



**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**

GREECE

VERSION: FINAL

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

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LIST OF ABBREVIATIONS

- CRES – Centre for Renewable Energy Sources
- EEN – Expert Evaluation Network
- ERDF – European Regional Development Fund
- ESF – European Social Fund
- FIT – Feed-in Tariff
- MEECC – Ministry of Environment, Energy and Climate Change
- OP – Operational Programme
- PV – Photovoltaic
- RAE – Regulatory Authority for Energy
- RES – Renewable Energy Sources

1. EXECUTIVE SUMMARY

Final consumption of energy in Greece has increased significantly over recent years. At the same time, the electricity generated from renewable energy sources (RES) amounts only to at 8.3% of total final consumption and is among the lowest in the EU, at only half the average (16.7%). Despite a wide range of measures (regulatory and financial) promoted for all the types of RES, this share has not increased much since 1990, unlike in most EU countries.

Greece is endowed with a considerable potential of wind and solar energy and the target set for the country is for renewables to increase to 20% of gross final energy consumption by 2020. New legislation and a number of measures have been introduced to increase penetration of RES technologies in electricity production and the heating and cooling of buildings as well as to improve energy efficiency in residential housing. A special levy on electricity bills, FITs (Feed-in tariffs) for investment in RES and financial incentives for investment in production and in energy efficiency constitute the policy mix expected to achieve the targets set. Positive results of these actions are already visible but still insufficient: the plants actually functioning are only a small fraction of those envisaged or even those for which an initial application has been filed with the Regulatory Authority for Energy. Energy efficiency measures have been launched and in many cases the budget foreseen has been rapidly exhausted.

The ERDF plays a significant role in co-financing initiatives through upgrading residential premises in terms of their energy efficiency, including a "Green Island" (Ai Stratis) pilot project. The major part of the resources allocated from the Cohesion Fund to this area are directed to measures for the use of RES and energy saving in public buildings, which are expected to serve as a model for the general public to follow suit.

There is no real regional dimension in the policies except to a minor extent. Similarly efficiency and cost considerations are hardly taken into account in the support schemes implemented. However, suggestions and ideas on potential changes in this direction are under study.

Despite the increasing investment in RES and the success of the energy efficiency schemes, criticism emerges from two sides:

- The rationale of intervention is too generic and the energy strategy focuses more on the need to reduce dependence on fossil fuels and to combat climate change than on adopting the most efficient RES technologies, taking long-term considerations into account. With higher FITs that in most EU Member States a subsidy-driven system has emerged, which risks imposing a very high cost on the average consumer as well as giving rise to new public sector financial constraints. On the other hand, if the system

were not generous, the current economic uncertainty in Greece might reduce private investment. There is still a critical need for integrated long-term energy planning which is continually discussed but remains to be put into practice.

- There are administrative problems at both national and regional level. At the national level, beneficiaries complain of significant delays in the different processes for obtaining licences and permits, whereas at regional and local level, people are hostile to projects and hamper investment. This mismatch can be remedied by a better designed set of incentives and most importantly by agreements over planning between national and local authorities that will reduce social resistance.

2. NATIONAL POLICY

“Green development”, a general term standing for RES, energy efficiency and sustainability, is the flagship of the Government elected in October 2009. The Prime Minister repeatedly commits himself and the government to this, and now the Ministry of Environment, Energy and Climate Change (MEECC)¹ has a prominent position in the administration’s hierarchy. Since its establishment in 2009, the MEECC has drafted a new ambitious National Strategy on “Green Growth” linked to the Europe 2020 strategy. The strategy pays particular attention to the development of RES and energy efficiency². The National Renewable Energy Action Plan was developed by the MEECC to serve as a basis for further intervention in RES in order to meet the European targets. The Investor Services Unit for RES was set up in 2010 under the auspices of the MEECC to serve as a one-stop shop for the provision of information and to coordinate the processing of investors’ requests as regards RES. A Fast Track Licensing for large-scale projects³ was introduced including those for RES⁴. This provision allows the full licensing of large-scale investment projects to be completed within four to six months. The Special Framework for Land Planning for Renewable Energy Sources⁵ has been in force since December 2008, which is also expected to contribute to the more effective promotion of RES.

