



**EXPERT EVALUATION NETWORK
DELIVERING POLICY ANALYSIS ON THE
PERFORMANCE OF COHESION POLICY 2007–2013
YEAR 1 – 2011**

**TASK 1: POLICY PAPER ON RENEWABLE ENERGY AND
ENERGY EFFICIENCY OF RESIDENTIAL HOUSING**

CYPRUS

VERSION: FINAL

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**A report to the European Commission
Directorate–General Regional Policy**

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LIST OF ABBREVIATIONS

- CERA – Cyprus Energy Regulatory Authority
- CFL – Compact Fluorescent Lamps
- EAC – Electricity Authority of Cyprus
- EEN – Expert Evaluation Network
- ERDF – European Regional Development Fund
- ESF – European Social Fund
- FIT – Feed-in Tariff
- MCIT – Ministry of Commerce, Industry and Tourism
- MIT – Massachusetts Institute of Technology
- OP – Operational Programme
- PV – Photovoltaic
- RES – Renewable Energy Sources

1. EXECUTIVE SUMMARY

Energy consumption has increased rapidly in Cyprus in parallel with economic growth, while production depends highly on imported processed fossil fuels. Renewable Energy Sources (RES) and residential energy efficiency are recent priorities with amplified emphasis, partly thanks to the transposition of the EU Directives, the National Action Plan and a redesign of governance. The recent discovery of natural gas reserves may exercise a significant influence on the energy policy mix in the future.

RES and residential housing policies are implemented under a new and evolving regulatory framework as well as concrete measures and financial incentives in the form of grants, investments subsidies and feed-in tariffs (FITs). In order to attract more investors, FITs were set at higher levels than in other EU countries. The thrust of the financial resources for RES and residential energy efficiency comes from the national budget, mainly a Special Fund established in 2003. The revenue of this fund is ensured from a tariff of EUR 0.0022 per consumed kWh from all electricity consumer categories.

The *energy efficiency policies* are formulated in the 2007 National Action Plan for Energy Efficiency. The target for the reduction of the energy consumption is set at 10% by 2016 (or 1.1% annually) expected to be achieved through maintenance and inspection of boilers and air conditioning systems as well as Renewable Energy Sources for individuals and organisations.

Although no dramatic shifts in the direction of the long-term policy have occurred since 2007, there were many developments in pursuit of the existing policy priorities. However, the crisis led to a reduction of support budgets in 2010, bringing to an end the rising trend of the past. In the *case of RES*, support is foreseen for large wind, small and large photovoltaic, solar thermal systems as well as biomass. These schemes are subsidised at a price higher than the kWh sale price. The existing support schemes were amended and expanded for the period 2009–2013.

In the current period (2007–2013), the country is eligible for support under both the Convergence objective (Cohesion Fund) and the Regional Competitiveness and Employment Objective (“phasing-in” support). Under the Competitiveness Objective the whole country is eligible. Financial provisions for RES are limited and correspond to only 1.2% of the overall European funding for the relevant national Operational Programme (OP). They concern exclusively projects for the use of solar energy. ERDF funded projects include provisions for the establishment of photovoltaic systems and solar heating and cooling systems in public buildings.

While RES and energy efficiency are increasingly important for Cyprus the ERDF and Cohesion Fund funding are limited and they are earmarked for other national priorities. There is however a controversy between the policy makers designing the overall EU supported priorities and the energy policy makers, who believe that more EU regional support should be channelled to RES and energy efficiency in general. Their argument is that there is a momentum for residential energy saving at the moment, which risks running out of steam if support schemes are discontinued due to lack of adequate national funding. Their assessment is that demand is much higher than supply at the moment and more could be done if more financial resources were available. Administrative inefficiencies and the small size of the market are additional barriers hampering faster progress.

2. NATIONAL POLICY

The economy of Cyprus has grown rapidly and this has been accompanied by increasing energy use in the last few decades. The island depends heavily on energy imports (92%¹ in 2008), which constitute a heavy burden for its balance of payments (14% of the value of all country imports) and divert financial resources from other development goals; hence the government and civil society place increasing importance on RES. Due to its climate conditions, Cyprus has a potential for wider exploitation of renewable energy sources (RES), in particular solar ones. Cyprus has been rated the first among EU countries in the installation of solar collectors in relation to its population.² The recent discovery of significant natural gas reserves, which led to a Cyprus–Israel accord of co–drilling and co–exploitation, will inevitably affect policies markedly in the future.

