SUSTAINABLE ENERGY POLICIES IN EUROPEAN REGIONS

Report based on a survey among 67 European regions

Assembly of European Regions
Committee on Economy and Regional Development

Strasbourg, April 2010

The Assembly of European Regions would like to thank the members who participated in the survey for providing contribution and sharing with us their energy data and precious remarks.

This survey represents the first step towards a complete overview of regional practice in the field of low carbon energy. We truly hope that it will help better understand the strengths and needs of European regions in the development of sustainable energy policies.

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Please note the present report has not been drafted by an English native speaker.

All figures and examples quoted in this report come from the contributions of our members. The Assembly of European Regions declines any responsibility for inaccuracy of the provided data.

LIST OF ACRONYMS

A: Austria

AL: Albania

AER: Assembly of European Regions

AL: Albania

B: Belgium

BiH: Bosnia and Herzegovina

CH: Switzerland

D: Germany

DK: Denmark

E: Spain

EARDF: European Agricultural Fund for Rural Development

EC: European Commission

ERDF: European Regional Development Fund

ERF: Energy Recovery Facilities

EU: The European Union

EUR: Euro

F: France

FIN: Finland

FP7: Seventh Framework Program

GB: Great Britain

GE: GE Energy

GHG: Greenhouse gases

GWh: Gigawatt hour

H: Hungary

HR: Croatia

I: Italy

KWh: Kilowatt-hour

LNG: Liquefied natural gas

LT: Lithuania

N: Norway

NL: The Netherlands

P: Portugal

PL: Poland

R&D: Research and development

RES: Renewable energy sources

RO: Romania

RUS: Russia

S: Sweden

SRB: Serbia

UA: Ukraine

UK: United Kingdom

TR: Turkey

THINK GLOBAL, ACT REGIONAL!

Regional roadmap to the low-carbon future

During the opening of the new 2009 / 2010 academic year of the College of Europe in Bruges, Jerzy Buzek, as a freshly elected president of the European Parliament called for the creation of a real European Energy Community. More than 50 years after the Treaty establishing the Coal and Steel Community that paved the way for the European Union, an old idea reborn - that of bringing the European citizens even closer and redefining supranational solidarity around a common good. As a dilemma of all, energy is expected to inject new impetus into a slowly-running-out-of-steam European process.

It is clearly an idea with weight. But this proposal also shows that Europe is full of dazzling paradoxes! Could we turn what is today perceived as a major risk in Europe, namely climate change and the threat of severe energy shortage into an opportunity? Can the sustainable development become a new driver of the European integration in an energy-demanding future? It is a realistic scenario or just a joyous declaration that smacks of wishful thinking?

The plan set out by Mr Buzek is comprised of the three major steps. The first should result in the creation of European oil and gas purchase groups that would not only have a common stand in negotiations over external energy supplies but that would also proceed with development of joint projects such as creation of common energy stocks. As a second step, new cross-border transmission lines should be built in order to improve interregional connections. Finally, it is proposed that “SOMEBODY has to take political ownership and show genuine leadership on the issue”. The idea of setting up enhanced cooperation for this purpose is laconically mentioned. In the absence of a clear definition of the “somebody”, forerunners of a new European Energy Community are still to be found.

The erosion of energy supply and global warming represent daunting challenges for the European Union. Numerous sources provide different data and various options. Extreme worst-case scenarios are presented every day. Regardless from these more or less trustworthy statistics, it is clear that, whatever happens, Europe will need to continue with diversification of energy, as the spectre of fossil fuels scarcity is already becoming a reality. The new EU 2020 strategy has already made out of clean energy a top political priority. It is time to invest more in domestic sources - renewables such as biomass, wind and solar power. Nuclear power plants will remain part of the energy supply landscape in the next years as a backup energy source. In parallel, we need to reduce our appetite for energy through new power management innovations and energy efficient technologies. We need a massive education of how to use energy more wisely and rationally. And if there is SOMEBODY who can take on

these imminent challenges, it is in the European regions that this change will be likely to come first. Europe is maybe running out of energy, but our local communities are not running out of imagination!

AER survey shows that regions have taken an unquestionable lead in the sustainable energy policy making. Due to their proximity to citizens and local renewable energy sources, they are best placed to tackle the issue of energy shortage. When it comes to turning local energy assets into advantage, finding tailor-made solutions to meet energy needs and addressing environmental concerns, there is no better guiding philosophy than to 'think global and act local'. It is therefore regrettable that so little attention has been paid to the issue of energy production and consumption on a local level until now.

Our report represents the first attempt to fill this presently extremely evident gap. The present paper seeks to examine and analyse how energy policies are formulated and implemented at regional and local levels. Our intention was also to explore how regional authorities deal with a variety of energy problems: what kind of political and economic incentives are used to harness new sources of energy in order to bridge the increasingly broad gap between energy demand and supply? What prerequisites are needed for the development of effective regional energy strategies that would accurately depict rapidly changing energy trends? The overview of regional activities has been complemented by a presentation of various ways in which European territories extract and exploit energy resources.

The survey's outcomes will be used to build up further AER projects in the field of low carbon energies. In the light of a rapidly changing energy context, I truly believe that regions will play an increasingly important role in ensuring the sustainable future of Europe. At the time when the Treaty of Lisbon introduces the clause of energy solidarity and confers to the European Union explicit competence regarding the promotion of energy efficiency and enhancement of energy security, regional authorities should be considered as equal partners in the European energy decision making process, and I deeply hope AER report will convince you that regions can effectively contribute to achieving these new objectives.

Kenneth Backgård

President of AER Working Group on Climate Change and Energy

METHODOLOGY

- The survey was conducted from **September to November 2009**. An additional period of 3 months was dedicated to the analysis and completion of provided data. The outcomes were unveiled on the occasion of the **European Regions' Energy Day in Brussels on 29 April 2010**, a joint initiative of AER and GE Energy. Organised each year at the end of April in Brussels, this conference will aim to present a broad scope of the activities conducted by the Assembly of European Regions in the field of energy and climate change in the previous year.

- The questionnaire represents **the first major initiative to gather regional data on the consumption and production of energy.** It describes the critical factors that shape regional energy and environment policies.

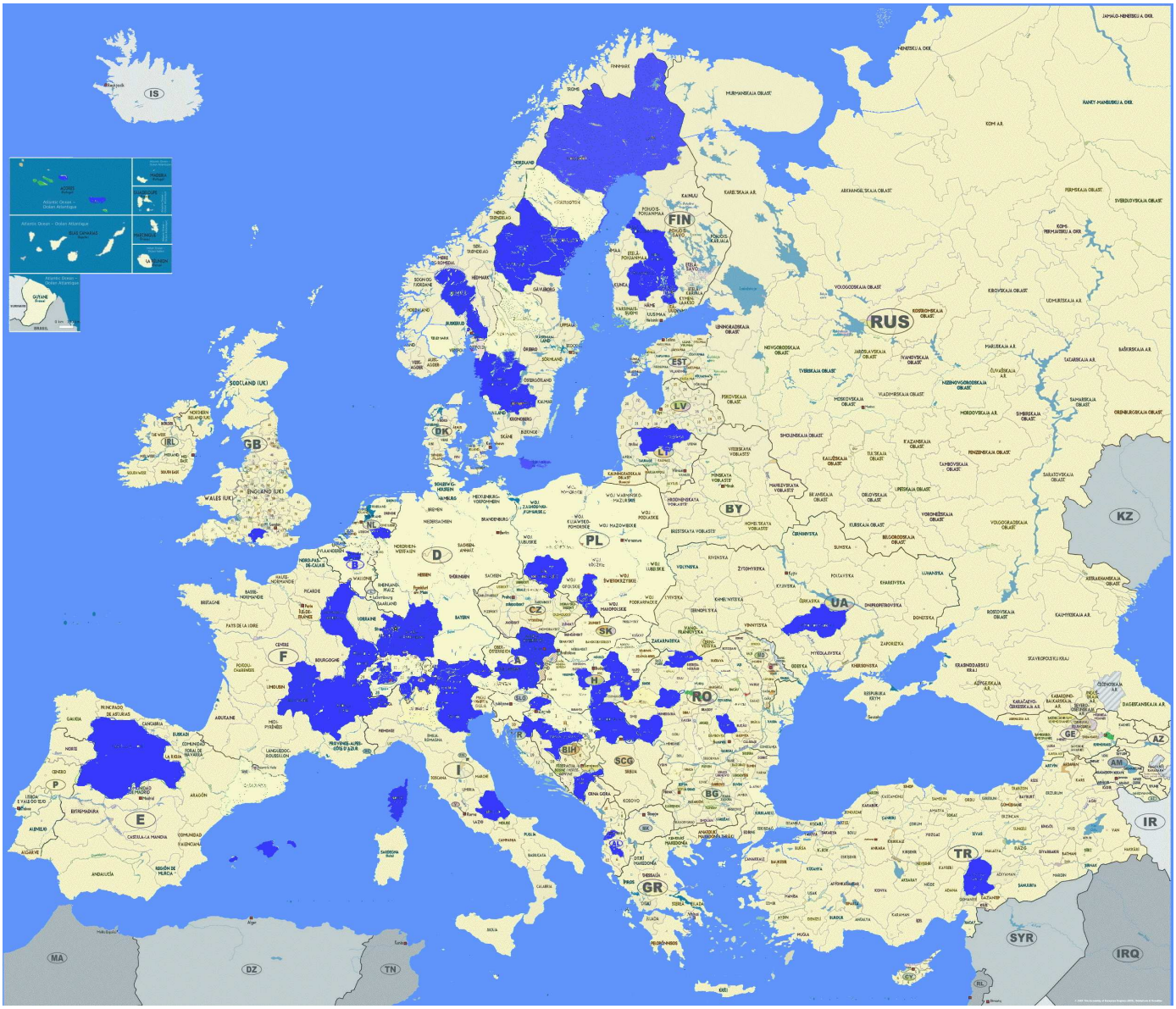
- The survey was designed as a **multiple-choice questionnaire**. It also comprised as a series of open questions to which regions were asked to provide more descriptive answers i.e. What are the key elements of your regional energy strategy? What kind of incentives does your region offer to stimulate green growth?

- Questions were structured around the **three major thematic sections**, namely:
    - Structure of regional energy consumption and production
    - Regional decision-making process in the area of energy
    - Evolution and perspectives of the regional sector of energy

- The **67 regions** from 25 European countries took part in the survey.

- The survey reflects the **geographical diversity of respondent regions**. 48 of the respondent regions come from the EU countries and 19 from outside the EU area. Furthermore, good geographical balance between the Scandinavian, South, West and East European regions allowed the comparison of energy policies at different latitudes. Energy production and consumption was also analysed according to different territorial features of the responding regions, such as islands, urban and rural areas, mountainous territories etc. The level of regional competence to regulate the sector of energy was also considered.