It seems, however, that this fervour is difficult to translate into concrete results. The budgetary constraints associated with the Greek economic crisis and the inadequacy of the national and regional administrations, hamper and delay the policies and measures announced. In March 2011 out of 5,717 applications for production (74,806 MW) from all RES only 307 (1,442 MW) have become operational⁶. Production licences, zoning licences and operations licences, as well as private financial constraints have hampered implementation.

Particular emphasis is given to energy efficiency. It is expressed mainly through regulatory measures, as well as financial and other incentives for investment in housing.⁷ The response of the public to the incentives offered is enthusiastic.

RES have been supported since the 1980s in different forms and with different intensity. The long hours of sunshine over the whole country and the windy mountainous regions and

¹ The MEECC was created merging the previous Ministry of Environment, Physical Planning & Public Works and the Ministry of Development

² <http://www.sd-network.eu/?k=country%20profiles&s=single%20country%20profile&country=Greece>

³ They include projects of more than EUR 200 million or more than EUR 75 million if they result in the creation of at least 200 new jobs

⁴ Law 3775/2009 (Official Gazette of the Hellenic Republic, 2009)

⁵ Official Gazette of the Hellenic Republic, 2008

⁶ Press release MEECC

⁷ For more details see the last paragraph of the section

islands as well as the significant balance of payments costs of fossil fuel imports were initially viewed as sufficient market signals for investment and, accordingly, limited fiscal incentives were provided for solar water heating. Over the years, however, all RES have attracted increasing policy attention. Law 3851/2010⁸ sets ambitious national targets for RES, namely a 20% share of final energy consumption by 2020, which is 2 percentage points above the mandatory level of 18% set by Directive 2009/28/EC. The measures foreseen include:

- Financial support of RES through a special levy on electricity bills (currently starting at 30 cents per 1000 kWh with progressive increases).
- Feed-in tariffs (FITs), which vary between different types of RES (highest tariffs for photovoltaic (PV) and solar thermal energy). Law 3851/10 rationalises the existing FIT system and favours other RES investment such as geothermal, biomass and biogas plants, in which investment had been low up to then.
- The implementation of a Special Programme for the development of PV systems for energy production (up to 10kWp) in buildings used for residential or small business purposes, which involves the installation of PV systems for energy production in buildings and their connection to the electricity grid. Since the energy produced is sold to the grid at a pre-specified price,⁹ the incentive to invest comes from the anticipated future revenue rather than from direct grants.
- According to the National Renewable Energy Action Plan¹⁰, the most important financial support to RES projects is in the form of investment grants, leasing subsidies and tax reliefs¹¹ (in total amounting to 15–50% of the total cost of investment depending on the region and company size) included in the National Development Law¹²– the legislative framework that was last amended in 2011. Under this Law, all RES investments are eligible for support with the exception of projects for energy production from the PV systems mentioned above. One of the major changes (as compared with the previous Law introduced in 2004) is that it envisages financial incentives based mostly on tax reliefs instead of subsidies (EUR 1 of subsidies corresponds to EUR 3 of tax reliefs).¹³

Differences in FITs between the mainland and non-interconnected islands were eliminated for almost all types of RES by the Law 3851/2010, with the exception of large wind-power generators for which there higher tariffs remain, as incentives to exploit the significant

⁸ Official Gazette of the Hellenic Republic, 2010b

⁹ 0.55 EUR/Kwh for every agreement concluded until 2011; the price per Kwh is reduced by 5% annually for the agreements concluded in the period 2012–2019.