Energy policy is designed by the Energy Service of the Ministry of Commerce, Industry and Tourism (MCIT) in consultation with organisations involved in its implementation like the Electricity Authority of Cyprus, the Cyprus Energy Regulatory Authority and the Cyprus Institute of Energy. Major decisions are approved by the Council of Ministers.

The development and exploitation of RES and energy efficiency have risen in policy importance during the last decade and they now constitute one of the main objectives of the state energy policy. The need to fulfil the requirements of the European directives and quantitative targets has played an important role in these developments. RES and energy saving are expected to diminish dependence on imports. In its attempt to reduce the high and growing demand for energy, the government is paying particular attention to the promotion of energy efficiency policies, including in housing. Resources for the promotion of RES and energy saving (including the grant schemes described below) come from the *Special Fund* established in 2003, which is financed from a tariff of EUR 0.0022 per kWh on all electricity consumers.

The **energy efficiency** policies are formulated in the 2007 National Action Plan for Energy Efficiency. The target for the reduction of the energy consumption is set at 10% by 2016 (or 1.1% annually). For the achievement of this target the Action Plan clearly distinguishes the measures to be used (legislative and financial) which are targeted on residential housing and sectors such as industry and transport. It also includes a set of horizontal education and information measures.

In residential housing policies, emphasis is given to legislative measures including maintenance and inspection of boilers and air conditioning systems. Before accession to the

¹ Source: <http://www.cie.org.cy/sxoliko.html#menu4-3>

² Planning Bureau, 2007c

EU, Cyprus did not have mandatory construction regulations for energy efficiency and the need for specific legislation is reflected in the numerous normative measures adopted over recent years (such as minimum energy efficiency requirements for some categories of buildings applied in December 2007 and the mandatory issue of Energy Efficiency Certificates in January 2010). Current legislation also envisages free-of-charge inspection of central heating systems with boilers by Energy Service officers to ensure their proper functioning by taking, where necessary, remedial measures to reduce energy consumption. Financial measures to stimulate improvements in energy efficiency include Grant Schemes for the promotion of Energy Conservation³ and Renewable Energy Sources introduced in February 2004 by the Energy Service and funded by the Special Fund.⁴ There is special provision (in the form of grants and subsidies) for thermal insulation of existing residential buildings. By the end of 2009, more than 26,000 applications had been made⁵ and in total, EUR 29.8 million had been paid out under the energy saving category of the Scheme.⁶ As part of the campaign for energy saving in lighting, compact fluorescent lamps (CFL) are distributed free of charge to households and non-profit organisations (6 lamps each). In the period 2007–2010, about 1.8 million CFL lamps were distributed at a total value of EUR 2.3 million. Both direct (grants and subsidies provided by the schemes) and indirect (regulatory) measures are important in Cyprus. The regulatory effect has not been quantified in any dedicated study, hence it is difficult to judge whether one kind of support prevail for another.

The main features of public support to the **RES** are encompassed in the National Renewable Energy Action Plan based on the 2009/28/EC Directive. The regulatory interventions include the adoption of the “one-stop shop” principle, the establishment of the Cyprus Energy Regulatory Authority (CERA) and the Cyprus Transmission System Operator.

Financial interventions include grants, different subsidy rates for large production facilities and feed-in tariffs (FiTs). Support Grant Schemes provide support for investment in the adoption of renewable energy. They include continuation of existing Grant Schemes for the promotion of Energy Conservation and Renewable Energy Sources as well as a new grant scheme for large scale RES developments in electricity generation launched in 2009. In the case of the former, 20,559 applications were submitted during the five-year period 2004–

³ The term “energy conservation” is used as a synonym to energy saving, although strictly speaking it is not. When it is an official national document the term is kept as is, such as in this case

<http://www.cyprusnordiccountries.org/announcements/EnergySeminar/PresentationEnergyService.pdf>

⁴ In the category of energy conservation, the sector of residential housing is responsible for the largest share of investments.

