

WP 4: THE REGIONAL STATE OF THE ART IN CAMPANIA REGION



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1. A regional Solar Policies overview in Campania: preliminary state of the art and needs identification for the SHAAMS POLICY ACCELERATOR

The questionnaire was administered to officials, technicians, managers and administrators from 15 local authorities, homogeneously distributed in 5 provinces of Campania region.

From the analysis of the questions, it is clear, yet the need for information about renewable energy and incentives dedicated to them; in fact, 80% of respondents believe that the information on renewable energy in Italy is not adequately conveyed. In addition, although in Italy there are incentives for some time for both photovoltaics (Conto Energia) and solar thermal (IRPEF deductions of 55% and Nuovo Conto Termico) is still high the percentage of respondents who are not aware of these types of financing.

Particularly active in the promotion of renewable energy sources are the municipalities of medium and small size that have made on they owned buildings photovoltaic plants for a max power of 1.3 MW and solar thermal plant for an average of 10 square meters.

Almost all of those polled believed that solar is for Italy the energy source to bet in the next five years, followed by geothermal energy and wind power; however, although switching to solar is considered convenient from an environmental point of view, about 30% believes it is also costly from an economic point of view, in addition to encounter difficulties which hinder the development of the solar industry, such as the lack of funding to implement the actions, the complexity of administrative procedures and red tape.

1.2 Institutional organisation of the solar sector

The Campania Region, following the regional law 30 January 2008, undertakes, in a three-year program, to the definition of a series of actions in the energy sector, aimed at:

- Encourage the diffusion of renewable energy in industrial, civil and domestic use
- Equip the regional buildings of energy systems from renewable sources
- Redevelop urban areas and towns that dot the energy and environmental sustainability through the use of energy efficient systems, through green building and public lighting systems with high efficiency
- Implement interventions for the installation of systems based on the use of solar technologies for the production of domestic hot water and photovoltaic electricity, at public and private utilities, integrated and high architectural value
- disseminate and implement energy efficiency and renewable energy in the

public and private buildings, including through the use of targeted instruments to promote Third-Party Financing methodology

- promote a culture of rational use of energy conscious and mature through adequate information and communication tools
- support the professional development and specialization in technology companies in the fields of installation of equipment and construction

The Province of Naples, taking also the Campania Region directives, has drafted a provincial energy plan for achieving the "20-20-20" targets in terms of reducing greenhouse gas emissions, energy conservation and demand coverage energy through renewable sources of energy. The objectives are identified in:

- energy savings on building envelope of buildings
- hot water saving (especially for accommodations) with the adoption of solar thermal
- energy saving in public and commercial activities and shopping malls
- photovoltaic systems on private residences ("The PV for private residences" project)
- development of biomass energy
- pilot project for the construction of the energy chain from biogas

The City of Naples has joined the Covenant of Mayors and in this context has prepared the SEAP (Sustainable Energy Action Plan), programmatic document which contains a series of resolutions aimed at implement the action plan to contribute to the 20% reduction of greenhouse gas emissions into the atmosphere, through the increase of efficiency of 20% and increasing the use of renewable energy of 20% by 2020. Action plan that identifies steps to:

- installation of 42 solar power plants in many urban schools
- significantly reduce the environmental impacts of products and services purchased by the city of Naples and its subsidiary companies
- rationalise and reduce the energy consumption of the Municipality and its subsidiary companies
- raise awareness among employees of the municipality and its subsidiary companies because they become actors in achieving environmental benefits

1.3 The energy/solar strategy in Campania

With regional law No. 1 of February 2013, the Campania Region expresses strong interest in issues of environmental sustainability and solar energy in particular; in fact, the Region chooses its territory as a fundamental source to meet its energy needs, as it does for all their other needs and activities, from home to school, from mobility to work, from culture to health.

In fact the main objectives of the law include, among others:

- achieving energy self-sufficiency for public buildings;
- conversion of industries and decommissioning of power production from fossil source currently operating;
- promote a culture of rational use of energy conscious and mature through adequate information and communication tools

However, though, the final approval of the law has been delayed due to some problems of unconstitutionality; has been changed in some parts (on the financial coverage), but the core text of the law remains unchanged.