- All contributions from AER member regions are available at **http://www.aer.eu/main-issues/energy-policy.html**



Map of the regions participating in the survey

LIST OF REGIONS PARTICIPATING IN AER SURVEY

AUSTRIA

Niederösterreich
Salzburg
Steiermark
Tirol

ALBANIA

Elbasan

BELGIUM

Bruxelles-Capitale

BOSNIA AND HERZEGOVINA

Republika Srpska

CROATIA

Karlovac
Krapina-Zagorje
Sisak-Moslavina
Varazdin

DENMARK

Bornholm

FINLAND

Keski-Suomi
Keski-Pohjanmaa
Pirkanmaa
Lappi

FRANCE

Alsace
Auvergne
Champagne-Ardenne
Corse
Franche-Comté
Rhône-Alpes

GEORGIA

Tbilisi

GERMANY

Baden-Württemberg

HUNGARY

Bács-Kiskun
Békés
Jász-Nagykun-Szolnok
Fejér
Heves

ITALY

Abruzzo
Trento
Valle d'Aosta
Venetto

LITHUANIA

Panevezys
Šiauliai

THE NETHERLANDS

Gelderland

NORWAY

Askershus
Oppland

POLAND

Dolnośląskie
Śląskie

PORTUGAL

Açores

ROMANIA

Alba
Caraş-Severin
Maramureş
Prahova
Sibiu

SERBIA

Vojvodina

SPAIN

Islas Baleares
Castilla y León
Valencia

SWEDEN

Jämtland
Jönköping
Norrbotten
Örebro
Östergötland
Östsam
Västra Götaland

SWITZERLAND

Bern
Genève
Grisons
Freiburg
Obwalden
Tessin
Ticino

TURKEY

Kahraman-Maraş

UKRAINE

Kirovohrad

UNITED KINGDOM

Hampshire

PART I

ENERGY LANDSCAPE IN EUROPEAN REGIONS

MAIN FINDINGS PART I

Energy landscapes in European regions are determined by a variety of natural and political factors such as climate, territorial morphology, structure of economy and strategic policy orientations

Absence of the institutional framework for data collection can affect the quality of regional energy strategies

The need to overhaul energy infrastructure in most of the European regions opens up an excellent opportunity to rapidly deploy new energy efficient technologies such as smart grids and smart meters

Rapid deployment of locally produced clean and renewable energy is hampered by an unachieved or improperly handled liberalisation of energy markets

Even though traditional fossil fuels remain a largely used source of energy in most of the European regions, many sub-national authorities have already put in place innovative concepts for sustainable energy production.

Regional authorities actively harness local energy potentials. Locally-based natural assets such as snow, straw or municipal solid waste are used to generate clean energy

Several regions are producing energy from RES at levels higher than the EU's 20% target

RES has already enabled a number of regions to be fully independent in terms of electricity consumption.

REVIEW OF ENERGY CONSUMPTION IN EUROPEAN REGIONS

FACTORS FOR ENERGY CHOICES

AER survey shows that energy choices in European regions are driven by a great variety of factors. Geographical position, topographical and climate features, as well the structure of economy may often have a decisive impact on how energy is produced and consumed at a local level. The outcome of the questionnaire also proves that regions are capable of solving diverse energy problems through their own creativity and innovative exploitation of locally-based natural assets. By making excellent use of local resources, sub-national communities do not only improve their energy self-reliance but also rapidly spur green growth and innovation all over Europe. The use of renewable energy sources constantly increases and reaches in some regions 40-50% of their overall energy production. Despite the promise of low-carbon energy sources, they however still fail to provide enough energy needed by the European regions. Our questionnaire clearly shows that fossil fuels, along with nuclear energy, remain the greatest energy suppliers. In many regions, the development of sustainable energies is also hampered by a lack of relevant data on energy consumption and production as well as uncompleted or not properly carried out liberalisation of energy markets.

POLITICAL FACTORS

Energy markets are still strongly interwoven with major political and economic decisions. For instance, following the oil crisis in the 70s, the French political leaders urged for a greater global use of nuclear power, meant to ensure a higher level of supply security and independence from the petroleum exporting countries. Past decisions have strongly modeled current realities. Today, more than a half of the overall energy production in the region of Alsace is nuclear-based. As the survey highlights, over 90% of electricity generated in the Rhône-Alpes region comes from nuclear power plants. It is important to stress that these regions now benefit from a high-level of self-reliance in terms of electricity supply.

Nuclear energy is also enshrined in the Swedish energy landscape. Nuclear power accounts for respectively 9% and 26% of energy consumed in the regions of Jönköping and Örebro. Paradoxically, Sweden was at the forefront of anti-nuclear sentiment in the aftermath of a tragic Three Mile Island accident in the United States in 1979. The country decided in a referendum organised a year later to phase out its existing nuclear power stations. The ban on producing nuclear energy has been lifted recently, as a part of a new political drive to increase energy security and to fight more effectively the global warming.

Some of the regions also import a great deal of nuclear energy, as for example the region of Central Finland (30% of the total amount of imported electricity). Nuclear energy is also present in the region of Baden-Württemberg (D). It accounts for 24,4% of the energy consumption.

ECONOMIC FACTORS

The structure of economy is one of the key factors that affect regional energy demand. In the regions with a predominance of the primary sector, agriculture, forestry and fishery are leading energy consumers. Significant amounts of energy used in farming activities are recorded in the regions of Lapland (FIN), Lower Silesia (PL) and Bekes (H). Regions with a strong presence of the heavy industry are also painfully confronted with the issue of a disproportionately high-energy demand. Chromium, cement and brick production pose a significant energy burden in the region of Elbasan (AL). Another examples of energy-intensive industries are as follows: metal processing (Féjer (H), Norrbotten (S), Varazdin (HR)), textile sector (Kahraman-Maras (TR), building industry (Champagne-Ardenne (F)), chemical industry (Keski-Pohjanmaa (FIN), Obwalden (CH)), paper and pulp manufacturing (Västernorrland (S), Lapland (FIN)). Services consume a great deal of energy in the heavily urbanised areas and regions with urban centers such as Brussels Capital (B), Ile de France (F) or Castilla y Léon (E).

GEOGRAPHICAL FACTORS

Territorial and climate features help better understand regional trends in energy consumption. In the Scandinavian regions for example, transport sector and households consume a great deal of energy due to long-distance travelling and increased need for heating during severely cold periods (Keski-Pohjanmaa (FIN), Örebro, Västra Götaland and Ostragötaland (S)). The ground elevation can partly explain energy-intensive travelling in the mountainous areas such as Freiburg, Ticino, Bern (CH), Aosta Valley, Trento, Veneto (I), Republika Srpska (B-H), Tirol, Lower Austria, Salzburg (A) and Krapina-Zagorje (HR). Transport is also one of the energy-consuming sectors in urban regions. Towns and cities have a great level of accumulation of economic activity and are complex spatial structures, supported by a public transit system. Traffic flow in agglomeration areas constantly increases for a variety of reasons such as rapid motorization, increasingly important human mobility, heavy reliance on private vehicles and increasingly important economic activity linked to a souring demand for freight services. Transport accounts for 23% of the overall energy consumption in Brussels-Capital (B) and 29% in case of Baden-Württemberg (D).

A particular energy situation of islands should be also highlighted. Due to their remoteness, outer continental regions heavily rely on air and

maritime traffic. Moreover, fuel used in transportation must be often imported due to the scarcity or total absence of internal resources. This does not only increase the overall cost of mobility but also intensify their dependence on external energy provisions. Transport consumes 58% of energy in Balearic Islands (E) and 47% in Corse (F). Ensuring effective transportation links with inland points is crucial in what concerns provision of critical public services and territorial cohesion, but all the island regions stress that this should be done in compliance with the environmental standards. For this reason, the Bornholm authorities (DK) step up their efforts to introduce alternative transport systems. The possibility of using ethanol to produce fuel is currently being envisaged. Produced renewably from agricultural crops or from recycled waste and residues, ethanol offers not only a way to reduce greenhouse gas emissions but also to increase energy efficiency of transportation systems.

Provided examples clearly show that energy consumption and energy efficiency are strongly linked to the territory. Strategies of energy saving should be therefore developed on the lowest possible level so as to take into account specific territorial particularities. As a territory often comprises very different energy realities, large-scale strategies supply biased information on energy consumption and may offer locally inadequate solutions.

LACK OF REGIONAL DATA

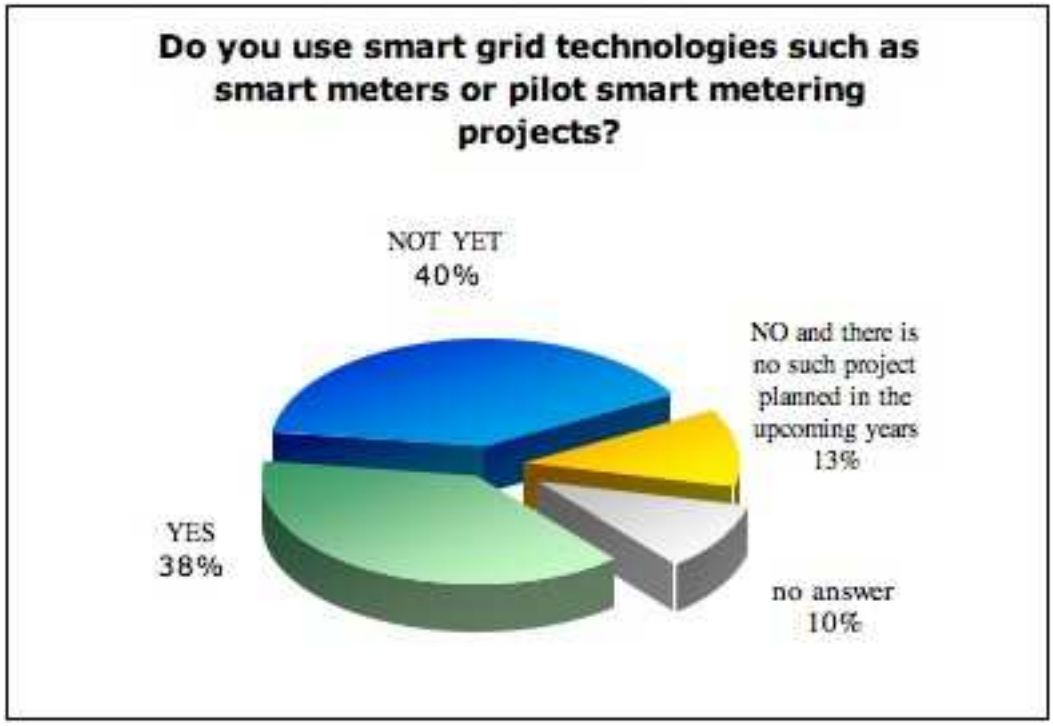
Data collection represents an essential tool for a good management of energy on a regional level. Gathering and analysing statistics on the energy supply, transformation and consumption permit a direct overview of regional strengths and weaknesses in this field. Moreover, timely and clearly presented data help guard regional authorities against the risk of major energy disruption and coordinate local efforts to conserve energy in a most efficient way. It must be said, however, that many regions in Europe still do not keep track of energy developments occurring within their territories. Absence of the institutional framework for data collection can affect the quality of regional energy strategies. In such a case, the proper measurement of progress done by regions in achieving their sustainable energy goals seems to be hardly possible. AER survey also unveils notable differences in the methods used to collect energy data, which makes it difficult to compare the regions. Statistics provided by the survey respondents are often confused. This is due – among the other factors – to unclear definitions of energy products, different ways of treating energy producing sectors, as well as various units used in the presentation of energy balance. More harmonisation is imperatively needed to make regional energy classifications more comparable. Converting different territorial energy concepts and definitions becomes increasingly urgent in the context of the liberalisation of energy sectors, as comparability, predictability and certainty are key success-factors for

building up a single energy market.

ENERGY INFRASTRUCTURE AND SMART GRIDS

Electricity grids that currently serve European citizens evolved over more than a hundred years ago. **Transmission and distribution networks are often outdated and will need a major overhaul in the next 30 years**, especially if they need to carry energy generated from new, alternative sources. Updated energy infrastructure is expected to offer new opportunities to our regions such as better energy management, increased responsiveness to rapidly changing energy demand, micro-generation, predictability of tariffs and reduction of energy looses. For instance, in its energy policy forecasts for 2020, the region of Baden-Württemberg highlights the importance of expanding new smart technologies, as a way of providing a secure and environmentally compatible energy supply. According to the Technology Roadmap drafted by the European Commission: "*The electricity grid in Europe will be able to integrate up to 35% renewable electricity in a seamless way and operate along the "smart" principle, effectively matching supply and demand by 2020*. "

40% of the regions that responded to AER survey say to be ready to introduce smart grid technologies such as smart meters and smart metering projects in the coming years, as a necessary response to the environmental, social and political demands on energy supply. 38% percent of them affirm to have smart grids already in use. Some of the regions have already taken important steps to deploy such technologies over their territories. The county of Varaždin (HR) has for example implemented a modern computer system for an efficient management of electricity in the public buildings and street lightening. Another initiative implemented by the county aims to assess the possibility of introducing smart metering in regional elementary and high schools.



