

# The project regions



## Upper Austria

Upper Austria in the Northern part of Austria is an industrialised region with a number of leading companies in the renewable energy field. An important RES-e area is the revitalisation of small hydro power plants. 178 of the 570 existing plants were renovated in the past two years.



## Rhône-Alpes

Economically, Rhône-Alpes in the South-East of France is the second region in France. Traditionally hydro power plays an important role, with more than 370 hydro power plants in operation. Another technology with a major future potential is grid-connected PV.



## Liguria

The Italian region Liguria is known for the harbour of Genova which is also the capital of the region. Apart from commerce and industry, the tourism sector is an important branch of economy. The regional activities focus on the promotion of small scale RES-e.



## Copenhagen

The Greater Copenhagen Region is a leading region in the Nordic countries with chemical and medical industries, banking and tourism as main economic sectors. Due to the urban character of the region, a number of PV promotion actions are implemented in the RES-e project.



## Slovenia

The Republic of Slovenia - included in the project because of its size similar to many regions - is a well-known tourist destination. The processing industry, transport and communication are the main fields of economy. Wind power is seen as a technology with future potential.

## Wales

Economically, the region of Wales has made the transition from the extraction of coal to manufacturing electronics and machine components. Wind energy, both on-shore and off-shore, has good potential. The project will focus on small-scale wind promotion.



## Castilla y León

Castilla y León is geographically the largest of all European regions with the motor industry and tourism as main fields of economy. Installed wind capacity in the region is 1710 MW which is expected to increase by 700 MW annually in the next years.



## Andalusia

The economy of the region Andalusia is based on the service sector with more than 20 million tourists. Presently, wind energy has a high priority, in the mid-term high performance solar thermal power for electricity production is seen as an important field.



## Navarra

Navarra in the North of Spain is highly industrialised. RES-e technologies represent a very dynamic field of economy and have created 4,000 jobs in the region. Action in Navarra will focus on the regional strategy to promote RES-e.



## Västra Götaland

The Swedish region Västra Götaland has a long tradition in shipping and trading, business is therefore highly internationalised. Due to a new support scheme for PV systems, the interest in this technology is increasing and information actions are being implemented.



## Saarland

Saarland is presently in a transition phase from a former steel and mining to an IT- and service oriented economy. An important project activity is giving energy advice to RES-e project developers and presenting RES-e as interesting business opportunity.



# Success factors for regional RES-e market development

The European Directive on renewable electricity addresses some of the main barriers to RES-e market development and requires the Member States to take action in a number of policy fields. However, without complementary action on a regional and local level, the ambitious national and European RES-e targets will probably not be reached. In order to trigger regional RES-e market development, among others, the following factors are of importance:

- continuous awareness raising and information activities targeting at different market actors, comprising a mix of measures and using different tools
- individual advice has proven to be one of the most effective instruments to support investment decisions in favour of RES-e

- regarding the legal framework, simplification of administrative procedures is helpful in speeding up the implementation process of RES-e plants
- due to the transposition of the "RES-e-Directive", legal restrictions to the grid access should not exist any more, however the reality and the perception of potential plant operators is often different. Guaranteed grid access is therefore crucial and the costs for it should be made transparent
- feed-in tariffs have proven to be a very effective financial support instrument for RES-e. However, it is necessary that the support conditions are stable over a long period of time.

Clearly, some barriers for RES-e market development have their roots in the national or European level and cannot be resolved regionally. However, there is significant scope for regional and local action. The above mentioned success factors outline some of the possible initiatives that could be started on regional/local level.

# Exemplary RES-e installations

Further information:

[www.res-regions.info](http://www.res-regions.info)



## Biomass CHP Linz

A new biomass CHP installation supplies 17 % of the district heating demand of the city of Linz, the capital of Upper Austria. An innovative biomass supply chain for different kinds of wood - including transporting biomass by ship on the Danube - was set up. With a capacity of 8.9 MW<sub>el</sub> and 21 MW<sub>th</sub>, the plant produces enough electricity for 20,000 homes and heat for 12,000 homes.