1.4 CAMPANIA 2020 and the MED Solar Plan

The Campania Region, in addition to make use of forms of financing and state incentives for solar sector development and renewables in general, has promoted the creation of technology district SMART POWER SYSTEM which aims to aggregate and networking companies, universities and research institutions to support and accelerate the development and transfer of knowledge and technologies in the energy sector. The strategic objectives can be summarized as:

- supporting new entrepreneurship through innovation and technological bias in the application fields of energy
- achieving international excellence by focusing research and development activities on the themes of industrial interest
- production of results of international importance and a high economic impact
- establishment of a centre of excellence that will attract and form young talents and researchers in the field of energy-industry
- stimulate and support the creation and development of new high-tech enterprises
- technological development to improve the current systems of energy production from renewable sources and disposal of the waste at the end of life through sustainable solutions (from cradle to grave)

District actions shall cover the following areas of intervention:

- RESEARCH: stimulation and organization tasks of the link between supply and demand of regional research

- INNOVATION: support in defining and planning organization, implementing projects of innovation, industrial development, technology transfer, facilitating access to financial support tools for enterprises
- TRAINING: planning and implementation of training programs for managerial and specialist profiles
- INTERNATIONALISATION: support to the competitive positioning of the District in the international context
- INCUBATION: stimulus and support for new business initiatives

Within the district there are various lines of activity, one of which is entirely dedicated to renewable energy sources and providing

- Laboratory tests on panels and photovoltaic systems
- Laboratories and test facility for the characterization and qualification of concentrator photovoltaic cells and modules
- pilot plant for the recycling of photovoltaic panels

1.5 Barriers and facilitators to the strategy implementation

c) Analysis and results

- need for adequate technical assistance that supports various types of financing given the existence of different types of incentives, at national and European level, for both PV and solar thermal
- more effective communication about the benefits arising from the use of renewable energy sources to fight the mistrust and lack of knowledge of the population
- substantially reduce administrative and bureaucratic procedures for installing and/or accessing funding for solar thermal and PV
- improve and simplify access to incentives for renewable energies in a period like this with a strong economic/financial crisis

1.6 SWOT analysis and results

| | HELPFUL (To achieving the objective) | HARMFUL (To achieving the objective) |
|-----------------|---|---|
| INTERNAL ORIGIN | <p>STRENGTHS</p> <ul style="list-style-type: none"> - climatic conditions, geographical location and very favorable solar radiation - awareness that the solar industry is for Campania the energy source to bet more in the coming years | <p>WEAKNESSES</p> <ul style="list-style-type: none"> - lack of specific technical services that provide support to the various types of financing |
| EXTERNAL ORIGIN | <p>OPPORTUNITIES</p> <ul style="list-style-type: none"> - incentives for photovoltaics (Conto Energia) - incentives for solar thermal (55% deductions IRPEFe Nuovo Conto Termico) | <p>THREATS</p> <ul style="list-style-type: none"> - distrust of citizenship to the use of renewable sources - complexity of administrative procedures - red tape |

From the analysis of questionnaires shows that the solar industry is for Campania the energy source to bet more in the coming years because climatic conditions, geographical location and solar radiation are particularly favorable. Although the existence, at national and European level, incentives for both photovoltaic for solar thermal, is there anyway to record the lack of adequate technical services that support the various types of financing. Distrust of citizenship to the use of renewable sources, the complexity of administrative procedures and red tape are perceived by stakeholders as the main threats that hinder the

final take-off of the solar industry.

1.7 Global conclusions for the policy accelerator in Campania region.

In addition to different typologies of EU and national funding, in the Campania region, local authorities have developed a series of incentive policies to support renewable energy in order to achieve the objectives of reducing CO₂ emissions by 2020.

