

PV Policy Group

Action Plan for the Improvement of the Regulatory Frameworks, Support Schemes and Monitoring Systems for Photovoltaics in Greece

 **National Action Plan – Greece**



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EXECUTIVE SUMMARY

In the EC co-funded project PV POLICY GROUP, eight energy agencies, EPIA and WIP have partnered to define common action for the improvement and alignment of national policies for PV. Within this project, National Core Groups were formed by the respective energy agencies, CRES for Greece, and key actors in the PV market, and developed National Action Plans (NAP). This NAP highlights strengths and weaknesses of Greek PV policy and lessons that can be learned from European success stories, and puts forward the specific actions and measures the involved key actors will undertake to reach improvements of the national PV policy and market.

The Greek policy shortcomings include the complicated regulatory framework and requirements for grid-connection even for small-scale systems, and the lack of dedicated promotion of roof-top systems in private households. Potential for improvement exists based on better practices in other European countries, primarily Germany. A soft loan scheme alongside with a carefully designed feed-in tariff law with a guarantee period of 20 years has brought Germany's PV market in the first place in Europe.

This NAP describes the national agenda on the improvement of regulatory framework, support schemes and monitoring systems, focusing on 2007-2008. The key actions are summarized below.

Targets and objectives

The main objective is the development and operation of a sustainable PV market in Greece and the growth of the PV industry. The following targets are set:

- Assistance in the implementation of the new law for RES.
- Formulation of propositions for the optimal enforcement of this law, including the composition of a thorough study on the aesthetical integration of PV systems in traditional settlements, landmarks and protected areas/villages.
- Public relations and media work to disseminate the project results to raise political awareness about the effects of PV policy.

Strategy and action programme

A proposal from the Institute of Energy for South-Eastern Europe (IENE) has already been submitted to the Ministry of Development and some of the IENE propositions were included in the new law for RES. This proposal, formulated by a PV working group of stakeholders and experts in the field, included legislative and regulatory measures, support schemes and monitoring systems for PV technology.

The Greek National Core Group members will assist in the implementation of the new law. Specifically, IENE and CRES can compile, upon request by the government, the necessary technical annexes in the

legislative instruments that will be issued to support the new law. Also they have the ability to provide technical support in the critical initial phase of the new legislation and in the evaluation of its performance, contributing in know how and international experience. CRES plans to assist the Greek Standardization Organization in the formation of a technical committee for PV that will implement relative European and international standards at national level.

According to the new law, CRES will be commissioned by RAE as a technical advisor in the granting of production licenses, and by the Minister of Development for providing technical expertise and administrative support in issuing of installation licenses. CRES will perform the verification check of the functional and technical specifications of the equipment in RES power systems required for the granting of the operation license, and will issue green certificates for off-grid systems. Moreover, CRES, represented by its president, will participate in the Committee for the Promotion of RES & HE-CHP Large-scale Investments, may be invited in the meetings of the Committee for RES & HE-CHP Systems, and will prepare an annual report on the promotion of RES in Greece.

The members of the National Core Group will make propositions for the optimal enforcement of this new law.

As far as national dissemination of project outcomes towards key actors is concerned, CRES will implement the following between July 2006 and April 2007:

- Communication of national Action Plan and Position Paper to relevant key actors and target group representatives by personal mailing and/or presentation at meetings.
- Composition and placement of five press articles in national PV, RES and political media.
- Two presentations on national key events.

Necessary resources and financing

The members of the Greek National Core Group and IENE will assist in the implementation of the new law and provide propositions for the optimal enforcement of this law. IENE could form up again the same working group of volunteers that worked out the proposal in December 2004 to participate in these actions.

The technical committee for PV that will also assist in the implementation of the new law with the development of standards will be funded by the Greek Standardization Organization.

According to the new law, financing of CRES to perform its tasks regarding production licenses,

installation licenses and green certificates will come from RAE, the Ministry of Development and the owners of the off-grid systems, respectively.

The actions for the dissemination of the project results are foreseen in the PV POLICY GROUP project plan and therefore will be funded accordingly. These tasks will be carried out by the two researchers and the administrative assistant of the Department of Photovoltaics & Distributed Generation of CRES that participate in the project.