⁵ Source: <http://www.cie.org.cy/sxoliko.html#menu4-9-2>

⁶ Source: [S. Kassinis, 2010](#)

2009 for support of investment in RES and EUR 20.6 million was paid to beneficiaries.⁷ Although the support scheme applies to a range of RES types,⁸ particular emphasis is given to solar and wind power.

Other financial incentives include subsidised tariffs for electricity (co-) generated from RES and for the connection of RES plants to the national grid, both targeted at reducing RES investment cost and making investment profitable. Feed-in tariffs (FITs) oblige the Electricity Authority of Cyprus (EAC) to buy the electricity produced by independent producers at a fixed price based on its marginal production cost.⁹ No fiscal incentives, quota systems or tax exemptions exist in the country.¹⁰ Although there is no official estimation, neither any dedicated study quantifying the regulatory effect, it appears that direct measures (grants and subsidies) prevail over indirect ones. The introduction of the new financial scheme for RES, with a EUR 500 million¹¹ budget suggests that it is unlikely that indirect measures will trigger a higher impact.

Although no dramatic shifts in the direction of long-term policy have occurred since 2007, there were many developments in pursuit of existing policy priorities. These took the form mainly of amendments in legislation and the new legislation¹² for the transposition of the EU directives and the establishment of the appropriate framework for the achievement of the national targets. The new Action Plan for Energy Efficiency, enriched by new details and including several new measures, is planned to be submitted to the EC by June 2011.

A new financial scheme¹³ funded by the Special Fund was launched in 2009 targeting large electricity production units with a total budget estimated at EUR 500 million (or about EUR 25 million a year)¹⁴. It includes support for large wind, small and large photovoltaic, solar thermal systems as well as biomass. Unlike the existing support scheme, this scheme provides support only in the form of subsidised tariffs (at different rates per category). The existing support schemes were amended and expanded for the period 2009–2013. The total annual amounts paid for grants under the support schemes for RES and energy saving

⁷ Source: [S. Kassinis, 2010](#)

⁸ They include: wind, solar, biomass, photovoltaic and geothermal systems (for individuals and organisations that do not exercise economic activity) and those plus desalination from RES and small hydroelectric and biogas systems (for legal entities as well as the public sector entities that exercise economic activity). The categories such as Geothermal Heat Pumps and Biomass were included in the scheme in 2006 and 2007–2008 periods correspondingly.

⁹ Provided, indeed, it is allowed by the network security.

¹⁰ Source: Ecofys (see Annex Table B).

¹¹ The new financial scheme is described in details below in the same section

¹² such as the new Law on Energy End-use Efficiency and Energy Services (N31 (I)/2009) and new regulations aiming mainly at the simplification of the administrative procedures.

¹³ The Grant Scheme for the promotion of Electricity Production from large commercial wind farms, solar thermal and photovoltaic systems and the utilisation of biomass, 2009–2013.

¹⁴ Source: European Commission, 2009.

almost doubled in 2008 and 2009 (EUR 18.7 million and EUR 19.6 million respectively) compared to 2007 (EUR 10.6 million) indicating no major impact of the financial crisis.

However, in 2010, this amount was reduced to EUR 15.3 million¹⁵, justifying the request by the Energy Service of the MTIC to use ERDF/CF resources to make up for the reduced national funds. For 2011, the total budget of the Special Fund is expected to be over EUR 25.6 million, divided as follows: EUR 3.1 million for investment in energy saving, EUR 5.7 million for cooling/heating technologies with RES and EUR 16.8 million for investment in energy production using renewables.

Since the whole of Cyprus is a single NUTS 2 region, the policies are applied nationally without any regional distinction.

3. ERDF AND COHESION FUND SUPPORT AND CONTRIBUTION TO NATIONAL POLICY

In the current programming period (2007–2013), the country is eligible for support under both the Convergence (Cohesion Fund) and the Regional Competitiveness and Employment Objectives (“phasing-in” support). Under the latter, the whole country is eligible.

Interventions to promote renewable energy sources are envisaged under the specific objective “Increase the contribution of alternative and renewable sources of energy to the energy balance” of the Operational Programme “Sustainable Development and Competitiveness 2007–2013”, Priority Axis “Basic infrastructure in the sector of environment and energy”, and are co-financed by the Cohesion Fund.