The CAMPANIA REGION has promoted the creation of the Technological District SMART POWER SYSTEM with the aim of gathering and networking companies, universities and research centers to facilitate and accelerate the development and transfer of knowledge and technologies in the energy sector. One of the lines of activities planned within the District is entirely dedicated to renewable energy sources and is aimed at the design, construction and testing of new models of photovoltaic panels and their recycling life cycle exhausted.

The PROVINCE OF NAPLES, taking the directives of the Campania Region, has developed a provincial energy plan for achieving the "20-20-20" targets in terms of reducing greenhouse gas emissions, saving energy and the energy requirements through renewable sources of energy. Particularly important are the project "The PV for private residences" which includes the installation of photovoltaic systems on private residences and a pilot project for the construction of the energy chain from biogas.

The city of Naples has joined the Covenant of Mayors, which requires all municipalities to draw up, within 12 months, the SEAP (Sustainable Energy Action Plans): an energy plan at the local level designed to demonstrate how the administration council intends to contribute to the achievement of targets for the reduction of CO₂ emissions by 2020. The SEAP works, both in the public and private sectors, on initiatives affecting sectors such as construction, spatial planning, transport, public lighting, locally based production from renewable energy sources, public procurement of products and services.

Are being implemented the measures provided for by the Plan also using all possible funding active in Italy.

Ultimately, from the analysis of best practices and questionnaires administered to various stakeholders in the Policy sector, the following needs have been identified:

- need for adequate technical assistance that supports various types of financing given the existence of different types of incentives, at national and European level, for both PV and solar thermal;
- more effective communication about the benefits arising from the use of renewable energy sources to fight the mistrust and lack of knowledge of the population;
- substantially reduce administrative and bureaucratic procedures for installing and/or accessing funding for solar thermal and PV;
- improve and simplify access to incentives for renewable energies in a period like this with a strong economic/financial crisis

2. The SHAAMS ENTERPRISE RESEARCH ACCELERATOR in Campania region

2.1 The R&D for energy and the solar market in the CAMPANIA

Very important is the role of Universities and Research Centres of the Campania Region in the study, research, development and technology transfer of products and processes for the development of solar energy. Within the 7 Universities of the Campania Region are carried out studies, research and laboratory tests with the involvement of Institutes / Research Centers that provide to universities external laboratories and industry-specific skills.

Very active on this front are the CNR of Naples (National Research Council) and ENEA Portici which is engaged in developing, among other things, concentrating solar technologies acting as a principal actor in the initial phase and searching industrial applications to enable the regional and Italian enterprises to participate fully and immediately to the emerging global market for these energy technologies.

In addition, both the universities / research centers and the enterprises operating in the solar industry have a fundamental role in the creation of the Technological Cluster SMART POWER SYSTEM, promoted by the Campania Region, and between the different lines of business provides a fully dedicated to renewable energy sources; in fact, the actions of the Cluster covering the areas of intervention ranging from research to innovation, from training to internationalization coming up to incubation, providing encouragement and support for new business initiatives.

2.2 The R&D and the market strategies

Most of the interviewees belong to Universities and/or research centres, but there are business incubators and small/medium-sized enterprises operating in the environmental energy sector. 75% of respondents claiming to be aware of the policies of the country in the field of solar energy systems, indicating the photovoltaic and solar thermal systems like solar energy more popular. Clearly, universities/research centres cater more interest to Research&Development, while companies cater greater attention to the issue of marketing of solar energy systems. It's the intention shown by the respondents to invest in a project/programme/solar energy system or update an existing one, although the majority (62%) claims to have never implemented or taken part in any programme on solar energy financed with national and/or international funds.

Failure opening outward and inability to make network and create networks with research centres or companies (due to the small size of local businesses) is indicated by the data showing that about 70% of those polled (mainly business) claiming that the recourse to experts or specialists on solar energy outside the organization is virtually non-existent, while universities/research centres rely on the collaboration of experts or specialists to their organization.

In addition, almost all of the respondents said they had no connection or not to cooperate with public institutions or government agencies in the field of solar energy, although, however, the widespread awareness and knowledge of the existence of national and European institutions that support the theme.

