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# RES-e Regions

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### Partners:

- O.Ö. ESV, (AT)
- SODEAN, (ES)
- University of Ljubljana, (SI)
- EREN, (ES)
- Rhônalpénergie-Environnement, (FR)
- MWEA, (UK)
- STEM, (SE)
- AZES, (DE)
- ARE Liguria, (IT)
- DTI, (DK)
- Gobierno Navarra, (ES)
- FEDARENE
- EREF

## Boosting green electricity in 11 European regions

The project - which started on January 1, 2005 - 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. The project will identify the main barriers (such as administrative obstacles, public opposition, grid access, lack of information and frequent changes in funding regimes) and address them all through well targeted information and promotional activities, thereby significantly increasing regional RES-e shares.

Local action is essential to achieve the targets set by the RES-e Directive: not only are many initiatives for new RES-e installations started on local level but also some of the main obstacles can only be overcome regionally and locally. The project will ideally complement the legal action taken by the Member States in implementing the RES-e Directive.

The consortium covers the following 11 regions, from 9 countries, with over 28 mio inhabitants: Andalusia, Castilla y Leon, Copenhagen, Liguria, Navarra, Rhône-Alpes, Saarland, Slovenia, Upper Austria, Västra Götaland and Wales, and two European federations: Fedarene and Eref.

The project which is co-ordinated by the O.Ö. Energiesparverband from Austria is supported by the "Intelligent Energy - Europe" Programme of the European Commission

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

## The participating regions

Region & Capital	Project partner	Inhab. mio	Present RES-e %
Andalusia - Sevilla	>> SODEAN	>> 7.4	>> 5.2
Castilla y Leon - Leon	>> EREN	>> 2.5	>> 41.7
Copenhagen	>> DTI	>> 1.7	>> 6.0
Liguria - Genova	>> ARE Liguria	>> 1.7	>> 1.4
Navarra - Pamplona	>> Gob.Navarra	>> 0.5	>> 60.0
Oberösterreich - Linz	>> ESV	>> 1.4	>> 70.0
Rhône-Alpes - Lyon	>> RAEE	>> 5.6	>> 24.5
Saarland - Saarbrücken	>> AZES	>> 1.0	>> 1.8
Slovenia - Ljubljana	>> ULFME	>> 2.0	>> 30.6
Västra Götaland - Vänersborg	>> STEM	>> 1.5	>> 34.0
Wales - Cardiff	>> MWEA	>> 3.0	>> 3.0



## Largest biomass CHP-plant in Upper Austria

Austria's largest biomass CHP plant so far is currently under construction in Timelkam/Upper Austria. The plant with a capacity of 50 MWth will supply around 26,000 households with green electricity. Additionally 5,800 homes will be supplied with district heat. It is planned to use about 115,000 tonnes of biomass per year, comprising wood residues, saw mill residues, saw dust and wood chips. The plant should be commissioned at the end of 2005, the total investment is up to 35 mio Euro. The production will cover 1% of Austria's electricity consumption. In comparison to a fossil fuelled plant, the biomass plant saves about 135,000 tons CO<sub>2</sub> annually.



O.Ö. Energiesparverband, Christine Öhlinger, [Christine.oehlinger@esv.or.at](mailto:Christine.oehlinger@esv.or.at)



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## Sytral inaugurates a 1000 m<sup>2</sup> PV installation

The SYTRAL (Association of municipalities for public transport in the town of Lyon) commits itself firmly to the development of solar energy, the reduction of greenhouse gases emissions, and in the environmental protection. Following the installation in 2003 of several hundreds of photovoltaic panels to supply power to bus shelters, the SYTRAL is now inaugurating (on the 5<sup>th</sup> of April 2005) one of the biggest PV plants in France. So far about 1000 m<sup>2</sup> have been installed (108 kWp) on the new car park in Vaise neighbourhood. This second car park of Vaise, with 780 new parking spaces, is reserved for the public transport network of Lyon. As well as producing green electricity, the panels will also be useful to protect and cover the car park's top floor. The SYTRAL does not intend to stop here however, as on its way is another large PV plant which will be installed on its very new maintenance centre in Meyzieu, in the next few months.



SYTRAL, Roland Sabbagh, [sabbagh@sytral.fr](mailto:sabbagh@sytral.fr)

## A doubtful future for wind energy in France

The project of Energy Orientation Law was presented at the French National Assembly for its second reading on the 24<sup>th</sup> and 29<sup>th</sup> March 2005. During the examination, an amendment restricting the feed-in tariff access to wind power projects above 20MW, has been adopted.

The area for development will be defined by the Prefect of the Department, after a proposal from the concerned municipalities, and after the opinion of bordering municipalities and departments is given.

This new minimum of 20MW will certainly strongly restrict the development of this kind of energy in the Rhône-Alpes region, where the geography is complex and the housing scattered. The energy delegate in the Rhône-Alpes Regional Council firmly denounced this amendment that contradicts the French commitment to the Kyoto protocol and the objective of 21% of green electricity production in the RES-e directive.