In comparison with the other initiatives under this priority axis,¹⁶ financial provision for RES is limited (EU funding of EUR 5.9 million or only 3.8% of the total for this Priority Axis (EUR 156.1 million) and only 1.2% of the overall EU funding for the OP (EUR 492.7 million)) and concern exclusively projects for the use of solar energy (unlike nationally funded support which is directed at a wide range of renewable energy sources as described in Section 2 above). In relation to the national support, the contribution of the ERDF is very limited in terms of both, the range of measures (together with the types of RES supported) and the budget foreseen for their implementation. In financial terms, the ERDF allocations reached less than 30% of the national support delivered in the form of grants and subsidies in the period 2004–2009 (EUR 20.6 million). If the new budget for the new national Grant Scheme (EUR 500 million) is added the ERDF contribution becomes almost insignificant.

The ERDF funded projects include provision for the establishment of photovoltaic systems and solar heating and cooling systems in public buildings. By June, 2010, photovoltaic

¹⁵ Source: Grant plans based on Annex.

¹⁶ such as management of waste water and water resources and solid waste management.

systems with a total capacity of 1,100 KWh and a total cost of EUR 5 million had been installed in 13 public buildings, 48 schools and 4 camps.¹⁷ In addition, the Energy Service applied for an additional EUR 18 million from the EU Structural Funds for the establishment of a pilot (demonstration) solar–thermal power station of 5 MWh with the added function of desalinating sea water. The Cyprus Institute is carrying out a feasibility study in collaboration with MIT.¹⁸

Support for **energy efficiency** in residential housing is not planned to be co-financed from EU funds.

There has been no change in the form or focus of Structural and Cohesion Funds support in the areas concerned since the programming period began. Nor have any problems occurred in relation to spending plans. Commitments of the Cohesion Fund at the end of 2009 for RES projects (EUR 6.5 million) were EUR 0.5 larger than allocation (EUR 5.9 million).¹⁹

EU funding also plays some role in increasing public awareness concerning the use of renewable sources and the importance and advantages of energy saving. In this regard, the Cyprus Energy Agency was set up in 2009 co-funded by 75% by the EU programme “Intelligent Energy – Europe Programme” and the Union of Cyprus Communities (25%).

The structure of the national economy is such that any funding for RES results mainly into increased imports of equipment; energy efficiency is important for the balance of payments. Thus, unlike in countries where RES and EE are likely to create significant new employment through national demand and export stimulation, their effect in Cyprus seems to be disassociated from policies remedying the financial crisis. However, speeding up energy efficiency and RES in public buildings through public procurement is expected to have a beneficial effect on employment. Similarly the service sector is also expected to benefit from the conversion of residential energy.

4. RATIONALE FOR PUBLIC INTERVENTION

The rationale for the intervention in of RES clearly stated in the OP refers to sustainability and balance of payment deficits rather than the economics as such. In particular, it addresses:

- the need for reducing the extremely high energy intensity of the economy and increasing the contribution of RES to the country's energy balance²⁰

¹⁷ Source: Ministry of Commerce, Industry and Tourism, 2010

¹⁸ <http://www.cie.org.cy/sxoliko.html#menu4-8-2> and <http://www.cyi.ac.cy/system/files/FINALnewsletterjune09.pdf>

¹⁹ Source: DG Regio (see Annex Table A)

²⁰ OP “Sustainable Development and Competitiveness”

- the almost exclusive dependence of energy demand on imported fuels, which deprives the national economy of financial resources²¹
- the failure of the market to create incentives for the creation of adequate infrastructure for the use of alternative conventional fuels (such as natural gas)
- the role of the public sector in demonstrating the potential and benefits of RES to civil society through its use in public buildings²²

As regards solar–thermal power stations, the rationale refers to “a more efficient and environmental–friendly” method of production of water and “simultaneous production of economically competitive, green energy”²³

There is a public debate on these issues. The Cyprus Energy Agency serves as an intermediary body between the authorities, the key players in the energy market and the public. Informing, advising and training with the aim of promoting RES, energy saving and energy efficiency are among the key activities of the Agency. It also provides advisory services to local authorities on the design of projects and dissemination of public information relating to energy. The Advisory Committee of the Agency includes a wide range of local stakeholders such as local authorities, key market players, representatives of the industry and of the construction sector as well as universities. In this regard, the agency may be considered as a forum for public debate on the topic.