The national support scheme and the contribution are the two types of funding more

widespread for solar power installations that use organizations.

In order to promote renewable sources respondents ask to policy makers promote the market and the organization of seminars / courses that allow their employees to specialize on issues covered by their business.

2.3 Economic, market and financial barriers and facilitators to the strategy implementation

Results and analysis

- need for companies and research centres, for a greater and more fruitful collaboration and opening outwards
- stimulate businesses and research centres to create a network between research centres and enterprises and between enterprises themselves in order to promote the exchange of knowledge and procedures
- develop appropriate instruments to foster collaboration between business and public institutions or Government Agencies in the field of solar energy
- develop a serious policy of incentives to address the lack of adequate financial resources for the research and implementation of technologies related to solar industry, even in a period of serious economic crisis like this

2.4 SWOT Analysis

| | HELPFUL (To achieving the objective) | HARMFUL (To achieving the objective) |
|-----------------|---|---|
| INTERNAL ORIGIN | <p>STRENGTHS</p> <ul style="list-style-type: none"> • in-depth knowledge of issues relating to renewable energy sources, in particular solar energy | <p>WEAKNESSES</p> <ul style="list-style-type: none"> • lack of cooperation towards the outside • inability to network and create a network with Research Centers or between the enterprises themselves • lack of cooperation with public institutions or Government agencies on solar energy |
| EXTERNAL ORIGIN | <p>OPPORTUNITIES</p> <ul style="list-style-type: none"> • market-place promotion • training/retraining courses for employees of companies operating in the solar industry | <p>THREATS</p> <ul style="list-style-type: none"> • lack of financial resources to research / implementation of technologies related to solar industry |

Universities / research centers and companies operating in the field of renewable prove to have a high degree of knowledge of the issues relating to solar energy.

However, due to mainly the small size of enterprises identified as stakeholders, it is important to highlight the inability to network and create networks between enterprises and research centres/universities and between enterprises themselves and a low degree of cooperation with public institutions or Government agencies regarding solar energy.

In order to give a definitive boost to the solar industry is desirable a greater promotion of the market and the organization of training and retraining courses for employees of companies operating in the solar industry. To worry about, especially in the current global economic crisis period, is the financial shortage for research/implementation of technologies related to the sector in question.

2.5 Global conclusions

The involvement of universities and research centres in the SEAP (Sustainable Energy Action Plans) developed by the Municipality of Naples, and in the Technology District SMART POWER SYSTEM launched by Campania Region, has a strategic importance for economic, scientific and entrepreneurial development of actors working, at the regional level, in the field of entrepreneurship and research and development. In the processing of the SEAP, the municipality of Naples, made use of the participation and collaboration of all stakeholders, in the business and scientific research world, engaged in any capacity on the territory in order to make them protagonists and active in the development of sustainable development strategies.

In addition to the Universities of Naples, have been called into question several industry associations (Association of Builders, Industrialists Association, Crafts Association, Small Business Confederation). In fact, among the objectives of the SEAP, there is a will to strengthen the relationship between the world of business, local authorities, research centers and industry players to offer an effective trade promotion tool to local, domestic and foreign businesses.

The direct involvement of universities, research centres and business realities in the Technology District SMART POWER SYSTEM is to be found in the will and the need to promote in Campania competitive consolidation of technological knowledge concerning the rational use of energy. Universities and research centres are identified as relevant actors on the territory for the dissemination, transfer and exploitation of research in key areas of development of knowledge and their applications for the scientific, technological, economic and social development. Have joined the technology district SMART POWER SYSTEM important industrial reality as Ansaldo Energy, Enel, Enel Green Power, Hagitron, in addition to universities and research centers of the 5 Campania provinces (CNR, ENEA).