TABLE OF CONTENTS

I. NATIONAL PV POLICY FRAMEWORKS: KEY CONCLUSIONS FOR GREECE FROM BEST PRACTICE REPORT AND WORKING GROUPS MEETINGS	6
1. On a national perspective: Identification of particularities, barriers and shortcomings of the National PV policy	7
2. On a comparative European perspective: Identification of potential for improvement based on the better practice in other European countries.....	7
II. NATIONAL AGENDA ON IMPROVEMENT OF NATIONAL PV POLICY FRAMEWORKS UNTIL 2008	9
1. National agenda on improvement of national regulatory frameworks, focus 2007 – 2008.....	10
1.1. Targets and objectives (What should be done?).....	10
1.2. Strategy and action programme (How should it be implemented?)	10
1.3. Necessary resources and financing (Who is implementing it?)	10
2. National agenda on national support schemes, focus 2007-2008	11
2.1. Targets and objectives (What should be done?).....	11
2.2. Strategy and action programme (How should it be implemented?)	11
2.3. Necessary resources and financing (Who is implementing it?)	11
3. National agenda on national monitoring systems, focus 2007-2008	11
3.1. Targets and objectives (What should be done?).....	11
3.2. Strategy and action programme (How should it be implemented?)	11
3.3. Necessary resources and financing (Who is implementing it?)	11

I. NATIONAL PV POLICY FRAMEWORKS: KEY CONCLUSIONS FOR GREECE FROM BEST PRACTICE REPORT AND WORKING GROUPS MEETINGS

1. On a national perspective: Identification of particularities, barriers and shortcomings of the National PV policy

The general assessment of the situation in Greece is:

- Market development: satisfactory off-grid development, but little activities in the on-grid segment
- Industry development: fair representation relatively to the small national market
- Cost reduction: following trends in EU
- PV acceptance: very high public acceptance

The strengths of the national PV policy framework are the generous feed-in tariffs, the recently established national programme that will last until 2020, the monitoring scheme and the obligation of the utility to connect renewable energy systems to the grid. The weaknesses are:

- The lack of dedicated promotion of roof-top systems in private households where hidden demand is highest
- The partly purposeless licensing processes even for small-scale applications
- The complicated requirements for grid-connection for small-scale systems that put off potential investors

The very effective regulatory framework, promotion schemes and pilot programmes in the solar thermal sector, creating a leading market and industry in Europe can be seen as a reference for PV. The new law for RES [3] was approved by the Hellenic Parliament in June 2006. This law will raise some of the barriers set by the current PV policy framework and open the market for grid-connected PV applications.

PV systems are cost-competitive on islands today. But the assessment of the real (macro-economic) value of PVs should not be done against the production cost of the utility at the power plant for the mainland and against the domestic low voltage tariff for the islands. When calculating the economic cost of a policy instrument (e.g. feed-in tariff), the benefits from PVs should be considered:

- PV contribution in peak demand hours when cost is high. In Greece, 600 MW capacity is needed for only 40 hours per year.
- PV ancillary services, e.g. reactive power for voltage control.
- Environmental benefits and avoidance of CO₂ sequestration costs among others. PVs replace diesel generators that are usually over-dimensioned.
- Production of power near the load in the case of systems in the residential sector, and thus, avoidance of power transmission and distribution costs and of losses. These additional costs are 50% of production cost in the mainland and much higher-even 100%-in the islands.

2. On a comparative European perspective: Identification of potential for improvement based on the better practice in other European countries

Areas for potential improvement can be identified by comparison with other European countries. A soft loan scheme alongside with a carefully designed feed-in tariff law with a guarantee period of 20 years has brought Germany's PV market in the first place in Europe. This is due to the fact that these policy instruments provide a decisive leverage for an investor and guarantee a reasonable pay-back time of 8-12 years with ROI 7-8% for an investment in a PV system and a long-term security. Germany has also managed to develop a leading PV industry in Europe because of the strong home market and the long-term perspectives that the policy framework provides as there is no cap on the installed PV capacity to avoid market growth coming to a sudden rest ("stop & go effect"). The feed-in tariff decrease rate provisioned by the German law reflects cost reductions and drives price reductions. The cost of the feed-in tariff law is passed to the consumers. Administrative processes are simple and fast; for example, small installations require 4 permissions from 2 authorities which can be obtained within 2 months. The soft loan programme "100.000 Rooftops" was efficiently implemented by banks with minimal involvement of the government that only transferred the appropriate funds to them. Monitoring of the programme was performed by the federal bank. The broad public acceptance of photovoltaics in Germany, initiated by the demonstration programme "1.000 Rooftops" in the early '90s, regional and school programmes and awareness campaigns for clean and environmental friendly power production, and further enhanced by the profitability of the systems, encouraged the government to further support this technology.