¹⁰ Ministry of Environment, Energy and Climate Change, 2010

¹¹ http://www.mindev.gov.gr/wp-content/uploads/2011/03/NEW-INVESTMENT-INCENTIVES-LAW-OFFICIAL-TRANSLATION_11.02.004.pdf

¹² Official Gazette of the Hellenic Republic, 2011

¹³ http://www.capitalinvest.gr/info.php?product_id=164

potential of the islands in this regard and to support the connection of non-interconnected islands to the grid. The programme for the development of PV for energy production in buildings excludes islands which are not connected to the grid. Under the National Development Law, regions with high unemployment rates and low income per capita (GDP less than 75% of the national average) received the highest investment subsidies from the State.

Support for improvements in energy efficiency was introduced only recently in the context of the “20–20–20” strategy. A new regulatory framework and support schemes are now in place. The most pertinent intervention is through Law 3855/2010¹⁴ which sets the national targets for energy saving and defines the measures to achieve those targets. Interventions targeting the public sector are seen as models for the general public to follow. In April 2010, the Regulation on the Energy Performance of Buildings¹⁵ was adopted covering all aspects of energy use in buildings, including the introduction of a Study of Energy Efficiency which is mandatory for all new buildings and those to be radically renovated (of over 50 square metres), minimal requirements for energy efficiency, a classification of buildings based on their energy efficiency (Certificate of Energy Efficiency) and energy inspection of buildings, boilers, heating and air conditioning. Specific measures adopted in particular for residential housing include the obligatory installation of central thermal solar systems in new buildings, financial incentives for wider use of central thermal solar systems and energy upgrading of building shells.¹⁶ Support measures for energy efficiency do not have a regional dimension but the amount provided is based on a combination of income and average cost per square metre in local areas, which complies with EU guidelines.

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

Support from the EU funds for the promotion of RES and energy efficiency is provided through two sectoral Operational Programmes (OPs), the “Competitiveness and Entrepreneurship”¹⁷ and the “Environment and Sustainable Development”¹⁸ OPs, as well as through Regional OPs.

¹⁴ Law 3855/2010: “Measures to improve energy efficiency in end-use, energy services and other provisions” (Official Gazette of the Hellenic Republic, 2010c)

¹⁵ Official Gazette of the Hellenic Republic, 2010a

¹⁶ Source: http://www.odyssee-indicators.org/publications/country_profiles_PDF/grc_nl.pdf

¹⁷ Allocations: about EUR 181 million for RES and about EUR 18 million for energy efficiency, co-generation and energy management (see Annex Table A)

¹⁸ Allocations: about EUR 33 million for each from the categories of RES and energy efficiency, co-generation and energy management (see Annex Table A)

The “Competitiveness and Entrepreneurship” OP provides support for investment in energy production from RES, special measures for the use of biomass, investment in energy saving and improvements in energy efficiency as well as horizontal measures under the priority axis “Integration of the Energy System of the Country and Reinforcement of Sustainability”. The measures launched so far are for energy saving and energy efficiency with special emphasis on housing.

The largest in terms of funding is the “Saving in Households” programme (a call for proposals for which was announced in February 2011) with a budget of EUR 396 million, announced by the MEECC. Potential beneficiaries are owners of buildings constructed before 1989, located in areas where sale prices are below EUR 2,100 per square metre, support being available to improve the energy efficiency of the property including the replacement of window frames, installation of thermal insulation and upgrading of heating and hot water supply systems.

Another large (EUR 155 million) programme is the “I Save in Households – Programme of the Direct Support and Energy Inspections” announced in April 2011 that is also aimed at upgrading residential buildings in terms of energy efficiency and energy saving. Two measures announced in 2009¹⁹ were targeted at the replacement of old air-conditioning systems in houses with new, more energy-efficient ones. The funds were rapidly taken up and no renewal is planned.