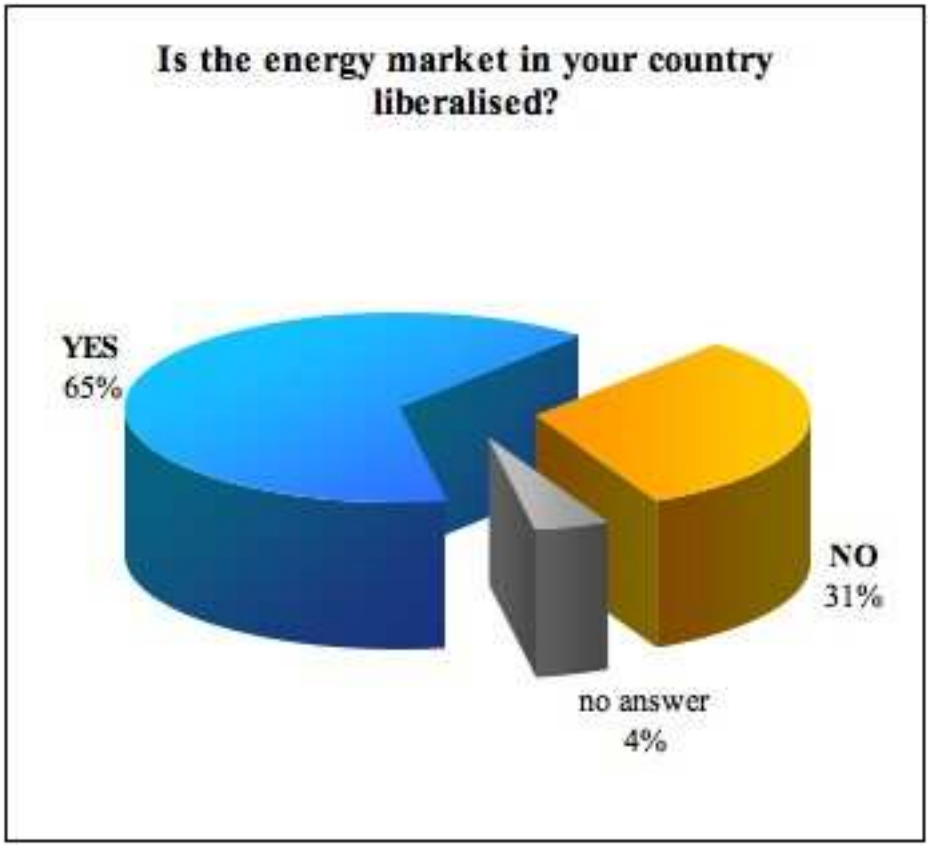
The outcome of our survey shows that the regional level matters when it comes to implementing new energy efficiency planning and management schemes. Handling power demands from customers is a more localised challenge. High performance grids provide many benefits to European citizens, as they allow for significant energy gains, lower energy bills and increased guarantee of uninterrupted energy supply. Smart grids transform citizens into active energy actors, who are able to take responsible energy decisions such as selection of the most competitive suppliers thanks to the possibility of comparing real time energy prizes or sale of generation surplus directly to the grid. Furthermore, smart grids offer an equal network access to all energy producers; their introduction can therefore contribute to the development of small local RES companies, enabled to inject their energy production into the grid.

LIBERALISATION OF ENERGY MARKETS

AER survey shows that in **65% of the respondent regions the energy market has already been opened up to competition** but some exceptions are still hindering the fully achievement of a liberalisation.

Following the entry into force of the EU directives of 2004 and 2007, industries and household should be theoretically able to choose their energy supplier without any impositions. On the other hand many obstacles have to be still over-crossed in order for the single energy

market to become reality. The European Commission presents liberalization of the electricity market as a mean for electricity prices reduction, supply security, improvement and development of renewable energy production. "*Opening up these markets to competition has also allowed consumers to benefit from lower prices and new services, which are usually more efficient and consumer-friendly than before. This helps to make our economy more competitive."*[1]



The real picture of liberalisation is however slightly different, as for example in Lithuania where the liberalisation has been partial. As the region of Panevezys (LT) says, there are several electricity producers in Lithuania, but the single company – AB "Lietuvos Energija"- still acts as electricity distributor (110-330kWh voltage), network owner and system operator. The liberalisation process has been accomplished in Hungary, but its effects remain limited due to the lack of intense competition. Only few actors are present on the energy market today.

[1] http://ec.europa.eu/competition/liberalisation/overview_en.html

The situation is not so different in the countries outside the EU area. As the cantons of Bern, Genève and Ticino (CH) point out, the liberalisation of the energy market in their country has also been partial and concerned only the largest consumers (consumption above 100 GWh). The production and supply of energy are however completely separated. The necessary legal framework is also in place in the non EU countries like Croatia. As the region of Karlovac reports, the country has achieved a good level of alignment regarding the internal market for electricity, except from cross-border exchanges. Real and full liberalisation of the electricity market including third-party access still required considerable effort, and might be difficult under the envisaged asset-ownership model.

Many infringement procedures have already been opened up against a number of energy antitrust structures. National big companies which tried to merge on a European level with other energy suppliers are negatively affecting the rise of locally based operators. Renewable sources operators have therefore difficulties to access the grid and sell energy on a local level.

REGIONAL ENERGY PORTFOLIOS

USE OF FOSSIL FUELS

The exploitation of different energy resources undoubtedly depends on their availability in the region. **Even though the deployment of alternative energy sources is advancing at a rapid pace, the reliance on fossil fuels is still a reality** that regional statistics confirm. The major share of primary energy demand today comes from oil, gas, and coal, the largest contributors to greenhouse gas emissions. Ninety-seven percent of energy consumed in the regions of Lower Silesia (PL) and Caras-Severin (RO) is based on fossil fuels. These figures remain also high in the other parts of Europe: 70% of energy consumed in the region of Keski-Pohjanmaa (FIN), 87% in Azores (P), 85% in Freiburg (CH) and 66% in Baden-Württemberg (D). The average is situated between 40% and 80% in most of the regions participating in the survey.

There are many reasons why fossil fuels are still dominant sources in so many regions. First of all, these are traditional energy sources with a very **long history**. **Technologies to extract fossil fuels have been developed over the centuries** and many regions may consider it not cost-effective to replace the infrastructure that is already in place and that has served well for so many years. Fossil fuels also benefit from favorable energy prices. Coal is still one of the **cheapest and most available energy sources** in Europe. Renewable energy sources often receive necessary boost when prices of fossil fuels start to skyrocket. The third reason that may explain dominance of fossil fuels today is **a lack of adequate support for RES technology.** The exploitation of new energy resources requests major investments in a new infrastructure and should be therefore financially sustained.

Green investment can also reflect **political and economic choices** operated on a regional level. As the results of the AER questionnaire showed, the development of new environmental technologies in many European regions was prompted by the economic downturn and urgent need to find a road to a quick recovery. Investment in the area of clean energies was part of the strategies of the regions of Baden-Württemberg (D), Fribourg (CH), Heves (H), Lower Austria (A) and Noord-Brabant (NL). The plans comprise schemes targeting the renovation of public buildings and support for companies and private individuals when installing energy efficient measures in their buildings or using renewable energies.

Furthermore, regional acceptance of green energy strongly depends on the **public attitude towards RES facilities**. Even though methods already exist to deploy such infrastructure unobtrusively and without causing major changes to the local environment, the opponents of RES fuel the debate on the so-called “Not in my backyard” effect and argue that wind turbines and roof solar panels ruin the landscape anyway.

This can be an issue in the regions in which the economic sector is strongly based on the nature tourism, such as the islands. As territories vastly surrounded by water, island regions have great potential for the generation of wind power. This potential is however still not fully harnessed. Only 3% of electricity consumed in Bornholm (DK) comes from wind power. Wind-based electricity accounts for 0,07% of the overall electricity production of Balearic Islands (E). Big and visibly intrusive wind turbines might have a long-lasting effect on the landscape and keep peace-seeking tourists away from the noisy shores. Better spatial planning policies and territorially-scaled technologies such as micro wind turbines are therefore needed to motivate the development of RES while trying to preserve unique island landscapes.

REGIONAL CREATIVITY IN TERMS OF OF RENEWABLE ENERGY

Despite a strong presence of fossil fuels, **many regions can be already considered as the forerunners in sustainable energy production**. In the regions of Norrbotten (S) and Askershus (N) the production of electricity from RES is close to 100%. The region of Askershus even exports occasional surpluses of electricity to the neighboring countries. Clean electricity is produced in the region from hydro-sources and wood. Askershus also turns **food waste** into sustainable biogas. Waste that comes from the households, grocery trade and food industry represents not only a valuable source of green energy but also helps solve many social and environmental problems linked to the disposal of waste. When food is dumped into the landfill, methane will be produced. By volume, food is the largest contributor to methane gas production. When properly sourced (separation of waste from non-recyclable packaging), it can thereby largely contribute to the regional efforts to stop global warming.

Even though Nordic regions are reported to be the most advanced countries in the adoption of environmentally friendly practices, many regions from the other parts of Europe have also adopted relatively high levels of power generation from RES. Sixty-seven percent of electricity consumed in the region of Alba (RO) come from **hydropower** and **wood** resources (wood scraps and chips). In Styria nearly 50% of the electricity is produced by hydropower and from biomass. The region was one of the first in Europe to have a regional energy management plan. The regional energy strategy was established in 1985. The newest version that covers

the period 2005 – 2015 foresees an increase of the use of renewable energies (as portion of the final energy consumption) from 25 % to 33 %.

The composition of regional RES portfolios highlights an incredibly high ability of regions to maximise their territorial assets. Mountain regions have especially high potential to exploit hydropower resources, as the presence of natural basins and constantly recharging water flows offer an energy resource available all year long. Nearly the overall production of electricity comes in such regions from hydropower: 100% in Valle d'Aosta (IT), 98,5% in Grisons (CH), 96% in Oppland (N), 88% in Trento (I), 67% in Alba (RO) and Canton de Genève (CH). On the other hand, metropolitan regions such as Brussels Capital (B) or Ile-de France (F) don't have the facility of natural exploitable resources and therefore propel a different energy-mix through the **incineration of urban waste**. The integrated waste management system for energy recovery has also been set up in the region of Hampshire (GB).

INTEGRATED WASTE MANAGEMENT SYSTEM IN THE HAMPSHIRE COUNTY

Hampshire County Council sends a smaller proportion of waste to landfill than any other county in the UK.

Much of this success can be attributed to the County's investment in three state-of-the-art Energy Recovery Facilities (ERFs). These facilities, capable of taking 420,000 tons of waste per annum, convert non-recyclable waste that would otherwise be landfilled into up to 38MW of electricity for the National Grid – the equivalent to that which would power over 53,000 homes.

The three ERFs, which have all been acclaimed for their stunning architecture and their minimal impact on the environment, have given Hampshire an energy recovery rate of 47%.

The kerbside collection schemes of 'dry' materials like paper, card plastic and cans have been set up by local authorities and now cover 96% of Hampshire's households. The materials collected from the kerbside are delivered to the Materials Recovery Facilities, where they are separated by a combination of automatic and manual sorting.