## Avedøre in Copenhagen

Avedøre with an installed capacity of 570 MW<sub>el</sub> is one of the most efficient cogeneration plants in the world.

It is fuelled by a mix of biofuels, especially wood pellets and straw, and fossil fuels. The biofuels account for more than 40 % of the fuel and cover the electricity demand of 320,000 households and district heating of 45,000 households. The biofuels avoid 500,000 tonnes of CO<sub>2</sub> annually.



## Wind and PV in Varese Ligure

Varese Ligure was the first municipality in Liguria to install two 750 kW wind generators. 102 PV panels with 120 Wp each and with an energy output of 13,700 kWh per year were also installed. The community is now completely self-sustainable in its electricity production. The inhabitants were actively involved in the project and the village's environmental awareness is very high.



## Hydro power plant St. Etienne, Rhône-Alpes

The small hydro power plant of St. Etienne in Rhône-Alpes is installed on a drinking water supply system. This technology has a high market potential as it is not too complex and does not require additional investments in the infrastructure. The small hydro power plant has two „Francis“ turbines of respectively 230 kW and 400 kW and produces about 1,234 MWh electricity per year.



## Solar system in Nanos, Slovenia

An off-grid PV installation was set up in Nanos, a wide karst tableland which is sparsely inhabited and therefore without electricity grid. In the past, electricity for a tourist farm was only available when the diesel generators were working. PV is an excellent solution as the peak in demand (in the summer months) coincides with a high yield of the solar system. The energy output covers 80 % of the demand and 10,000 litres of fuel oil are being substituted annually.



## Cefn Croes Wind Farm in Wales

The 58.5 MW Cefn Croes windfarm was opened in 2005. It consists of 38 turbines with a capacity of 1.5 MW each making it the most powerful onshore windfarm in the UK and providing electricity for approximately 40,000 homes. The Cefn Croes windfarm pushed the total capacity of the UK wind industry to more than 1 GW, one of only 8 countries in the world to have passed this milestone.



## Small hydro power in the city centre, León



In cooperation with the city of León, EREN built a small hydro power plant at the river Bernesga in the city centre with an installed capacity of 674 kW. The net chute is 3.84 meter. A demonstration area with educational materials like panels, posters and scale models was set up at the plant, making it also an interesting destination for schools.

## Thermo solar energy project in Andalusia



Andalusia is a pioneer in the research and development of high performance solar thermal power plants. Such a plant consisting of 624 heliostats with a surface of 121 m<sup>2</sup> each was installed in Sanlúcar La Mayor, Seville. It has a central receiving tower using saturated steam as working fluid. The nominal power is 11 MW<sub>el</sub> with an annual electricity production of 24.2 GWh.

## Biomass power plant in Sangüesa, Navarra



The biomass power plant in Sangüesa in Navarra is the only one of its kind in Spain. The 25 MW<sub>el</sub> plant is fuelled by 160,000 tons of straw per year. The straw is delivered by farmers from the region and stored in a building with a surface of 5,150 m<sup>2</sup>. The annual energy production of the plant is 200 million kWh. It also avoids the emission of 196,000 tons of CO<sub>2</sub>.

## Biomass CHP plant in Trollhättan



Lextorp CHP is a new biomass combined heat and power plant in the town of Trollhättan in Västra Götaland, Sweden. The design of the building is aesthetically pleasing and the plant well visible for all car passengers and drivers entering Trollhättan from the South. The plant has a total capacity of 21 MW, with 3.65 MW<sub>el</sub> and 17.4 MW<sub>th</sub>.

## Solar power station Göttelborn



The world's largest solar PV-power station is located in Saarland. On a surface of 165.000 m<sup>2</sup>, 50,000 solar modules with a total capacity of 8.2 MW were installed on a former pond of an old colliery. The power plant was completed in 2005 and it produces electricity for about 3,400 households. The location in Saarland was chosen because of the relatively high solar radiation in the South-West of Germany.