The “I save” programme in 2009 (with a budget of EUR 100 million) was directed at reducing energy consumption in public buildings (specifically, those of local authorities) with a further aim of using the programme to make the general public more aware of energy efficiency.

Another measure is the “Green Island – Ai Stratis” programme launched in 2011 for installing energy saving technology in buildings using RES on the very small island (of Ai Stratis) in the North-East Aegean in order for it eventually to become self-sufficient (80% in the first stage and then 100%). Despite the comparatively small total budget of EUR 9 million, the project, if properly implemented, is intended to serve as an example of good practice and a “laboratory of knowledge”.²⁰

Projects targeting RES and energy efficiency included as part of the “Environment and Sustainable Development” OP are co-financed by the Cohesion Fund. Emphasis is given to model measures for future policy implementation. The two major projects (of EUR 40 million

¹⁹ “Replacement and recycling of old energy-consuming home air-conditioning devices” (EUR 40 million) and “I change air-condition” (EUR 15 million)

²⁰ From the speech of the I. Maniatis, the Deputy Minister of Environment, Energy and Climate Change on the symposium “Green, Efficient and Viable: the objective for the Greek energy economy”, Athens, 22 March 2011

each) are models for the use of RES and energy saving in public buildings and schools announced in 2010 and 2011. Apart from the direct results on improving energy efficiency expected from the measures, they are also expected to demonstrate to the general public how new technologies can potentially be used in housing. The main types of RES supported by the projects include PV, solar thermal systems, systems for the use of shallow geothermal energy and biomass burners.

The “Promotion of RES systems – Solar energy” (EUR 6 million) programme is intended to provide support to projects using solar energy sources to meet the energy needs of public transport in remote parts. So far, this is the only programme co-financed by EU funding which has been announced which is focused on only one type of RES, solar.

The “Green neighbourhood” scheme is directed at supporting pilot projects for energy saving in residential areas most in need, though so far only one pilot project has been launched.

Two National Information Systems, one to measure energy efficiency and the other to support national RES programmes, have been initiated by the Centre for Renewable Energy Sources (CRES) under Directive 2006/32 EC, Both were included in the “Digital Convergence” OP as well as in some regional OPs²¹ and are co-funded by the ERDF. Calls for proposals were announced in 2009.

At the regional level, the “Thessalia, Sterea Ellada, Ipiros” OP is co-financing energy saving pilot projects in public buildings using geothermal energy (with a budget: of EUR 2 million).

Financial support from the ERDF and Cohesion Fund is directed at all types of renewable energy source. The largest share of funding is earmarked for ‘hydroelectric, geothermal and other sources’ (EUR 148 million) followed by wind power (EUR 81.8 million) (see Annex Tables A and B). However, calls launched so far mainly concern solar energy and use of geothermal sources. A large-scale project for connecting several Aegean tourist islands²² with the mainland through the development of RES plants with a total capacity of 150–200 MW is expected to be included in the “Competitiveness and Entrepreneurship” OP. Establishing a connection with Milos is in order to exploit the geothermal potential of the island.

A total of EUR 364 million are allocated to RES and energy efficiency projects for the present programming period²³ through different OPs (see Annex Table B). This amount represents less than 10% of the overall support directed to energy and environmental protection and only 1.8% of the total amount of financing from the ERDF and Cohesion Fund. As no data are

²¹ OPs: “Macedonia & Thrace”, “Crete and the Aegean Islands”, “Thessalia, Sterea Ellada, Ipiros”, “Attica”

²² Syros, Paros, Naxos, Tinos, Mykonos

²³ include also co-generation and energy management

available for the amount of national support, it is not possible to estimate the relative scale of support from EU sources.