Source: Hampshire County Council and Veolia Environment

In Central Finland (F) and Östergötland (S), the forest industry contributes to renewable power generation via **black liquor**, a major by-product obtained through the papermaking process. **Farm animal manure** is an important sustainable renewable energy resource in predominantly rural regions such as Maramures (RO) or Féjer (H). In Bornholm (DK) the manure from the island's pigs is collected and goes through a row of biological processes. The output is electricity for the Bornholm families, manure for the farmers to be used in the fields, and - not least - pure drinking water!

BIO-ENERGY IN THE NORWEGIAN COUNTY OF THE OPPLAND COUNTY

Ninety-six percent of the total energy production in the county comes from hydropower. The remaining four percent is bio-energy. The County of Oppland consumes approximately half of its energy production. The rest is transferred to the other areas within Norway or exported.
Despite the surplus in energy production, the potential for generating energy from hydro- and biomass resources is still not fully harnessed, as the county is covered with large forest areas and a high number of mountain rivers.

An increase in the production of bio-energy is one of the county's main goals. Its further development requires however important investment in the research activities.

In 2008, the project "Arena Bioenergi Innlandet" was established. This initiative aims to set up a business cluster between the three partners, namely the Innovation Norway, the Norwegian Research Council and representatives of public sector. The project is being implemented at the farm, self-provided with energy from solar and biomass resources (http://www.energigarden.no/engelsk/index.html).

The main objective of the project is to "increase the ability for innovation between the business, knowledge providers and the public sector". The cluster has set an ambitious goal of lowering its emission of greenhouse gases by 130 000 tons of CO2 by 2010. Even though the target has not been reached yet, all partners are working steadily towards it.

Source: Oppland County Council

Regions are also leaders in coming up with innovative energy production concepts. The Swedish region of Västernorrland has developed a system to use the **stored snow** from the winter to cool down a local public hospital during summer time. Some regions are also strong users of peat

for the energy production. **Peat** is composed of decomposed remains of plants, which have accumulated in a waterlogged environment. While it only accounts for a small proportion of the total EU energy requirement, it is an important local energy source in the regions of Siauliai (LT) and Tampere (FIN).

STORING SNOW FROM WINTER TO COOL DOWN A REGIONAL HOSPITAL IN THE REGION OF SUNDSVALL

The storage has a volume of 30 000 m3 and covers a football field of around 6000 m2. The snow is stocked on a waterproof, heat-insulated plate. Melting water is kept by a special wall. Furthermore, the layer of wood chips that covers the storage prevents snow from melting rapidly. Water from melted snow flows into a pump and directed into the hospital.

Coldness is transferred to the cooling system. Water is then led back to the system. The greater is the cooling need, the more warm water is pumped into the snow storage.

Thanks to this system, the consumption of electricity at the hospital has been reduced from 450 MWh to 40 MWh and the amount of cooling medium is reduced from 500 kg to 0 kg.

Source: "Renewable energy in Västernorrland", Västernorrland Energikontor

Central Finland has found a way to benefit from **natural black liquor** that comes from the paper production. During the processing of wood, one of the first steps is to separate by chemical process a brown paste (to be used produced for paper production) and black liquor that contains high energy-content wood lignin and hemicelluloses. This liquor is usually directly burned to produce energy for the paper production. The surplus of energy can be sold as electricity.

Fire **wood** is a traditional heating method in Bornholm (DK), especially in the countryside and as supplement to oil. The island also harvests straw. Most of it is of course used for animal bedding and feeding. A small percentage can be however used in the district heating.

USE OF BIOMASS FOR ENERGY PRODUCTION IN BORNHOLM (DK)

The 2007 Heating Plan for Bornholm includes plans to extend biomass-based district heating to the areas of Hasle-Sorthat-Muleby-Nyker, Balka-Snogebæk and Aakirkeby-Nylars-Vestermarie, as well as to Østerlars and Østermarie.

These extension plans are incorporated into the strategy. This will mean that 60% of Bornholm's households will eventually be supplied with district heating. (District heating in towns and villages situated on bedrock, e.g. Allinge-Sandvig, Tejn, Gudhjem and Svaneke, could become realistic when the price of oil increases to a higher level).

District heating is expected to be generated primarily from local resources, e.g. straw, wood chips and surplus heat from Biokraft, BornBioFuel, etc. Market prices, accessibility and technology will determine which biomass will be given priority at the time in question.

Source: "The Path to an Even More Sustainable Bornholm 2025 Energy Strategy for Bornholm", Bornholms Regionskommune, 2008

The motion of the waves is used by the Açores Islands (P) for the production of electrical energy. The region is particularly suited to shoreline wave power plants from the viewpoints of omnipresence of wave resource, local electrical grid size, coastal geomorphology and small tidal amplitude. The absence of a continental shelf makes it possible for the waves to reach the vicinity of the shoreline with relatively little energy dissipation.

The exploitation of alternative energy sources helps some of the regions reach a high level of **electrical energy independence**. The regions of Maramures (RO), Norrbotten (S) and Oppland (N) are self-reliant in terms of electrical energy consumption. In the region of Askershus fossil fuels have become a complementary energy source that is used only when electricity from renewable sources is not sufficient to fulfill local energy requirements. Some public entities such as schools still use small amounts of oil for heating during cold winters. However, all oil will be gone by 2015 and replaced with bio energy solutions and district heating.

PART II

REGIONAL POLICIES AND ACTION IN THE AREA OF LOW CARBON ENERGIES

MAIN FINDINGS PART II

Energy is considered as one of the top regional priorities and mobilizes adequate political support all over Europe

While climate change is obviously a global environmental problem, there is huge potential for concrete action at the local level.

Most of the regions have already either a local energy strategy or a local energy action plan in place

Regional competence in the area of energy often reflects a historical evolution of sub-national powers in the European countries.

The sector of renewable energies is usually better developed in the regions where a higher level of decentralisation has been achieved

Even though some regions have no direct competence towards energy, they stimulate energy markets through a sectoral regulation such as transport policy, spatial planning, public procurement or education

Interregional cooperation at the European or international levels often represents a major opportunity to overcome a lack of direct competence in the field of energy

A better use of the EU's financial instruments may improve regional energy policies and potentials.

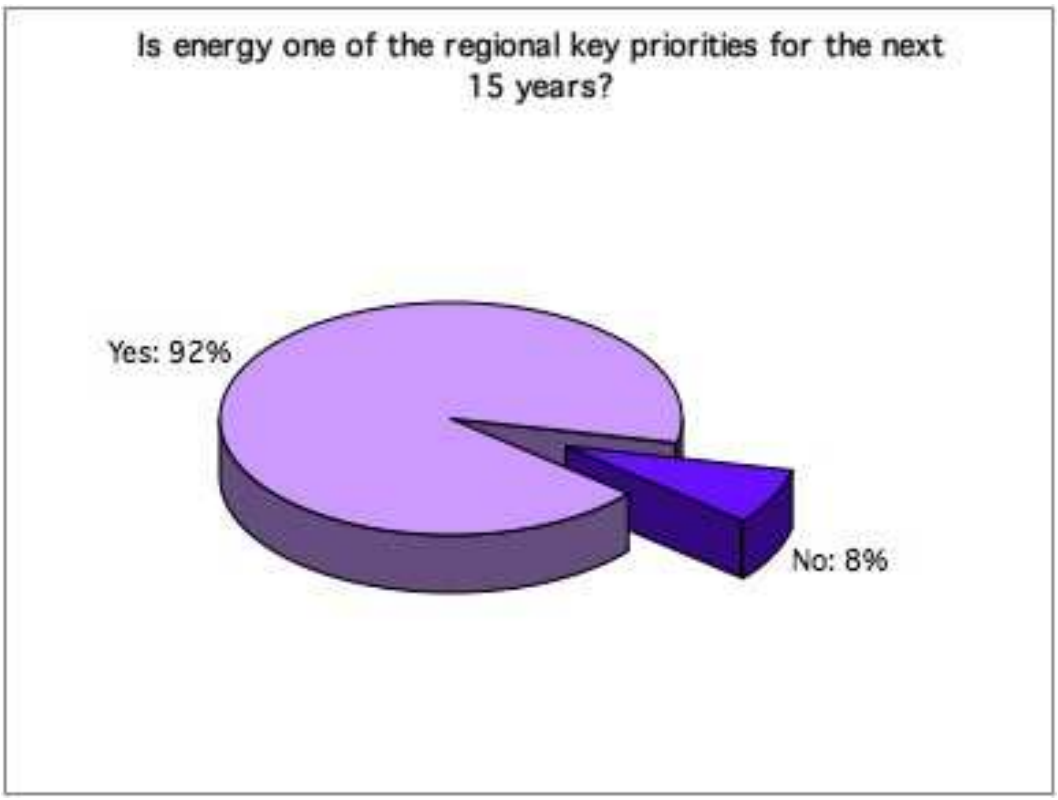
Energy is still not considered by many regions as a cross-cutting issue.
Very few regional authorities use the European funds for agriculture, transport or education to tackle the issue of energy scarcity.

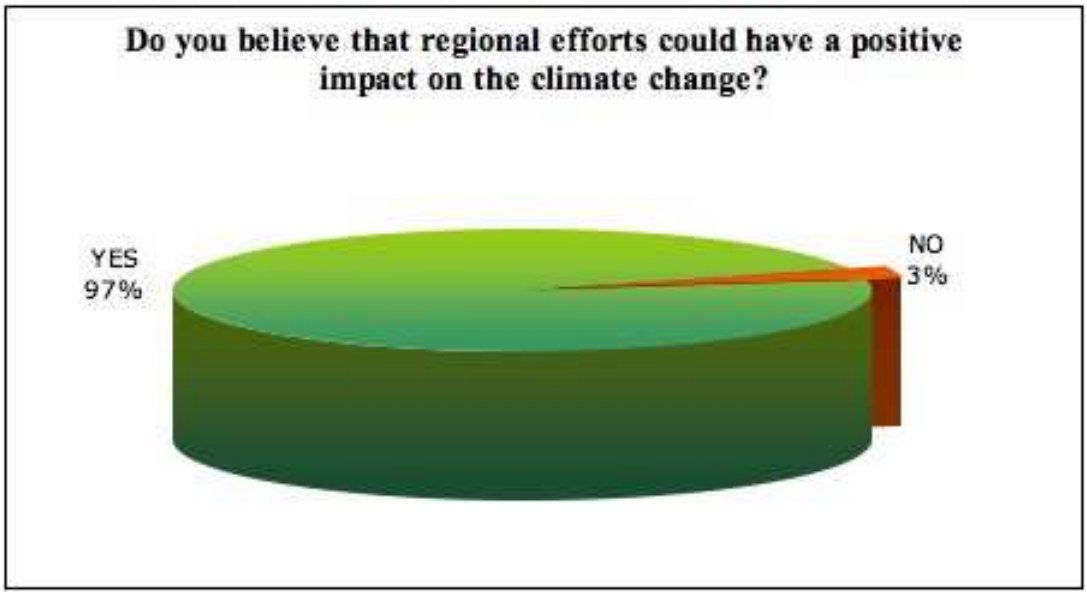
REGIONAL ENERGY STRATEGIES

While Europe is facing an increasingly important threat of energy shortage and irreversible climate changes, regions can and should play a major role in securing a profound change in the way we generate and use energy. The outcomes of AER survey show that sub-national authorities can stimulate a large variety of local activities through which energy is disproportionately consumed such as regional transport, housing, sector of services and agriculture. While national decision-makers often fail to properly address the issue of energy security, regions have already taken the lead in combining concrete and binding targets for energy consumption and production with appropriate policy measures.