Spain can be considered a European benchmark for a consistent PV strategy, oriented at clear political targets. An official target of the Spanish government was already stated in the national Renewable Energy Promotion Plan from 1999 that envisaged an installed PV capacity of 144 MWp until 2010 with 135 MWp grid-connected. The Renewable Energy Plan in 2005 lifted this threshold to 400 MWp. The entire Spanish policy framework is aligned to the achievement of these targets and has been amended various times since the actual market development was lagging behind. The framework combines a feed-in tariff law, a national subsidy scheme and specific administrative regulations regarding authorisation procedures, grid access and registration of plants. Spain is the only country with a combined grant and soft loan via a public bank programme. A PV investor can apply for a maximum of 7.000 €/kWp – which is the biggest amount to be obtained in Europe. Another advantage of the Spanish scheme is its countrywide uniformity. Market monitoring is performed by IDEA, the energy agency, together with regional level authorities responsible for renewable energy. They have developed a computer database to provide, to

national, regional and local authorities, real-time uniform information on renewable energy investment projects.

Austria has established an effective monitoring system for PV projects supported under its feed-in law. The regulatory authority E-Control collects data through three channels and publishes an annual report. All plants that receive the feed-in tariffs need to be registered and the installed capacity, the fed-in electricity and the tariffs paid are incorporated into a central database at E-Control.

In Japan the subsidy programmes and fiscal incentives have resulted in the highest numbers of PV installations worldwide. PV is highly accepted by the public and seen as an innovative 'high tech' product. In most cases it is already implemented into the houses when the owner buys the house. It is a 'prestige' product whereas in Europe it is mainly a question of return of investment.

II. NATIONAL AGENDA ON IMPROVEMENT OF NATIONAL PV POLICY FRAMEWORKS UNTIL 2008

1. National agenda on improvement of national regulatory frameworks, focus 2007 – 2008

1.1. Targets and objectives (What should be done?)

The main objective is the development and operation of a sustainable PV market in Greece and the growth of the PV industry.

The following targets are set:

- Assistance in the implementation of the new law for RES that was approved by the Hellenic Parliament in June 2006 [3].
- Formulation of propositions for the optimal enforcement of this law, including the composition of a thorough study on the aesthetical integration of PV systems in traditional settlements, landmarks and protected areas/villages.
- Public relations and media work to disseminate the project results to raise political awareness about the effects of PV policy.

1.2. Strategy and action programme (How should it be implemented?)

The Institute of Energy for South-Eastern Europe (IENE), took the initiative in summer 2004 to elaborate a proposal to the government including legislative and regulatory measures aiming in accelerating the development of RES in Greece, starting from solar energy. For PV technology, a group from stakeholders and experts was formed with members from the research community, the Greek industry, EPIA, the association of PV companies and experts in the field. The PV working group formulated a list of new propositions and IENE published the relevant document in December 2004. The proposal from IENE has already been submitted to the Ministry of Development and some of the IENE propositions were included in the new law.

The Greek National Core Group members will assist in the implementation of the new law as described in the IENE proposal [2]. Specifically, IENE and CRES can compile, upon request by the government, the necessary technical annexes in the legislative instruments that will be issued to support the new law. Also they have the ability to provide technical support in the critical initial phase of the new legislation and in the evaluation of its performance, contributing in know how and international experience. CRES plans to assist the Greek Standardization Organization in the formation of a technical committee for PV that will implement relative European and international standards at national level.

According to the new law [3], CRES may be commissioned by RAE as a technical advisor in the granting of production licenses, and by the Minister of Development for providing technical expertise and administrative support in issuing of installation licenses. CRES will perform the verification check of

the functional and technical specifications of the equipment in RES power systems required for the granting of the operation license, and will issue green certificates for off-grid systems. Moreover, CRES, represented by its president, will participate in the Committee for the Promotion of RES & HE-CHP Large-scale Investments, may be invited in the meetings of the Committee for RES & HE-CHP, and will prepare an annual report on the promotion of RES in Greece.