There is no particular regional differentiation in the scale and nature of support. Almost all the measures included in the sectoral OPs, with the exception of the programme specifically targeting Ai Stratis island, are nationwide. Significant amounts, apart from those provided by the sectoral programmes, are allocated in the regional OPs for Macedonia & Thrace and Attica (EUR 52 million and EUR 21 million, respectively)²⁴. Particularly large funding is allocated to RES through the regional “Thessalia – Sterea Ellada – Ipiros” OP, which is directed mainly to projects for exploiting the local geothermal potential.

In relation to the initial programming, much greater emphasis (in terms of the budget allocated and measures promoted) is now given to measures for increasing energy efficiency, especially in residential and public sector buildings. Energy efficiency was seen as an appropriate area for intervention during the economic crisis. Accordingly, a range of new measures (not included in the initial plans) were added to the “Competitiveness and Entrepreneurship” OP, such as “I save”, “I change air-conditioner” and “Replacement and recycling of old energy-consuming home air-conditioning devices”. The budget allocation for energy efficiency was increased as a result.²⁵ Indicatively, the budget for the “Saving in Households” programme was increased by EUR 196 million (to EUR 396 million from the initial EUR 200 million).²⁶

There are complaints over the discouraging effect of bureaucracy and significant delays in payments.²⁷ Delays have also been evident in the announcement of some calls for proposals because of changes in legislation for RES (new Law 2010 for RES). Accordingly, no calls were announced during 2009 for relevant projects under the OP “Environment and Sustainable Development”.²⁸

²⁴ see Annex Table A

²⁵ Operational Programme Competitiveness and Entrepreneurship, Annual Implementation Report for 2009, 2010

²⁶ From the speech of the Deputy Minister of the Environment, Energy and Climate Change Y. Maniatis at the symposium “Green, Efficient and Viable: the objective for the Greek energy economy”, Athens, 22 March 2011

²⁷ <http://energy.press.gr/portal/resource/contentObject/id/9c477cdc-eb12-4480-bcd8-ddb65512b4da>

²⁸ Operational Programme Environment and Sustainable Development, Programming Period 2007–2013, Annual Implementation Report for 2009, 2010

4. RATIONALE FOR PUBLIC INTERVENTION

The National Strategic Reference Framework (NSRF) 2007–2013 states a clear rationale for intervention in RES and energy efficiency, namely to reduce dependence on fossil fuels²⁹ and their impact on climate change³⁰. Strengthening competitiveness is an additional rationale.³¹ In general, RES and energy efficiency are promoted from a concern to ensure adequate energy supplies, reduce pollution, improve the quality of life and tackle climate change. The competitiveness rationale, however, is contested, since there is limited local production of RES-related equipment, while the special levy for RES is a financial burden for energy-intensive businesses.

No reference is made to the profitability of the investment supported, but rather to the social and environmental contributions as mentioned above. Reference is also made to installed capacity from co-funded projects not being as important as their “innovative features, their contribution to the regional development and their demonstration orientation”. No distinction is made in this context between different types of RES and different forms of improvement of energy efficiency in residential buildings. This is sometimes criticised, as lacking a clear strategy for prioritisation: the EU-IMF-ECB negotiation team pointed out in the process of renegotiation that the energy policy mix is not optimised and the investment/feed in tariff mix may lead to expensive technologies imposing unjustified costs on final consumers.

It is mandatory to launch on-line public debates, especially on the platform created by the government for legislative proposals and policy initiatives. Such debates were organised by the MEECC prior to the official submission to the parliament for all the new (since 2010) pieces of legislation, such as the Energy Performance of Buildings Regulation (for pricing the energy produced by PV systems) and the new laws for energy efficiency and RES. Apart from those posted on the platform, there are also on-line public debates organised by other authorities. Accordingly, in March 2011, the Regulatory Authority for Energy (RAE) launched public debates on the connection of RES energy producers to the distribution network and the scope for the economically efficient penetration of RES with the maximum possible use of existing grids and their rational development.³²

A major issue of concern is the frequent hostility of local communities to the installation of wind mills or other RES. As an example, the Municipal Council of Milos voted against the