ENERGY AS A KEY REGIONAL PRIORITY

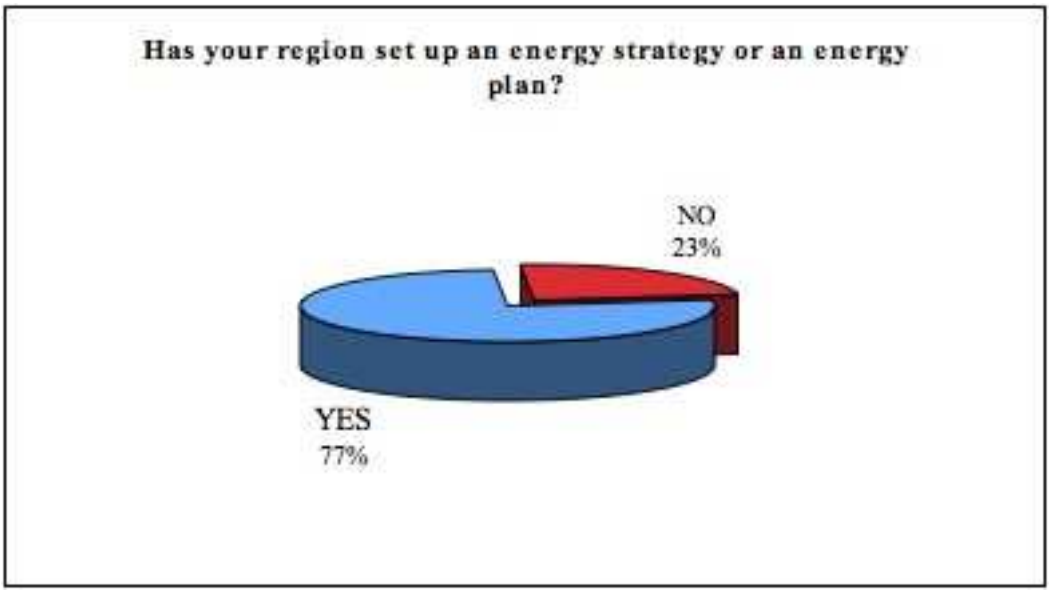
The outright majority of the participating regions (97%) assume that regions can have positive impact on mitigating the adverse effects of climate change. **Ninety-two percent of them position energy as one of the key priorities for the years to come**.



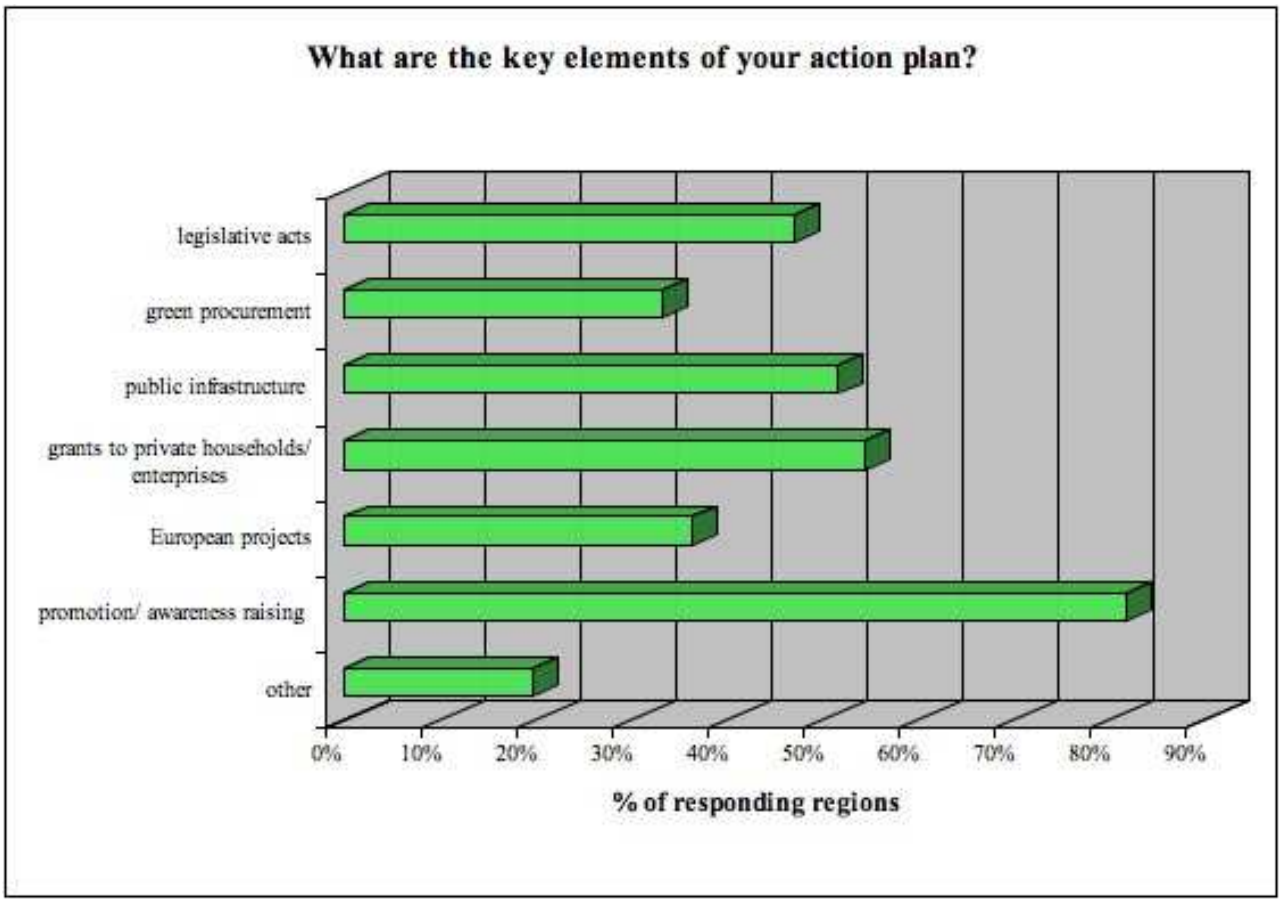


Even though there is always a long way between commitment and concrete action, the regions clearly demonstrate that they don't intend to limit their effort to a few good intentions. **Seventy-seven percent of them have already established long-term or more immediate regional action plans** in order to effectively adapt to the risk of energy scarcity. In some regions such as Republika Srpska (BIH), the drafting of an official energy strategy is in process. The region of Alba (RO) is currently gathering relevant data in order to build up a reliable energy action plan. The region of Castilla-y-Leon (E) has not developed a unique and overall strategy for energy but set up a few documents, each of them focused on a particular energy topic such as solar, wind or biomass-based energy.

Such strategies play a crucial role in delivering sustainable climate change and energy policies on a local level. They set out a clear vision for the smarter use of energy resources and send a strong signal to the energy market and potential investors that any positive action regarding the deployment of RES will be strongly and enthusiastically supported by the regional government.



A reliable and effective regional energy and climate plan is to be considered as the first step towards the development of clean and carbon neutral energy policies. Energy markets, especially those that are innovative and involve a higher risk of investment, cannot positively evolve without a predictable political environment and sound energy regulation.



STRATEGIC IMPORTANCE OF REGIONAL ENERGY STRATEGIES AND ACTION PLANS

An effective energy strategy should be a starting point for the development of the long-term regional action in the field of renewable energy sources and energy efficiency.

A regional energy strategy should play four important roles:

■ It ensures that various regional activities related to the fight against climate change and development of clean energy are consistent and well-coordinated. Policy instrument should supplement each other in the effort of enhancing existing synergies.

■ It increases the predictability of energy market by providing long-term policy guarantees and by making information on existing investment opportunities more available and transparent

■ It helps maximize uptake of business opportunities

■ It guarantees that key policy measures are fully supported by proportionate budgetary means

An effective regional energy strategy should follow three headline objectives:

■ **Environmental objectives**

- To protect and manage prudently the rich diversity of natural resources of the region

- To enhance the environmental quality of the region

- To minimize the use of energy and to develop the region's renewable energy resource while reducing dependency on harmful fossil fuels

- To involve local citizens, trough changes to lifestyle and at work, in preventing and reducing adverse environmental impacts

■ **Social objectives**

- To promote healthy lifestyles by promoting the use of public transport, cycling and walking, and reducing traffic congestion

- To provide better opportunities for people to value and enjoy the region's heritage and to participate in outdoor activities

- To create new green jobs and services in the region

■ **Economic objectives**

- To create not only high quality employment opportunities in the field of green energy but also to develop a culture of entrepreneurship and innovation

- To develop new skills among the citizens, giving the region a competitive edge in the promotion of RES and energy efficiency

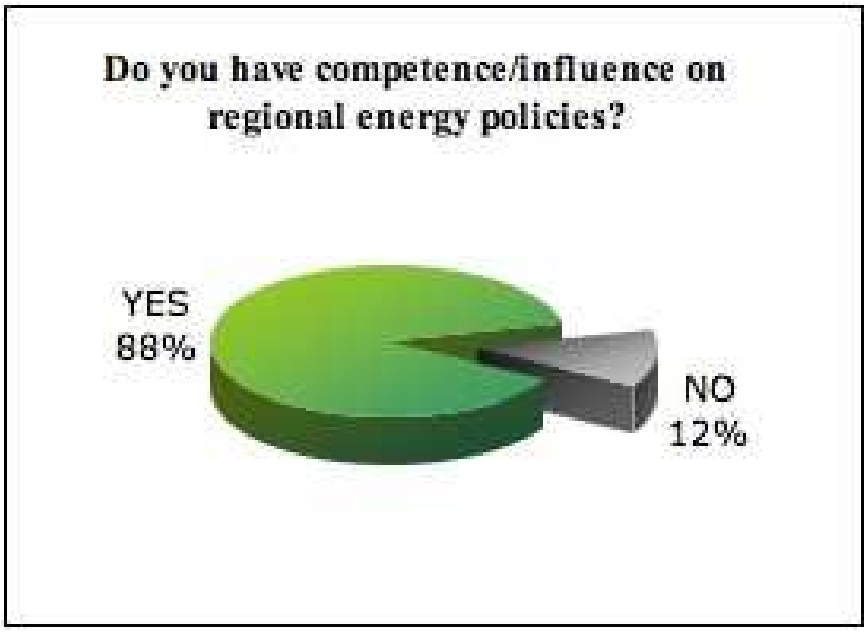
- Provide new modern economic structure and energy efficient technologies