Another forum is the 3rd International Conference on Renewable Energy Sources and Energy Efficiency organised by the Cyprus Chamber of Commerce and Industry in cooperation with the number of other organisations which took place in May, 2011. The Conference was aimed at providing information to the national and international business and scientific community on the latest developments in RES and the possibilities for improving energy efficiency in the construction and industrial sector.

Last but not least, there is an internal government debate on the share of EU funds allocated to RES and energy efficiency compared to other national needs and priorities. The energy policy makers, who believe that more EU regional support should be channelled to RES and energy efficiency argue that there is a momentum for residential energy saving at the moment, which risks running out of steam if support schemes are discontinued due to lack of adequate funding.

²¹ Planning Bureau, 2007a

²² *ibid.*

²³ Source: Cyprus Institute, 2009

5. RATE OF SUPPORT AND PROFITABILITY

The rate of support does not depend on the profitability of production of renewable energy. The main factors that determine the level of subsidies and grants are the types of technology and investor.

- For large scale investment (e.g. the development of the large wind plants), there are no investment grants but only the fixed purchase price (the FIT) of the energy produced for a determined period of time.
- In the case of small systems, there are both investment grants of 40–55% and feed-in tariffs. In most cases, the tariff is guaranteed for 15–20 years.
- Tariffs are differentiated depending on the cost and efficiency of each technology and the environmental impact. In general FITs are higher than in other EU countries. The highest tariffs are for photovoltaic investment (EUR 0.34 –0.36 per kWh) and solar thermal systems (EUR 0.26 per kWh) given their low efficiency and very high initial capital costs. The FITs for wind power (EUR 166 per MWh) are lower than those for solar energy but are much higher than the corresponding figures in most other EU countries. The higher rates are justified by the small size of the market (generating no economies of scale) and the dependence on imported fossil fuels.

In the area of energy efficiency, the rate of support varies depending on the type of intervention used as well as on the total household income in the case of thermal insulation of residential premises (the grant can be given only to low-income households). Thus, the rate of support, as defined in the support schemes, is fixed for each type of the investment and technology used and does not vary with the changes of the cost of electricity and heating. There is a territorial distinction as regards support for thermal insulation, which is higher for residential premises in mountainous areas (altitude of over 600m) than elsewhere.

6. COSTS, PUBLIC SUPPORT AND PRICES

By the end of 2010, financial support (in the form of grants) for each type of RES amounted to the following:

Table A – Financial support (grants) for type of RES (EUR)

Type of investment in energy generation from RES	Total amount of grants distributed during 2005–2010
Large scale wind commercial systems	0.0
Small wind commercial systems	3,826
Biomass utilisation	3,696,074
Photovoltaic systems connected to the grid	6,668,616
Autonomous photovoltaic systems	1,343,004

Source: Planned grants.

The largest amount, therefore, went to the use of photovoltaic systems in energy generation while no payments were made for large scale wind plants (special attention is paid to wind energy sources in the current 2009–2013 period, the Special Fund pre-approving the installation wind farms with a total capacity of 165MWh).

There is no data available on the exact costs of electricity production from each of the RES types. The solar systems are the most expensive ones in terms of initial capital investment and operating and maintenance costs and also have lower efficiency. Investment in wind plants has relatively low initial and operating costs, but is restricted by limited wind potential in the country and land planning problems.

Almost 74% of the residential premises in Cyprus are owner-occupied.²⁴ Such a high percentage increases the potential for the investment in energy efficiency in housing. According to the “Evaluation Study of the Grant Schemes for Energy Conservation 2004–2009”,²⁵ investment in thermal insulation of residential premises (both, in mountainous and non mountainous areas) as well as installation of domestic solar systems led to notable reductions in energy consumption and, as a result, to significant financial savings for owners. This is an attractive incentive for owners to install thermal insulation and solar systems which is reflected in the large recourse to support schemes since 2004.²⁶ There are also legal provisions that make it obligatory to comply with minimum thermal requirements for new buildings. The obligatory issue of Energy Efficiency Certificates serves as incentive for owners to improve the energy efficiency of their houses in order to increase their value. It is estimated that the market plays a role and demand for energy efficient housing is higher, hence rising the value of the price and rent. However, there is no systematic evidence through dedicated studies in the real estate market.