²⁹ Specific objective of the general objective 14: “Secure energy provision of the country with the scope of sustainability”

³⁰ Specific objective of the general objective 15: “Sustainable management of the environment”

³¹ Operational Programme Competitiveness and Entrepreneurship, Programming Period 2007–2013, 2007

³² http://www.rae.gr/site/categories_new/about_rae/activity/global_consultation/history_new/02032011.csp

exploitation of its geothermal resources because of bad previous experience.³³ In the 1980s, there were first attempts to use geothermal sources in the area, but without safety rules being respected. As a result, there were a number of accidents and leakages of dangerous hydrogen sulphide gas. According to the “Non-cost barriers to renewables – AEON study: National report Greece” study³⁴, there is a strong need for more awareness raising campaigns in order to reduce the waves of protest against the development of renewables.

A special levy of 2% of the FIT given to local communities is not a sufficient incentive and there has not been a general overall agreement to development which would facilitate investment. This leads to significant delays in obtaining the various permits that are needed. The government intends to introduce larger incentives to overcome this obstacle.

5. RATE OF SUPPORT AND PROFITABILITY

The level of national support for the use of energy from renewables in electricity generation as well as in heating and cooling systems, as determined by the National Investment Law, is defined by the type of technology used, the region where the investment is located and its size. There is no reference to the profitability of the investment as a criterion for the level of support which should be provided.

There are significant variations in the rate of support between different types of RES, especially in relation to feed-in tariffs. The highest tariffs are for small energy systems, especially small PVs (< 10kWp) in households or small enterprises set at 550 EUR per MWh. There are also high FITs for solar thermal systems (264–284 EUR/MWh) and wind power sources of less than 50 kW (250 EUR/MWh). In most cases, the fixed tariff is guaranteed for 20 years, except for solar thermal units for which there is a 25 –year duration.³⁵ Generally tariffs are higher than in other EU Member States. While FITs are due to be revised in 2012 it is argued that their reduction will trigger a significant slow-down in investment and jeopardise the achievement of the RES targets set, as bank loans are problematic and there are no alternative financial incentives.³⁶

The profitability of the projects targeting RES or the returns envisaged by investment in energy efficiency are not taken into account as regards the measures supported by the ERDF and Cohesion Fund. Accordingly, the largest (in terms of the budget allocated) programme for support of energy efficiency in residential housing, the “Saving in Households”

³³ source: <http://energy.press.gr/portal/resource/contentObject/id/054f2a68-fa06-46c1-afb8-d137b6f38e3c>

³⁴ *ibid.*

³⁵ Ministry of Environment, Energy and Climate Change, 2010

³⁶ <http://energy.press.gr/portal/resource/contentObject/id/f5a0c765-8298-4118-acbe-c0351622c933>

programme, provides the largest grants and up to 100% interest rate subsidy for bank loans for low-income investors.

None of the measures and support rates adopted are conditional on fossil fuel prices or heating costs.

6. COSTS, PUBLIC SUPPORT AND PRICES

Due to the lack of available data, it is not possible to make a clear estimate of the overall public support given to different types of RES. The only financial data available relate to the allocation of EU funding described in section 3.

No data are available either on the costs of energy production from each type of RES. Hydro-electric power still contributes most to the overall energy capacity from RES in the country. Although hydro-power is characterised by low operating costs, the potential for further expansion is limited. Investment in technology for generating energy from wind is characterised by relatively low initial capital investment and operating costs, but is restricted by land planning problems and the opposition of local communities. As there is high potential for the development of wind farms especially in the numerous islands and coastal areas with winds exceeding 7.5 metres per seconds, investment is potentially attractive. Greece also has significant potential as regards solar and geothermal energy. Solar systems, however, are very expensive in terms of both capital and operating costs, which is why the emphasis on solar energy is often challenged. Geothermal energy production is being supported for the first time promoted under new legislation but is not yet operational anywhere on any significant scale.