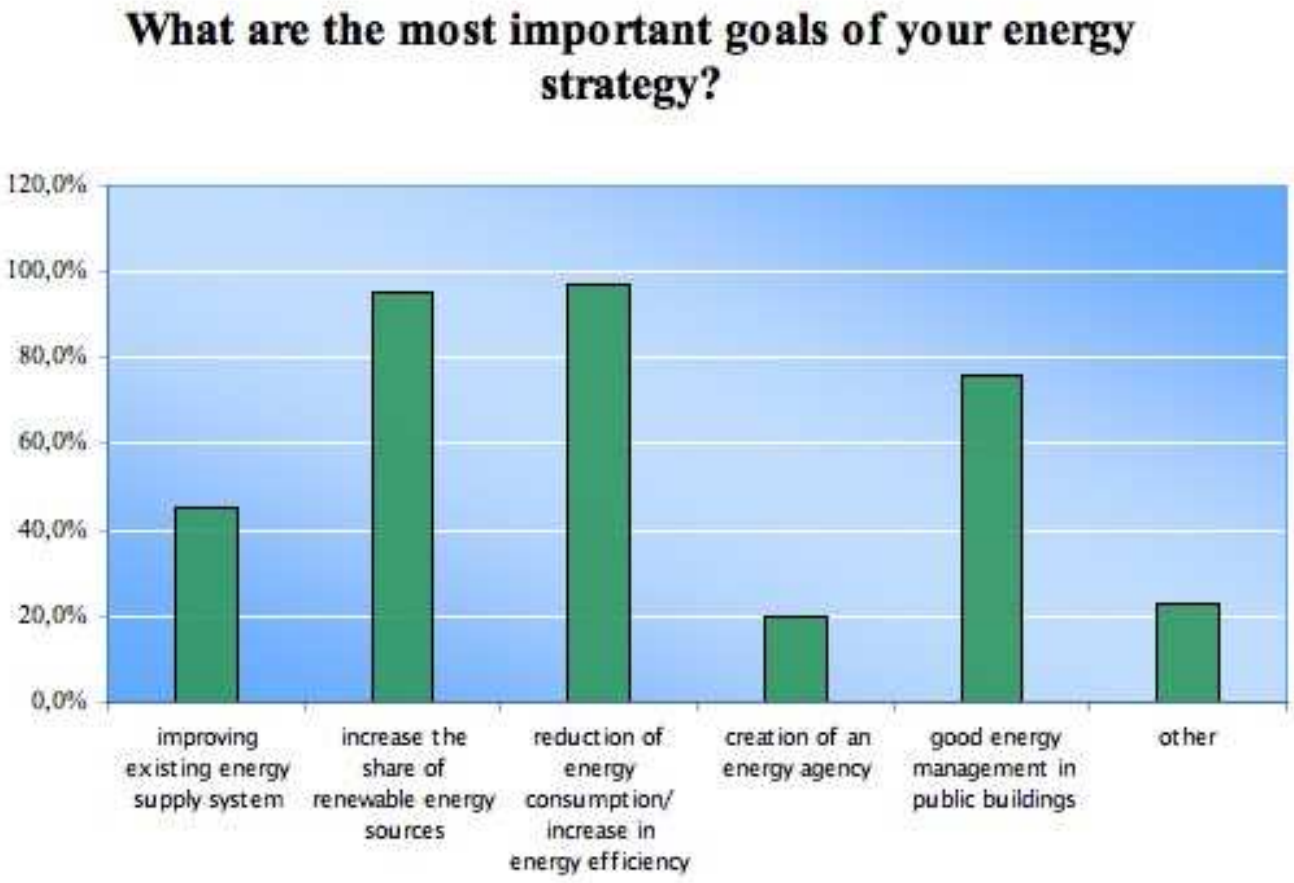
Source: AER internal working paper

REGIONS TAKING ACTION TOWARDS A STRONG AND SUSTAINABLE ENERGY GOVERNANCE

COMPETENCE TOWARDS ENERGY

Sub-national authorities can lead on a range of policies, from the reduction of energy use to the promotion of decentralized energy production, especially trough low carbon energy sources. As renewable resources such as the sunshine, wind, waves, heat of the Earth, biomass and hydropower are locally sited and cannot be exploited on a larger scale; it is upon to regional and local authorities to make sure that this potential is appropriately harnessed through the promotion of on-site green power generation. Regional authorities can also play a key role in helping communities and industry adapt to changes in weather patterns through targeted planning and infrastructure policies.



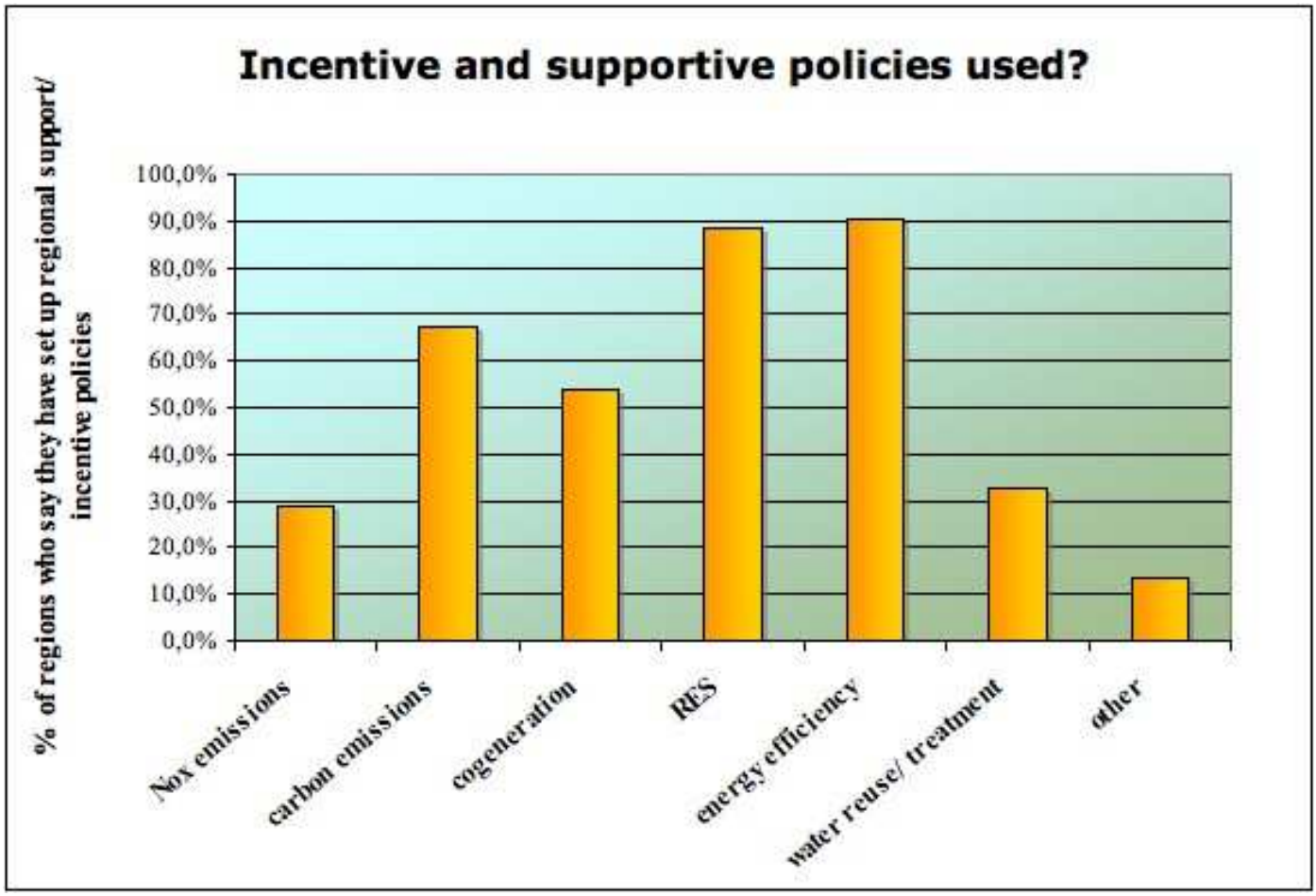


88% of the participants in the AER survey declare having direct or indirect power to influence patterns of energy use. Even though the major responsibility for regulating energy matters lies in many countries in the hands of national governments[2], the regional administration can still play a subsidiary role and complement action taken by the State authorities. This argument has been supported by the regions of Auvergne, Alsace, Rhône-Alpes (F), Tirana (TR), Västernorrland (S) and Vojvodina (SRB). In Bornholm (DK), regulatory competence has been further decentralized – it is upon to municipalities to regulate this area.

[2] Féjer, Békés (H), Alsace, Champagne-Ardenne, Franche-Comté (F), Sibiu (RO), Panevezys, Siauliai (LT), Tirana (AL)

Regional competence in the field of energy varies from one region to another, strongly reflected by the evolution of administrative powers in the European countries in the past decades. The survey brings together **a number of tools** used by regions to promote alternative energy sources and improve energy efficiency. They include the following policy areas: **spatial planning, economic development, housing, transport and education**. The Balearic Islands (E) have **regulatory competence in the areas of energy production, transport and distribution** but only within administrative boundaries of the region. The authorities of Baden-Württemberg (D) perform a **technical supervision over the energy network's management.** The regions of Alba (RO), Rhônes-Alpes (FR) and Varazdin (HR) strongly insist on the importance of regional action in **shaping an active energy citizenship**. Changes in individual behaviors can be a clear solution to Europe's energy crisis. This opinion is shared by 80% of the survey respondents who consider promotion and awareness-raising campaigns as key priorities in their regional action plans. The County Council of Varazdin has recently launched a vast campaign in regional high-schools to encourage students to become habituated to simple energy gestures such as switching the light while leaving a room or using energy-efficient bulbs. These small steps may individually seem inconsequential, but significantly contribute to a better management of energy and subsequently better protection of the environment.

Many regions underline the usefulness of **financial schemes** for the development of RES by local investors and improvement of energy efficiency by private households: Central Finland and Lapland (FIN), Champagne-Ardenne (FR), Lower Austria (A) and Östergötland (S). Green certificates and feed-in tariffs are the most common financial instruments quoted by the respondents. The region of Västernorrland reminds however that these financial schemes are often designed on a national level and only administrated by the regional government. It is therefore important to lobby the national government to watch attentively energy markets and propose new and market-adapted incentives. The region also suggests that the regional tax system should be reformed in a way it encourages citizens to invest in the energy efficient home equipment.

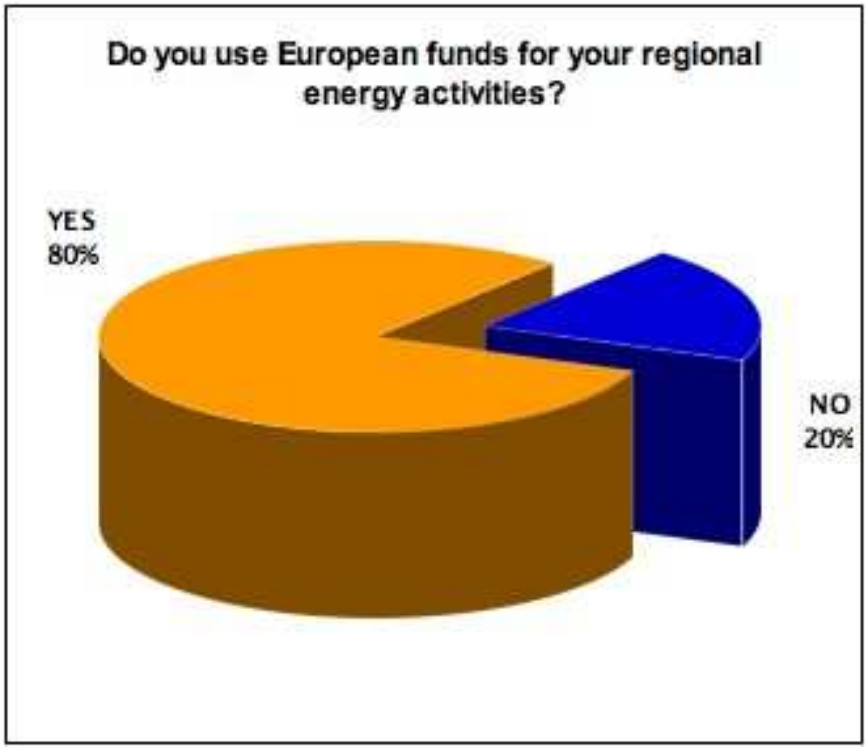


Finally, some regions with weak regulatory powers seek to overcome the lack of competence in the field of energy by developing **European or international cooperation projects**. The region of Varazdin (HR) has set up a common project with the government of Flanders (B) with the aim of promoting in the county new techniques to obtain biogas from animal manure (poultry, cattle and pigs). As Békés points out, Hungarian regions have neither sufficient competence nor financial resources to encourage the use of RES. The only solution for developing sustainable energy projects is to grasp financial opportunities offered by the European and national level.