The members of the National Core Group will make propositions for the optimal enforcement of the new law.

As far as national dissemination of project outcomes towards key actors is concerned, CRES will implement the following between July 2006 and April 2007:

- Communication of national Action Plan and Position Paper to relevant key actors and target group representatives by personal mailing and/or presentation at meetings. Key actors include commerce and industry chambers as for example the Hellenic-German Commerce and Industry Chamber, the Technical Chamber of Greece, Greenpeace Greece, academia, PV industry and market actors, electricity associations, and the Hellenic Association of PV Companies (HELAPCO).
- Composition and placement of five press articles in national PV, RES and political media such as the weekly periodical of Technical Chamber of Greece, the monthly periodical of the Hellenic Association of Electrical and Mechanical Engineers, the periodical "World of Energy" of IENE and the periodical "Electrician".
- Two presentations on national key events.

1.3. Necessary resources and financing (Who is implementing it?)

The members of the Greek National Core Group and IENE will assist in the implementation of the new law and provide propositions for the optimal enforcement of this law. IENE could form up again the same working group of volunteers that worked out the proposal in December 2004 to participate in these actions.

The technical committee for PV that will also assist in the implementation of the new law with the development of standards will be funded by the Greek Standardization Organization.

According to the new law, financing of CRES to perform its tasks regarding production licenses, installation licenses and green certificates will come from RAE, the Ministry of Development and the owners of the off-grid systems, respectively.

The actions for the dissemination of the project results are foreseen in the PV POLICY GROUP project plan

[1] and therefore will be funded accordingly. These tasks will be carried out by the two researchers and the administrative assistant of the Department of Photovoltaics & Distributed Generation of CRES that participate in the project.

2. National agenda on national support schemes, focus 2007-2008

2.1. Targets and objectives (What should be done?)

The members of the Greek National Core Group have put forth their propositions regarding support schemes in the IENE proposal.

Public relations and media work to disseminate the project results concerning support schemes should be undertaken, to raise political awareness about the effects of support schemes to the PV market.

2.2. Strategy and action programme (How should it be implemented?)

Dissemination of the project outcomes regarding support schemes will be incorporated in the general dissemination actions described in the previous section.

2.3. Necessary resources and financing (Who is implementing it?)

The two researchers and the administrative assistant that participate in the project will perform the tasks as described above.

3. National agenda on national monitoring systems, focus 2007-2008

3.1. Targets and objectives (What should be done?)

Again, the members of the Greek National Core Group have already provided their propositions regarding monitoring systems in the IENE proposal.

Public relations and media work to disseminate the project results concerning monitoring systems should be undertaken, to raise political awareness about the effects of monitoring systems to the PV market.

3.2. Strategy and action programme (How should it be implemented?)

Dissemination of the project outcomes regarding monitoring systems will also be incorporated in the general dissemination actions described in a previous section.

3.3. Necessary resources and financing (Who is implementing it?)

The two researchers and the administrative assistant that participate in the project will perform the tasks as described above.

REFERENCES

[1] EC co-funded project "*PV Policy Group*", Contract No EIE/04/058/S07.3856, www.pvpolicy.org.

[2] IENE report "*Propositions for the Development of Solar Applications in Greece*", December 2004.

[3] "*Production of Electricity from RES, High Efficiency Cogeneration of Heat and Power and Other Devices*", Law 3468, Official Gazette of the Hellenic Republic, Vol. 1, Issue 129, 27 June 2006, pp. 1405-1426.

ABBREVIATIONS

CHP: Cogeneration of Heat & Power

CRES: Centre for Renewable Energy Sources

DER: Distributed Energy Resources

DG: Distributed Generation

DSO: Distribution System Operator

HELAPCO: Hellenic Association of PV Companies

IENE: Institute of Energy for South-Eastern Europe

MoD: Ministry of Development

MoF: Ministry of Economy and Finance

NAP: National Action Plan

NPP: National Position Paper

PPC: Public Power Corporation

PV: Photovoltaic

RAE: Regulatory Authority for Energy

RES: Renewable Energy Sources

ROI: Return on Investment

VAT: Value-Added Tax

www.pvpolicy.org



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