The importance of owner-occupied housing in Greece (more than 76% of the total housing stock)³⁷ increases the potential for the investment in energy efficiency in housing. Investment in the thermal insulation of houses as well as the use of solar energy domestically from small solar systems for heating and cooling can result in significant savings for owners, which provides a strong incentive to take the action concerned.

There are also minimal legal requirements for the energy efficiency of new buildings. The new regulation on the energy performance of buildings has led to the classification of buildings in terms of their energy efficiency (through the Certificate of Energy Efficiency) and to obligatory inspections in this regard. The higher the building is graded in these terms, the higher its value. The obligation for owners to provide a Certificate of Energy Efficiency during the sale or rental process, which has been in force since January 2011, serves as an incentive for owners to improve the energy efficiency of buildings in order to increase their value. There is, however, no evidence that this affects market prices; though this is

³⁷ Source: Network core team, original source: Eurostat, EU-SILC, 2009

understandable given that the measures have been implemented only very recently and given also that the market for real estate market has been contracting markedly because of the economic crisis.

7. CONCLUSIONS

Progress has been made in both the institutional set up and the adoption of incentives for RES and energy efficiency in housing in Greece. Over-ambitious targets have been set and meeting them is difficult because significant problems persist.

One major problem, related to the overall strategy of the country, is that the levy and FIT system adopted threatens the balance of the system. The special levy is insufficient to finance the commitments foreseen in the long-run and this may lead to increasing costs for the organisation responsible (Hellenic Transmission System Operator) and the economy as a whole. The generous pricing policy has led to sky-rocketing demand to feed power into the grid and this can jeopardise not only the stability of the grid but also the financial capacity of the state to pay the fees promised. Alternative systems need to be studied, limiting the total number of new licenses granted to the budget available for support each year. If the number of licenses remains unrestricted there is a serious danger of the financial burden growing out of proportion

Another criticism relates to the rather generic nature of the strategy, inspired by the need to reduce dependence on fossil fuel imports and the political will to contribute to efforts to combat climate change, while neglecting the need to guide investment towards more cost-efficient technologies and an optimal, country-specific mix in the long run.

In addition, the rationale that the adoption of an ambitious RES policy will strengthen competitiveness is not justified either by the cost structure or by the manufacturing specialisation of the country.

More practical problems arise from the role and position of national and regional authorities. The major barrier to the development of power stations (and occasionally even residential solar energy investment) comes from complicated administrative procedures with a long time needed for obtaining the licensing/permit needed for both RES plants and the necessary grid infrastructure. The congestion of the grid and the lack of connection of many islands with the grid raise the issue of how to better exploit RES.

Strong opposition of local communities to the development of RES projects (especially, concerning wind power, geothermal and to a lesser extent biomass) also tends to lead to delays in their implementation. A lack of land planning which used to be among the major problems for RES development in the country has been addressed by the recent adoption of the Approval of the Special Framework for Land Planning for Renewable Energy Sources. A

broader discussion leading to the agreement of particular communities to accept RES investment (with the corresponding incentives in terms of sharing the financial benefits with investors and ensuring employment opportunities) can make a difference in this respect.

Last but not least, while the financial crisis has not directly deprived the national policy mix from investment resources for RES and energy efficiency in residential housing, it has reduced the liquidity of the banking system and this has reduced the availability of loans for both larger investment and PV systems in residential buildings.

By and large, what seems to be missing at all levels is an integrated long-term energy strategy, which is continually discussed, but remains to be put into practice.