ENERGY FUNDING OPPORTUNITIES

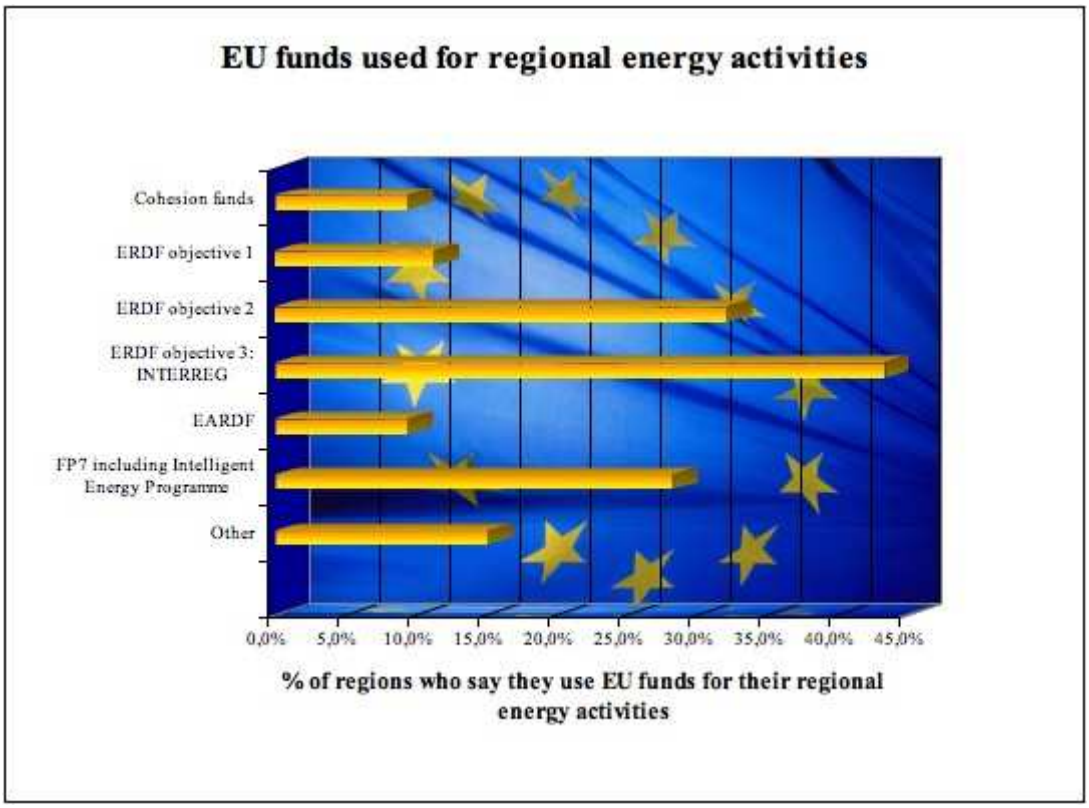
By providing **appropriate funding opportunities**, various European and international institutions intensively support regional authorities in their effort to regenerate local energy sectors. The outcome of AER survey shows that the Interreg is one of the most commonly used programs, as it specifically targets the issue of energy at a regional and local level and allows extensive cooperation with partners from all over Europe. More

than 43% of the respondents from the EU countries benefit from this initiative today. Twenty-two percent of the regions finance energy projects under the Seventh Framework Program for Research and Technological Development. This figure might be in reality higher, as initiatives involving a high level of technicity are usually implemented by the industry, business and local academia. Regional authorities may therefore not have appropriate knowledge of all FP7 projects realized within their territory. The non-EU regions try to harness the potential of clean energies through the pre-accession funds, such as IPA (Karlovac, Sislak-Moravina (HR) and Republika Srpska (B-H)) or the less-known Flemish Cooperation Program for Central and Eastern Europe (Varazdin (HR)). Initiated in the early 90s after ratification of the EU pre-accession agreements with Poland and Hungary, this initiative has extended its geographical scope in the course of time.



Even though the agricultural sector is one of the biggest consumers of energy, only one out of ten respondents from the EU area affirms using the European Agricultural Fund for Rural Development for energy purpose. Improvement of the environment is however one of the major axis around which the EARDF has been structured. This paradoxical situation can be explained firstly by the weakness of the EARDF budget and ineffectiveness of the cross-compliance mechanism, and secondly by a heavy concentration of the CAP on pure market issues. As AER highlighted in many of its previous positions, as far as the first and second pillars remain under the same roof, the CAP will fail to properly address the major environmental challenges that the European countryside is currently faced with, including climate change and scarcity of energy resources.

Furthermore, even though nearly 82% of the respondents consider awareness-raising campaigns as a top priority of their energy action plan, none of the surveyed regions mentioned using educational programs for this purpose. Nevertheless, such programs as “Leonardo da Vinci” promoting vocational trainings or “Comenius” that focuses on the first phase of education, from pre-school and primary to secondary school, can be effectively used for the promotion of active energy citizenship.



This proves that **energy is still not viewed by many regions as a cross-cutting issue** with linkages to wider development matters such as education, social well-being, governance and inter-relations with the other major policies such as transport, agriculture and spatial planning. It is critical for energy not to be approached as an isolated, stand-alone issue, but rather as part of the overall sustainable development effort. Energy should be integrated into broader regional strategies through new and innovative policy formulations and partnerships with diverse stakeholders.

PROJECT LoCaRe IN THE SOUTH DENMARK – LOW CARBON ECONOMY

The project LoCaRe - Low Carbon Economy Regions – is an Interreg IV C project running for four years from January 2010 till December 2013.

The project addresses the EU sustainable development strategy set up in the Gothenburg Agenda. The project will contribute to making environmental considerations and climate change an integral part in the process of achieving energy goals of the EU 2020 Strategy. The objective is to develop low carbon solutions at regional and local levels and while contributing to the economic growth at the same time. The project activities include networking and exchange of experiences through joint annual conferences, workshops and site-visits.

An important part of the budget is allocated to sub-projects to be implemented by local authorities and/or other public organisations within the 6 partner regions. This will allow intense collaboration between regions and the local authorities.

The regions will focus on 3 cross-cutting themes: “New Climate”, “New Energy”, and “New leadership”.

The sub-projects will deal with such topics as “Use of Renewables in Local Energy systems”, “Carbon Sinks & Carbon Capture”, “Procurement Practices”, “Low Carbon Territorial Planning”, and “Public as a Driver for Low Carbon Economy”.

The LoCaRe project will launch a call in May 2010 for municipalities and other public partners to run a number of sub-projects within these themes. NGO’s, universities and development agencies can be associated to the projects if they represent relevant experience in the above-mentioned fields.

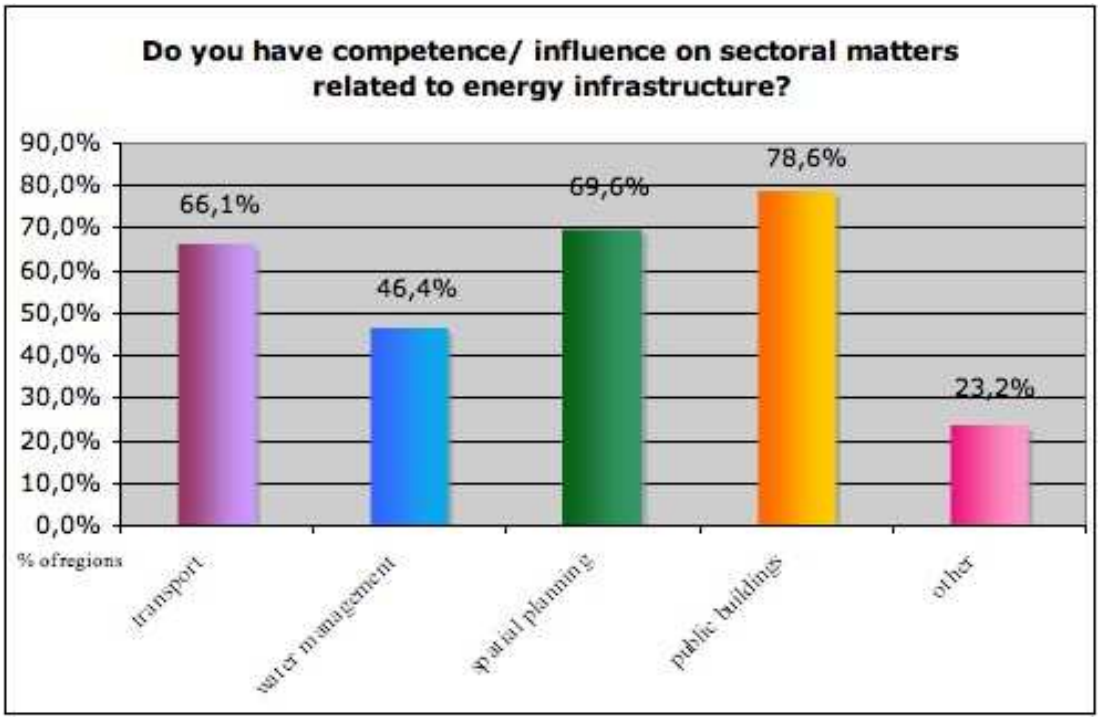
The outcome of the project will include the following:

- Best practice inventories
- New methodologies and guidelines
- Pilot actions
- Action catalogues
- Policy recommendations etc.

Sources: South Denmark County Council

REGULATION THROUGH SECTORAL POLICIES

Even though many regions do not have direct influence on energy market legislation, they can stimulate **the development of sustainable energy measures through sectoral policies**. Actually, the policies and programs that address the customer end use of energy are critical for achieving greater energy efficiency and reducing negative environmental externalities linked to economic activity.



More than 78% of the participating regions have competence in the area of **renovation and promotion of a more rational use of energy in buildings**. Effective policies in the building sector are of crucial importance, as the housing is responsible for a large amount of greenhouse gases emitted into the atmosphere. The region of Balearic Islands (E) offers efficient refurbishment to private households and to small and medium enterprises. In Austria, planning and building laws are to a large extent determined by the federal governments. Styria (A) has laid down a special building code with concrete specifications to be respected by local builders. The components used in its construction have to meet the present needs of the users without burdening future generations with waste disposal problems or forcing them into the prolonged use of outdated buildings. Building products and system solutions based on renewable raw materials can make an essential

contribution to the achievement of these aims. The PRELUDE II project laid down by the Regional Council of Midi-Pyrénées aims to promote the use of sustainable materials in new dwellings and offers energy efficiency trainings across the county.

The regions of Brussels-Capital (B), Genève, Grisons, Freiburg, Obwalden (CH), Champagne-Ardenne, Corse (F), Gelderland (NL), Panevezys, Siauliai (LT) and Veneto (I) **offer grants to private households and enterprises for rehabilitation of buildings and house equipment**. The regions of Franche-Comté (F) and Obwalden (CH) carry out energy audits within private dwellings. More than half of the participating regions consider the improvement of energy efficiency in private households as one of the key priorities of their energy action plans. Some of them such as the region of Karlovac (HR) encourage the citizens and local enterprises to use alternative sources of energy, such as for example solar power, through extensive subsidy schemes.

PRELUDE II PROJECT IN THE REGION OF MIDI-PYRENEES (F)

The sector of construction represents 31% of the total amount of CO2 emissions and 45% of the overall energy consumption in the region of Midi-Pyrénées. It is why the county council decided to adopt on 26 June 2008, under the presidency of Martin Malvy, a regional action plan on passive houses for the period 2008 – 2013.

The aim of the project is to develop new ultra-low energy buildings with a reduced impact on the environment. Such buildings should offer the highest standards of quality, comfort and a low maintenance cost. They should be sold at affordable prize.

The region of Midi-Pyrénées supports the project in two different ways:

-> By influencing the offer side through its innovation and research policies, economic incentives and training programs

-> By influencing the demand side trough the promotion of low-carbon buildings

The plan is structured around the 5 axes:

- Stimulation of the R&D sector
- Stimulation of the production of low-energy construction materials
- Provision of training programs and creation of new jobs
- Diffusion of information on new exemplary and innovative projects
- Coordination of action of different stakeholders

Source: Official website of the Midi-Pyrénées Region: http://www.midipyrenees.fr/Plan-Regional-2008-2013-pour-des-batiments-economes-en-Midi

Fifty-six percent of the regions declare having competence over **transport policies**. They point out that new and innovative road, rails and public transportation modes could be used as an effective leverage to lower energy consumption and to encourage a more sustainable way of life among citizens. As a sparsely populated area where large distances play a big role on the environmental perspective, the Swedish region of Västernorrland seeks to implement a logistic plan to improve the sustainability of its transport sector. Transport efficiency is a key objective of this project and will be obtained through the development of new railways and bus routes.