Ultimately, from the analysis of best practices and questionnaires administered to various stakeholders in the Enterprise&Research sector, the following needs have been identified:

- need for companies and research centres, for a greater and more fruitful collaboration and opening outwards;
- stimulate businesses and research centres to create a network between research centres and enterprises and between enterprises themselves in order to promote

- the exchange of knowledge and procedures;
- develop appropriate instruments to foster collaboration between business and public institutions or Government Agencies in the field of solar energy;
- develop a serious policy of incentives to address the lack of adequate financial resources for the research and implementation of technologies related to solar industry, even in a period of serious economic crisis like this.

3. The SHAAMS SOCIAL ACCELERATOR in Campania Region

3.1 The public awareness in the Campania region

In Campania is there to record a high level of public awareness about the benefits that may result from the transition to an economy tied to solar energy. Much of the credit of this widespread awareness is to be found in the information and communication activities promoted by environmental and animal protection groups, NGOs operating in the environmental energy sector which organise special communication campaigns in schools and supported by the public authorities (in particular the Municipalities) to provide citizens the right information about the opportunities for development and use of solar energy.

The regional law No. 1 of February 2013, law of popular initiative on the adoption of solar energy in Campania, promoted by citizens and third sector associations, with a special petition, testifies the

full involvement of environmental and animal protection groups, environmental NGOs operating in the energy sector to try to establish a direct line to decision makers in the adoption of shared standards: a real exercise in direct democracy from below.

3.2. The Partnerships and initiatives in the solar sector

The activities of environmental and animal protection groups, NGOs operating in the environmental energy sector concern both the awareness that the information on issues related to the use of renewable energy sources, with particular reference to solar energy. In fact, there are various initiatives implemented in: Solar Energy Days that aims to raise public awareness of intelligent energy solutions and behaviours, particularly for Solar Thermal and Photovoltaics; EnergyMed that, within its exhibition space, welcomes and offers the opportunity for many organizations to set up infopoints: listening points to help you get information about national and european funding programs; the organization of training courses and educational courses promoted by national funds allocated by the Ministry of Environment.

3.3. The main barriers and facilitators to the public participation and the public awareness about solar energy

Analysis of the results

The questionnaire was administered to environmental groups, by category, by entrepreneurs and NGO organisations operating in the environmental energy sector. The analysis confirms the knowledge of respondents about data on Italian production from renewable sources with relatively preponderant role of photovoltaic which represented by only 6.3% of Italian electricity production (respondents showed less than 10%).

Associations converge on the fact that, among the different modes of use of solar energy, priority must be given to photovoltaic, followed by solar thermal. Although it is strongly believed that the production of renewable energy is cheaper than nuclear power generation or from fossil fuels, especially the lack of political will of decision-makers (60%), as well as the lack of information and pressure from stakeholders represent the main barriers that hinder further development of renewable energy solutions in Italy. Although almost all of the respondents believe that they are aware of the methods on how to save energy at home or at the workplace, is concern that policy makers, in establishing the best energy solutions for the Country, do not take seriously the dangers from climate change.

Therefore respondents agree on the need to participate in campaigns or educational activities, collaborate with NGOs and put pressure on policy makers to influence the debate and the decision-making process regarding the future energy policy of the country.

3.4 SWOT Analysis

| | | HELPFUL (To achieving the objective) | HARMFUL (To achieving the objective) |
|-----------------|-----------------|--|--|
| INTERNAL ORIGIN | STRENGTHS | <ul style="list-style-type: none"> • knowledge of current Italian production from renewable sources • widespread awareness of the need to bet on solar energy | WEAKNESSES <ul style="list-style-type: none"> • lack of adequate lobbying by stakeholders for further development of the solar sector |
| | EXTERNAL ORIGIN | OPPORTUNITIES <ul style="list-style-type: none"> • interest of the schools for the organization of campaigns and educational activities • collaboration with NGOs • increasing interest of citizens regarding the use of renewable energy sources due to the need to reduce the cost of electricity bills | THREATS <ul style="list-style-type: none"> • lack of consideration on the part of decision makers of the dangers from climate change |

The knowledge of data related to the current Italian production from renewable sources and the widespread awareness of having to focus on solar energy are characteristics common to environmental associations, and NGOs identified as probable stakeholders. However, the lack of adequate lobbying by the stakeholders to give further development to the solar industry and the lack of consideration of the dangers resulting from climate change on the part of policy makers in establishing and plan the best energy solutions for the country, are perceived as internal weaknesses and external threats. But the opportunities for a greater boost to the solar industry can emerge from the interest shown by schools concerning the organization of campaigns and educational activities, in collaboration with NGOs and increased interest on the part of citizens towards renewable energy sources due to the need to reduce the cost of the electricity bill.