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INTERVIEWS

Ageridis Giorgos	Center For Renewable Energy Sources
Chatziargyriou Nikolaos, Deputy Managing Director	Hellenic Public Power Corporation
Fetsi Aggeliki	Ministry of Regional Development and Competitiveness
Firbas Ioannis, director	Ministry of Regional Development and Competitiveness, Special Service for Strategy, Planning and Evaluation of Development Programmes
Stavridis Constantine, Division Manager	National Bank of Greece S.A., Project Finance Division
Vasilakos Nikos, Chairman	Regulatory Authority for Energy

TABLES

Annex Table A – Allocation by Programmes (EUR million)

	Programme's code	wind	solar	biomass	hydro geothermal and other	Renewable energy: total (FOI 39–42)	Energy efficiency , co- generatio n, energy manage ment	Housing infrastruc t.	Energy efficiency in residenti al housing (FOI 43+78)	Total ERDF + Cohesion	Total Structura l funds
GR		81.8	35.3	27.3	148.4	292.8	71.2		71.2	15,846.5	20,210.3
Convergence		75.7	32.2	25.5	136.2	269.6	67.2		67.2	13,870.2	14,029.0
National Contingency Reserve	2007GR051RV001					0.0					158.8
Operational Programme 'Improvement of Accessibility'	2007GR161PO004					0.0				3,700.2	3,700.2
Operational Programme 'Digital Convergence'	2007GR161PO002					0.0				860.0	860.0
Operational Programme 'Western Greece – Peloponnesus – Ionian Islands'	2007GR161PO007					0.0		0.0	914.0	914.0	914.0
Operational Programme 'Competitiveness and Entrepreneurship'	2007GR161PO001	69.6	19.5	11.9	79.8	180.8	17.8		17.8	1,291.0	1,291.0
Operational Programme 'Central Macedonia – Western Macedonia – Eastern Macedonia & Thrace'	2007GR161PO008	4.2	4.1	4.9	29.5	42.6	9.6		9.6	2,675.0	2,675.0
Operational Programme 'Technical assistance'	2007GR161PO003					0.0			0.0	192.0	192.0
Operational Programme 'Environment and Sustainable Development'	2007GR161PO005	0.0	7.6	5.7	18.9	32.2	32.8		32.8	1,800.0	1,800.0

	Programme's code	wind	solar	biomass	hydro geotherm al and other	Renewabl e energy: total (FOI 39-42)	Energy efficiency , co- generatio n, energy manage ment	Housing infrastruc t.	Energy efficiency in residenti al housing (FOI 43+78)	Total ERDF + Cohesion	Total Structura l funds
Operational Programme 'Attica'	2007GR161PO006	2.0	1.0	3.0	8.0	14.0	7.0		7.0	2,438.0	2,438.0
Multiobjective		6.1	3.1	1.9	12.2	23.3	4.0		4.0	1,976.3	6,181.3
Public Administration Reform	2007GR05UPO003					0.0			0.0		505.0
Human Resource Development	2007GR05UPO001					0.0			0.0		2,260.0
Operational Programme 'Crete and the Aegean Islands'	2007GR16UPO002	1.3	0.0	0.0	0.0	2.4	1.6		1.6	871.3	871.3
Education and Lifelong Learning	2007GR05UPO002					0.0			0.0	0.0	1,440.0
Operational Programme 'Thessalia – Sterea Ellada – Ipiros'	2007GR16UPO001	4.8	2.4	1.9	11.8	20.9	2.4		2.4	1,105.0	1,105.0

Source: DG Regio

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

Renewable energy	allocation	commitments
39 wind	81.8	
40 solar	35.3	
41 biomass	27.3	
42 hydroelectric, geothermal and other	148.4	
Total	292.8	0.0
Energy efficiency in residential housing	allocation	commitments
43 Energy efficiency, co-generation, energy management	71.2	
78 Housing infrastructure		
Total (1)	71.2	0.0
Total RES and Energy Efficiency in residential housing	364.0	0.0
Total ERDF+ESF+Cohesion fund	20,210.3	4,787.0
Total ERDF+Cohesion fund	15,846.5	4,051.7

1) Note: not all investment is for energy efficiency in residential housing. Source: DG Regio