7. CONCLUSIONS

While RES and energy efficiency are increasingly important for Cyprus, the ERDF and Cohesion Funds make a limited contribution and are used for other national priorities. There is however a dispute between those responsible for overall policy, who consider that national funding is sufficient to achieve the energy targets and energy policy makers, who believe that more EU regional support should be channelled to RES and energy efficiency, because of unsatisfied demand and the benefits to the national economy and sustainability.

²⁴ Source: Eurostat, EU-SILC,

²⁵ Ministry of Commerce, Industry and Tourism, 2011

²⁶ About 27,000 cases of investment in thermal insulation in 2004–2009 corresponding to a total amount of grants of almost EUR 30 million and about 36,000 case of investment in domestic solar systems in 2004–2008 (more than EUR 8 million grants).

Based on reactions of the press and consumer organisations, problems of bureaucracy and inefficient general administrative procedures inhibit implementation and create time-consuming processes, which discourage potential investors in RES. Regulatory interventions such as the adoption of the “one-stop shop” principle are expected to help partially overcome the extraordinary bureaucracy. Moreover, inefficient implementation of the support schemes (delays²⁷ and very time-consuming procedures for control, approval and provision of subsidies) also adversely affects the attitude of potential investors towards the schemes. The Cyprus Association of Renewable Energy Enterprises has stated that the lack of a long-term balanced policy may result in closure of more than 60 RES companies.²⁸ A new Renewable Energy Action Plan based on the EC directive was adopted for a more integrated policy approach.

Another important barrier is the generally low potential for RES development and exploitation (except as regards solar energy for which Cyprus has very high potential). Despite the significant weight that the government attaches to wind power in meeting the overall renewable target (42.5% of electricity consumption from renewables by 2020), the potential capacity of wind farms is limited, because of relatively weak winds on the island, which makes it difficult to attract sufficient investment. Other barriers to the implementation of the plans, in particular land planning problems and the opposition of local communities, are also serious.

²⁷ There was serious delay in the implementation of the Support Schemes 2009–2013 when the call was closed for several months at the beginning of 2010 due to delays in budget approvals (source: <http://www.sigmalive.com/simerini/analiseis/other/261682>)

²⁸ Source: <http://www.energypress.gr/portal/resource/contentObject/id/1d7cdf27-91d7-4cd5-bb0f-51a68fcecc50>

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INTERVIEWS

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TABLES

Annex Table A – Allocation and commitments of ERDF, ESF and Cohesion Fund (end 2009) in EUR million

Renewable energy	Allocation	Commitments
39 wind	0.0	0.0
40 solar	6.0	6.5
41 biomass	0.0	0.0
42 hydroelectric, geothermal and other	0.0	0.0
Total	6.0	6.5
Energy efficiency in residential housing	Allocation	Commitments
43 Energy efficiency, co-generation, energy management	0.0	0.0
78 Housing infrastructure	0.0	0.0
Total (1)	0.0	0.0
Total ERDF+ESF+Cohesion fund	612.4	284.1
Total ERDF+Cohesion fund	492.7	245.6

(1) Note: not all investment is for energy efficiency in residential housing

Source: DG REGIO

Annex Table B – Synthesis of measures to support renewables in electricity generation

	Electricity price (per kWh 000)								
	Domestic	Industry	Biomass	Biowaste	Photovoltaics	Solar thermal	Small hydro	Wind onshore	Wind offshore
Cyprus	137,3	131,8	FIT: 135	FIT: 135 (guaranteed 25 years)	FIT: 340–360 (guaranteed 15–20 years)	FIT: 260 (guaranteed 20 years)	IG: 40–55% of total investment (depending on zones)	FIT 166 (guaranteed 25 years)	FIT 166 (guaranteed 25 years)
					IG: 40–55% of total investment			IG: 15–55%	IG: 15–55%

Note:

Data and measures relate to 2009

Degression is the rate of reduction each year, usually a fixed % of the rate in the previous year

Subsidies:

FIT = Feed-in Tariffs

Premium

IG = Investment Grants

Source: Ecofys