for the next decade with an estimated time schedule and budget. The Ten Year Transmission Development Plan is reviewed yearly by the TSO and the TO and all revisions are approved by CERA.

Different scenarios for Wind Farm connections to the Transmission System are carried out with the use of load-flow software tools. In particular, new transmission lines are included in the latest review of the Ten Year Development Plan which are planned to interconnect Wind Farms that are anticipated to be connected in the area within the period under investigation. In the Ten Year Transmission Development Plan for the period 2007-2016 the TSO has included the construction of several lines for such purposes namely "Vasilikos Cement Works - Kophinou 132KV" line and "Kophinou-Anglisides-Alambra 132KV" line.

11. SUMMARY

Main actions taken since the submition of the previous report

Based on the findings from the implementation of the first Action Plan which covered the period 2002-2010 and in an effort to expedite investments in RES utilization and energy conservation the following actions were taken:

Wind energy

The feed in tariff was revised in 2009; due to the fact that none of the 6 applications which were approved by the Committee of the Special Fund, of a total capacity of 231MW, was materialized. The main reason was the change in the economics of such projects based on the fact that the price of wind turbines was increased since the

formulation of the first Support Scheme that covered the period 2004-2008, as well as the fact that the actual wind measurements at hub hide were lower than the estimated wind potential.
Thus the Support Scheme was revised and the total price per kWh produced and supplied to the grid was increased from 9,4 to 16,6 eurocent. In addition the period of the subsidy was increased from 15 to 20 years.

Although this revised Support Scheme was approved in July 2009, already one wind park was fully licensed and approved for subsidization. The construction work of the wind park has already begun and the park is estimated to be fully operated by the end of 2010. The total capacity of the wind park is 82MW and it will produce 2-3% of the electricity from RES by 2010.

It is also estimated that by early next year a number of wind parks will be approved with a total capacity more than 165MW which is the target of installed wind parks by 2013.

Solar energy

In an effort to encourage the installation of medium sized up to 20kW photovoltaic systems a new support scheme with improved terms was formulated and the total price per kWh produced and supplied to the grid was increased from 20,5 to 22,5 eurocent for individuals and non-profit organizations. The subsidization period is 15 years. In addition, for natural or legal entity as well as public service entities that are engaged in economic activity, the total price per kWh produced from photovoltaic systems up to 20kW and supplied to the grid was increased from 33,5 to 36 eurocents, while the period for subsidization was also increased from 15 to 20 years. Moreover the maximum capacity allowed for subsidy of PV systems was increased from 20kW to 150kW and a new category was introduced, that of solar thermal plants.

To speed up licensing procedures of photovoltaic systems, the Ministry of Interior prepared a Ministerial Order which set out the criteria by which the photovoltaic installations on new or existing buildings don’t require planning permit.

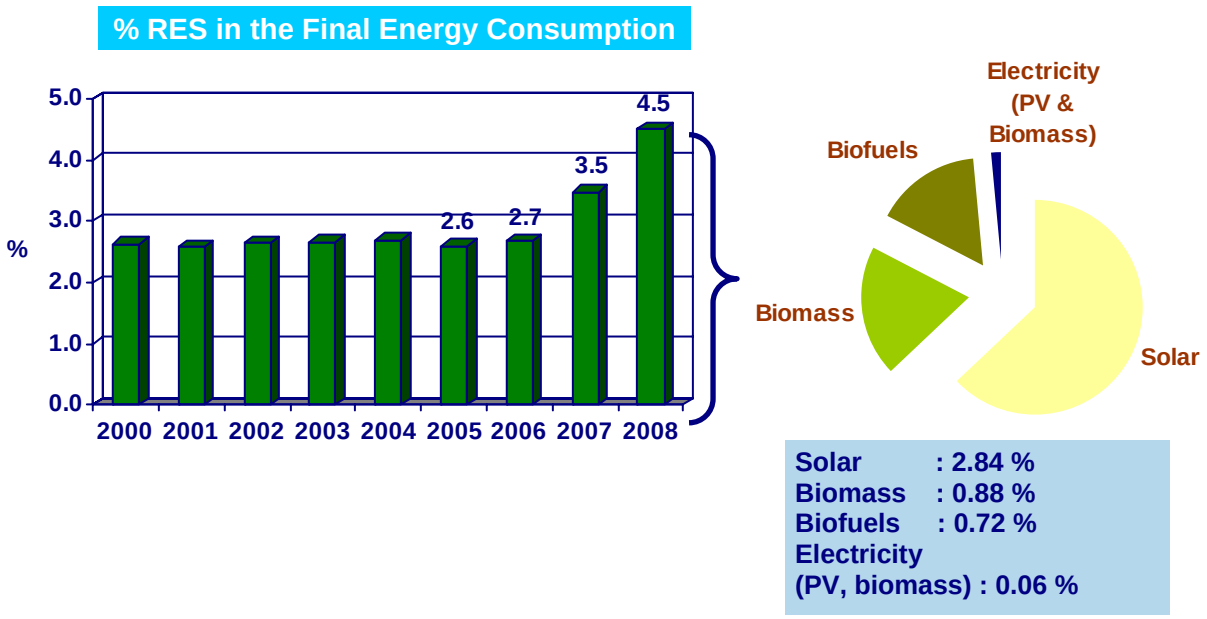
Additionally, from 1/1/2010 a mandatory installation of solar heater for hot water production for all new houses will come in force.

Biomass energy

With the approval of the support scheme to promote electricity from biomass utilization in 2007, the number of applications increased considerably. Based on the experience gained from this 2 years of operation this support scheme was included in the new support scheme for the promotion of electricity production from large scale RES plants 2009-2013. In addition, the total price per kWh produced from biomass plants and supplied to the grid was increased from 12,13 to 13,5 eurocents, while the period for subsidization was also increased from 15 to 20 years.

Despite that Cyprus has a tradition in using renewable energy, until 2005, the contribution of RES was low. This began to change with the introduction of the first comprehensive Support Scheme in 2006, for investments in energy conservation and promotion of the use of RES. In addition to this, in 2007 feed in tariffs for RES were set and the public interest for RES investment increased dramatically. The Cyprus Government is confident that the new Support Scheme and Action Plan which will cover the period 2009-2013 will create a second mass extended utilisation of renewable source of energy in the island.

The contribution of Renewable Energy Sources (RES) was 4,5% of the final energy consumption, in 2008. The figure below shows the % RES contribution in the final energy consumption from 2000 until 2008 as well as the share of the different RES technologies for 2008.



12. CONCLUSION

Today Cyprus is almost entirely dependent on imports of fossil fuels. It is therefore crucial importance for Cyprus to utilize all the available RES potential on the island and achieve high levels of energy savings in order to comply with the relevant European directives, continue to meet energy demand, reduce the impact on the environment from energy consumption and most importantly reduce the dependence on imported energy.

Using the experience and knowledge gained during the previous years, and taking into account the suggestions from the investors and experts in the field that associated with the Energy Service, the Cyprus Government established a more attractive investment framework which Includes large-scale RES investments for electricity generation, managed to reduce administrative obstacles and to raise the public awareness.

The Cyprus Government is confident that the policy of the Republic of Cyprus for the promotion of renewable energy includes all the necessary measures and incentives, as shown and analyzed in this last report, and will certainly leads us towards achieving the target of 6% RES electricity contribution by 2010.

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