Picture sources: Acciona Energía, Angel Francisco Soler Cano, Aribé, Bostjan Burger, CitySolarAG, Solarkraftwerke, Bad Kreuznach, Lisa Nestorson, Lyon Tourism Office, Rhône Alpes, Saarschleife Touristik, South Wales Tourism and Vacation Guide, TURISMO ANDALUZ, S.A, WSP Group, architect SAR/MSA Thomas Hansson

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# Project Overview

## 1. Regional RES-e targets & public opinion

As a basis for the project activities, the present and planned RES-e installations in each region were analysed („RES-e map“) and representative surveys to the general public were carried out. Based on this, regional RES-e targets and strategies are being defined. Activities to promote the benefits of RES-e projects are being carried out.

## 2. Grid access and administrative procedures

Grid access and administrative procedures can be important barriers in the RES-e market development. That is why the real-life situation regarding grid access and authorisation procedures for RES-e installations was analysed in each region. The findings are brought to the European level in a European workshop.

## 3. RES-e in municipalities

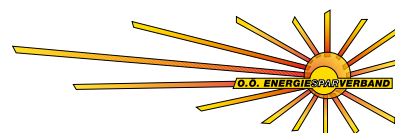
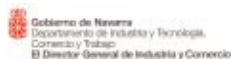
Municipalities and local governments are important actors in the market penetration of RES-e (e.g. as owners of buildings and sites, as authorities etc.). That is why targeted activities are being carried out to involve them in a RES-e vision and by offering them support in technical issues.

## 4. Technology specific promotion

For each region, a RES-e technology was selected which has a high potential. Selected technologies include small-scale hydro, PV, biomass/biogas and small-scale wind. Targeted promotion is carried out for selected technologies to speed up market penetration.

## 5. Interregional cooperation

A learning process and a dialogue among the participating regions was started which is being extended beyond the project regions. Regular project newsletters, study tours, a website and an international conference will transfer experience and start new cooperation projects.



# Regions for RES-e

## Boosting renewable electricity in 11 European regions

Local action is essential to achieve the European targets for electricity from renewable energy sources: not only are many initiatives for new installations to produce electricity from renewable energy sources (RES-e) started on local level but also some of the main obstacles can only be overcome regionally and locally.

Supported by the Intelligent Energy Europe programme of the European Union, the project "RES-e-Regions – Boosting renewable electricity in 11 European regions", aims at boosting electricity production from renewable energy sources and the use of green electricity in 11 European regions by defining concrete regional RES-e targets and developing and implementing regional RES-e strategies. These strategies identify the main barriers (such as administrative obstacles, public opposition, grid access, lack of information, frequent changes in funding regimes) and address them by well targeted information and promotion activities.

The "RES-e Regions" project includes the regions Upper Austria, Rhône-Alpes, Liguria, Copenhagen, Slovenia, Wales, Castilla y León, Andalucía, Navarra, Västra Götaland and Saarland. 13 partners - many of them are regional energy agencies - are participating in this project which is co-ordinated by the O.Ö. Energiesparverband from Austria. Two important European networks, FEDARENE and EREF, ensure the dissemination beyond the project regions.

## The project regions

| Region          | Capital     | Inhabitants | Present RES-e % |
|-----------------|-------------|-------------|-----------------|
| Andalucia       | Sevilla     | 7.4 mio     | 7.9             |
| Castilla y León | Léon        | 2.5 mio     | 15.7            |
| København       | København   | 1.7 mio     | 6               |
| Liguria         | Genova      | 1.7 mio     | 1               |
| Navarra         | Pamplona    | 0.5 mio     | 60              |
| Oberösterreich  | Linz        | 1.4 mio     | 70              |
| Rhône-Alpes     | Lyon        | 5.6 mio     | 23.3            |
| Saarland        | Saarbrücken | 1.0 mio     | 1.8             |
| Slovenija       | Ljubljana   | 2.0 mio     | 30.6            |
| Västra Götaland | Vänersborg  | 1.5 mio     | 89              |
| Wales           | Cardiff     | 3.0 mio     | 3               |
|                 |             | 28.3 mio    |                 |