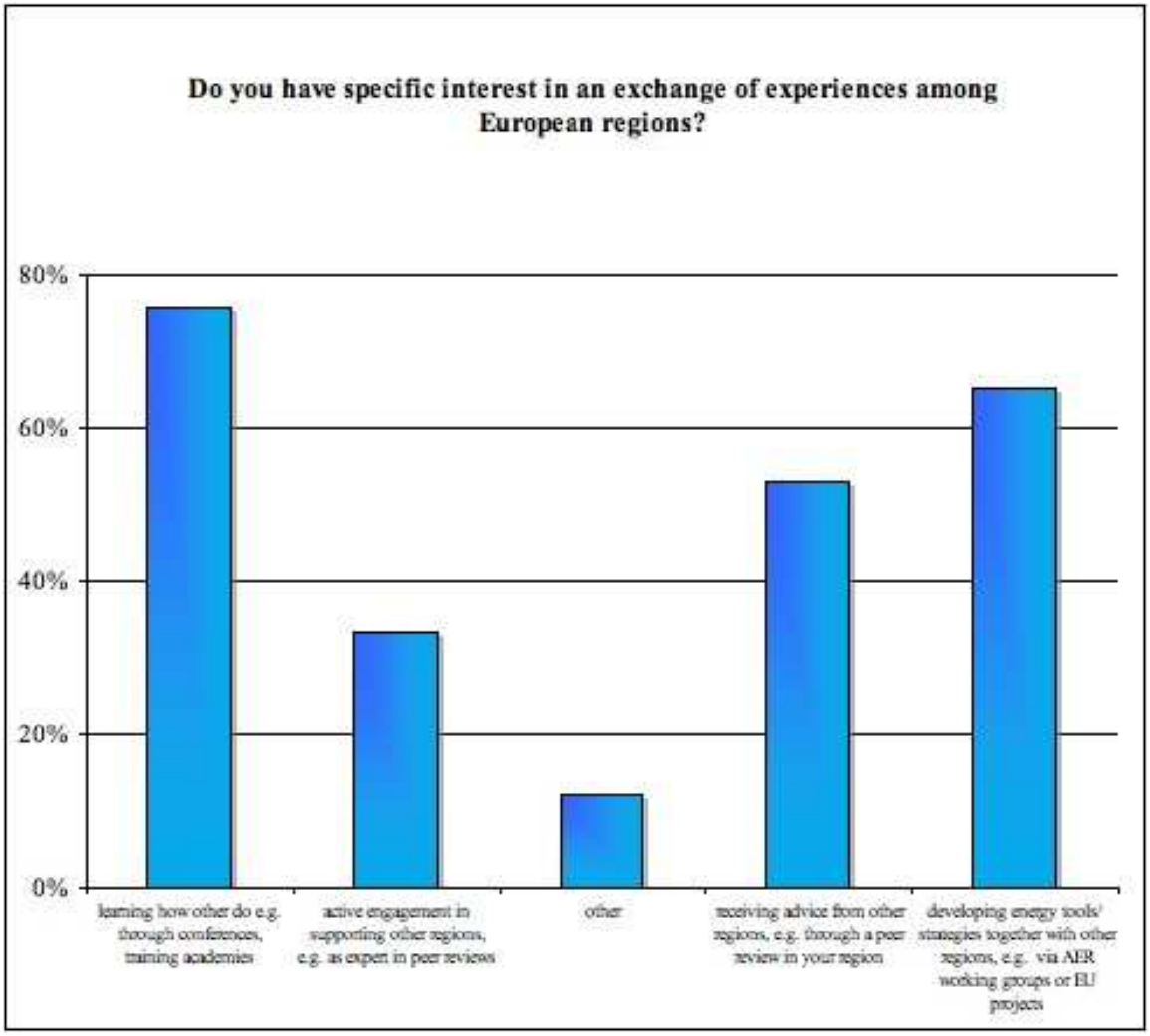
The region of Varazdin (HR) seeks to cut on streetlight energy with the introduction of an **intelligent outdoor lightening system**. Such measures

are of crucial importance, as outdated street-lighting systems can consume up to as much as 40% of the total energy demand for lighting. Furthermore, 33% of the respondents apply strict environmental standards in the **public procurement procedures**. Some regions also maintain **government-controlled energy reserves** for both economic and security reserves. The improvement of seasonal gas supply system through the natural gas storage facility based in Collato is one of the measures implemented by Veneto (I). The region has also built up a LNG re-gasification terminal in Porto Tolle (LNG: Liquefied natural gas).

Investment in the R&D sector is one of the most important instruments for supporting the development of low-carbon energies on a local level. Regional sustainable energy champions around Europe are born from innovation, partnerships and extensive exchange of knowledge. The sector of green energy in the region of Valencia (E) received a strong boost with the creation of the Institute of Electrical Technology (ITE) in 1994. Thanks to its extensive cooperation with local companies through the IMPIVA network (Institute for Small and Medium Industry of the Generalitat Valenciana) and AVAESEN (Association of Valencia's enterprises), ITE has largely contributed to the rapid modernization and diversification of local energy industry. This cooperation comprised a large number of tailored trainings, as well as innovation and research activities carried out by highly qualified personnel.

Co-operation between regional academia and business is widely recognized to have benefits for both sides. It stimulates knowledge transfer, improves business returns and helps prepare students for future employment. It should be however noted that the level of co-operation remains very unequal across regions, influenced by governance and organizational cultures in both business and higher education.

The exploitation of alternative energy sources and improvement of energy efficiency seem a focal point of most of the surveyed regions. Seventy-five percent of them advance interest in learning more about sustainable energy practice from the others. Fifty-three percent would like to receive relevant advice trough tailored energy peer reviews. Thirty-three of the respondents say to be ready to support the other regions in their effort to develop sustainable energy policies.



Benchmarking at the European level is for them essential, as it helps identify, understand and adapt outstanding examples from the other regions, considered to be the best-in-class. The county councils with an energy strategy in place have already a pretty good idea what they aim to achieve. In order to succeed, it is imperative for them to reach outside their own territory to see how the others perform similar projects.

By means of its energy audits based on a peer review methodology, various conferences and training academies on EU funding opportunities AER can complement regional action by providing its member with effective and active learning support.

FINAL CONCLUSIONS

In the face of an increasingly intense energy demand, new models of energy governance should be explored in order to meet the resurging challenges of energy security, energy diversification and climate change. Ensuring stable supplies at affordable prices, promoting the use of alternative sources and reducing negative impact of fossil fuels, still strongly present in the European energy landscape, should be considered as an absolute priority for our society and its political leaders. Ailing our outdated energy production and management methods will require not only significant changes in our individual energy behaviors but above all a major political overhaul. We need to find new models of sustainable energy leadership. New actors and institutions should be also involved in the process of fostering the European Union's energy security.

In recent times, energy awareness has undoubtedly made great strides in Europe. After many years of waiting, the EU started to put in place adequate regulatory measures. The issue of energy has even slowly turned into a major driver of a "slowly-lacking-energy-and-ideas" European integration process. The first climate change and energy package was delivered during the institutional crisis which erupted after rejection of the so-called EU constitution. The European Recovery Plan provided in 2008 an important financial assistance to the energy sector, as a solution to reversing the economic downturn.

The recently published new EU 2020 strategy is primarily driven by a noble effort to reduce our dependence on unstable energy imports and trigger the production of energy based on renewable sources. And finally, new powers regarding the development of energy networks and security of energy supply are conferred to the European Union by the Treaty of Lisbon. The European Commission will surely not miss out the occasion to make use of its new competences, and is expected to rapidly propose new energy regulations. Regions and their citizens should however have their say in a new European energy decision making process. It is the only way to align the delivery of energy objectives with local particularities and, thus, to provide tailor-made energy solutions.

In 2006, the Assembly of European Regions set up together with the FEDARENE, a European Federation of Regional Energy and Environment Agencies, a joint declaration on energy efficiency and renewable energy sources. The aim of this document was to encourage the regional authorities to deploy new clean energy technologies and to improve energy efficiency in public facilities. Some of the declaration signatories went however beyond a simple political statement and laid down concrete and measurable energy objectives. Two years before the adoption of the EU climate change and energy package, regional authorities took

commitment to achieving ambitious energy goals, in many cases more ambitious than the European 3x20% targets. Have they kept their promise?

As the AER survey shows, sub-national authorities play an important role in securing a sustainable future of Europe and in addressing its environmental concerns. Regions, when given the right competences and funding, can lead the charge in tackling the biggest energy challenges.

A clear majority of regions that took part in AER survey consider the issue of energy as one of the top priorities for the coming years and put it at the forefront of their political agendas. Most of them have already set up a regional strategy or an action plan on sustainable energy. Such documents play a key role in delivering sustainable climate change and energy policies. They set out a clear vision for the smarter use of energy resources and send a strong signal to energy markets that any positive action regarding the deployment of low-carbon technologies will be enthusiastically supported by the regional government. Furthermore, a properly established regional energy strategy ensures that various regional activities related to the issue of energy do not oppose but complement each other. It also helps the region achieve its environmental objectives while prompting its economic development and improving social-wellbeing of the citizens.

Even though many regions are not empowered to directly mould energy policies, they can stimulate energy markets through various sectoral issues, such as transport, R&D, agriculture, housing and education. They can also organise effective awareness-raising campaigns in order to build a real energy citizenship among the individuals. Furthermore, regional authorities have at their disposal a great variety of economic instruments to promote a greater use of green energy, namely public procurements, in-feed tariffs or tax cuts.

Many of the regions also use interregional cooperation projects at both European and international levels as a means to overcoming lack of direct powers in the area of clean energies. European programs, especially the Interreg initiative, enjoy a growing popularity. The outcome of AER survey however shows the existing funding opportunities are still not fully exploited by the regional level. Even though the agricultural sector is one of the largest energy consumers, only one of the ten respondents from the EU area declare using the European Agricultural Fund for Rural Development for energy purpose.

The same conclusion can be drawn regarding educational programs. This situation drastically contrasts with the objectives settled by the local authorities. While 82% of the respondent regions consider awareness-raising campaigns as a top priority of their energy action plans, none of the respondents declare using such initiatives for the promotion of a wiser use of energy resources. As an problem touching upon all aspects of our life, energy should start to be regarded as a cross-cutting issues and considered as such in the European funding schemes.

AER survey also highlights a strong regional leadership in the production of sustainable energy. When it comes to turning local energy assets into advantage, finding tailor-made solutions to meet energy needs and addressing environmental concerns, there is no better philosophy than “think global, act regional”. That is how the principle of subsidiarity works, and that is how European energy policies should work.

Sub-national authorities have already adopted many diverse and innovative approaches in exploiting local energy potentials. The survey highlights a creative use of such local resources as solid waste, waves, snow, straw and black liquor, a sub-product obtained from paper pulp. Several regions are already producing energy from RES at levels higher than the EU’s 20% target, while RES has enabled a number of them to be fully independent in terms of electricity consumption.

Regions are best placed to harness the potential of renewable energy sources, but to do so, they need to be empowered rather than hampered in order to effectively tackle Europe’s energy challenges. It is at the regional level – by initiating a constructive dialogue between local government, citizens, regional business and research institutes – that we can create effective synergies to ensure the rational management of energy resources in the future. Regional and local authorities should be therefore considered as key partners in the development of new energy policies on European and national levels.