3.5 Global conclusions

Of fundamental importance is the involvement of the associations of citizens, consumers, trade unions, representatives of associations and of the productive sectors in the SEAP elaboration. In fact, through the creation of a Council and a Forum for the Council for the permanent involvement of citizens and stakeholders in the local energy policies, the goal of the City of Naples is to develop a shared and participated plan for environmental sustainability that allows to gather input and suggestions from civil society, following the preparation of a Baseline Emission Inventory (BEI) that identifies the main sources of CO2 emissions and their reduction potentials. Users have the opportunity to consult, on the official website of the city of Naples, the section specifically dedicated to PAES, where there are guidelines for the rational and environmentally friendly use of energy in all sectors (buildings, transport, industry). The commitment to environmental organizations (WWF, Legambiente) in organizing educational campaigns such as Earth Hour and Earth Day, underlines the willingness of such parties to keep a high attention on issues relating to the preservation of the planet Earth, the need to adopt behavior eco-friendly and eco-responsible directed towards the development of a green economy and an education system inspired by environmental issues. In this regard, the organization of appropriate communication campaigns in schools seems to be a very effective lever to educate and sensitize the younger generation to raise awareness of waste reduction.

Ultimately, from the analysis of best practices and questionnaires administered to various stakeholders in the Social sector, the following needs have been identified:

- need for adequate lobbying by stakeholders to focus the right resources for the development of the solar industry;
- increase pressure on decision makers to a greater awareness of the risks resulting from climate change in order to establish the best energy solutions for the Country;
- include environmental education between obligatory school subjects to raise awareness about the benefits and advantages of using renewable sources.

4. SHAAMS common indicators for the sectors analysis.

| Indicator | Category | Exists by end of 2011 | Exists by end of 2012 | Exists by end of 2013 | Exists by end of 2014 | Exists by end of the project | Notes |
|---|--|---------------------------------|---------------------------------|-----------------------|-----------------------|------------------------------|-------|
| Region of reference: Campania | | | | | | | |
| 1 - N° of solar systems in the region | Solar thermal power | 2.563 msq* | | | | | |
| | Solar thermal application in hot water, space heating, drying, solar cooling | | | | | | |
| | Solar PV systems | 10.071 (376 MW)** | 16.571 (546,2 MW)** | | | | |
| | Installed power per capita | 65,2 W ** | 94,7 W ** | | | | |
| 2 -Total investments in solar energy in your region | Grant schemes to support private investments | JEREMIE Campania*** | | | | | |
| | No of solar systems in public buildings | | | | | | |
| | Money invested on raising awareness (training, communication) | | | | | | |
| | Which technology does the state support? | Solar thermal and photovoltaics | Solar thermal and photovoltaics | | | | |
| 3 – Total solar energy production in your region | Total energy generated from the solar energy | 302,1 GWh** | 580,5 GWh** | | | | |

OFFICIAL DATA:

*= Data on solar thermal come from the 2011 report on tax deductions of 55% made by ENEA (National Agency for New Technologies, Energy and Sustainable Economic Development). Solar thermal data refer only to individuals that can take full advantage of tax deductions of 55%

**= Data on solar pv come from the 2011 and 2012 report made by GSE (Handler of Energy Services), dispenser of contribution named Conto Energia

***=tool launched by the European Commission and the EIB to facilitate access to credit for small, medium and micro enterprises for the installation of photovoltaic systems and energy production with other renewable energy sources