Rhône-Alpénergie-Environnement carried out in April 2005 a representative survey to know the French opinion about wind energy. It clearly shows that a large majority is in favour of the development of this renewable energy but disagrees with the restriction only on large wind parks



## Energy challenge in Varese Ligure

Varese Ligure with its 2400 inhabitants was the first municipality in Liguria to install two 0.75 MW wind generators (another 2 will follow soon). The region is now completely self sustainable as far as electricity is concerned thanks to a 102 panel PV system that produces 13701 kWh/y and meets 98% of the municipal building needs as well a second 39 panel PV system installed on a school that produces 4600 kWh/y. The effort made by the municipality follows a strong and integrated policy towards environmental sustainability which allowed it to become the first ISO 14001 certified Italian municipality in October 1999 and the first European EMAS registered municipality in November 1999. Inhabitants have been actively involved and the village's environmental awareness is now tremendously high. As a result, waste production has decreased (400kg/per capita/y, against 530 kg/per capita/y) while separate waste collection has increased to 27% of total waste.



ARE Liguria, Nicola Vaccarezza, [are.vaccarezza@filse.it](mailto:are.vaccarezza@filse.it)  
Municipality of Varese Ligure, [sindaco.vareseligure@liguriainrete.it](mailto:sindaco.vareseligure@liguriainrete.it)

## Solar system on Nanos, Slovenia

Nanos is a wide karsts tableland, sparsely inhabited and without an electricity grid, known for its high winds and a lot of sun. The installed hybrid system (solar power plant, accumulator batteries and diesel generator) was built to ensure a stable and continuous supply of electricity from three-phase net 230/400 V. Most of the energy demand is now met by the solar power plant, which means that the project provides big economic and social benefits, as well as significant ecological benefits. The diesel generator works only during very bad weather conditions and for automatic reserve. Before implementation of the project the electricity was only available for few hours a day when diesel generators were working. As the end-user is a tourist farm the electricity consumption is biggest in summer. The consumption has a similar profile as the production of electricity from sun, so it is expected that at least 80 % of annual consumption (ca. 5.400 kWh) will be covered from "solar" electricity. This amount will replace ca. 10.000 litres of fossil oil. The project was awarded by the Agency for energy efficiency and renewable energy sources (RES) as the best renewable energy project in Slovenia in year 2003.



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Energy Restructuring Agency, Franko Nemac, [franko.nemac@ape.si](mailto:franko.nemac@ape.si)

## Bronllys Hospital Turns Sunlight into Electricity

In March 2005 Bronllys National Health hospital, Powys, Wales became the first hospital in the UK to generate electricity from sunlight. The 60 kW Photovoltaic installation, was developed by Dulas Ltd ([www.dulas.org.uk](http://www.dulas.org.uk)) and employed 14 people during the construction period. The installation will generate around 45,450 kWh / year, displacing an average of 19.5 tonnes of carbon dioxide/year.

Key bodies involved were Mid Wales Energy Agency, Dulas Ltd and Powys Local Health Board. The project received funding from the European Regional Development Fund and the UK's Major Solar Programme: Department of Trade and Industry's Solar Photovoltaic Demonstration. The Carbon Trust has also assisted in raising energy efficiency awareness.

Income from electricity generated will be invested into further energy efficiency measures. David Masson, Chief Estates & Works Manager of Powys Local Health Board commented *'We are very pleased to be pioneering renewable energy for the public health sector, it compliments work in energy efficiency and we look forward to the PV array generating clean electricity'*

The project is a small step for sustainable energy and a key step for renewable energy in Wales placing it on the map of sustainable development in the UK.



Mid-Wales Energy Agency, Jenny Lampard, [jenny.lampard@mwea.org.uk](mailto:jenny.lampard@mwea.org.uk)

## Aznalcóllar, an area of ecological special interest for Andalusia

Following the dam failure of the lead-zinc mine at Aznalcóllar, a new "photovoltaic solar exploitation" plant installed by the Spanish firm Gamesa is setting up over the uncultivated muddy area of the old mine. This plant has been supported by the Andalusian Regional Government, the Ministry of Industry (IDAE), and the European Regional Development Funds, will become, in the second phase, the largest photovoltaic plant in Spain.

In December 2004, the first stage of this "solar exploitation" was completed. The plant occupies about 20 of the 200 hectares of the Aznalcóllar dam, is located in a great radiation area and supplies clean energy to the electricity grid.

The solar exploitation in Aznalcóllar is made up of 76 independent installations, each installation belongs to a different owner, has a power between 5 and 12.5 kilowatts. The total amount installed is 520 kilowatts peak. In the future, the "Aznalcóllar Solar Farm" will rise up to 8 MWpeak and will occupied a surface of 200 Ha.



Sodean, Marisa Borra Marcos, [marisaborra@sodean.es](mailto:marisaborra@sodean.es)



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## New 16 MW Biopower plant in Mark, West Sweden

Wärtsilä Biopower Oy has supplied a biomass-fired CHP power plant to a municipality owned utility, Marks Värme AB, in West Sweden. The plant started energy production at the beginning of 2005 and the total investment is about 9 million €. The heat is supplied to the town of Kinna and some industrial facilities.

The plant has a power output of 3.5 MWe and a thermal output of 16 MWth, the latter comprising 12.5 MWth generated by back-pressure steam from the turbine. In addition 3.5 MWth is recovered from the flue gases by a flue gas condenser. The fuel is a mixture of local forest and sawmill residuals. The moisture content of the fuel can be as high as 60%.

The annual production of the plant together with an existing 10 MW biomass boiler is 120 GWh heat and 20 GWh electricity.

The plant utilizes patented combustion technology to burn biofuels with high efficiency and low emissions. The plant has a Selective Non-Catalytic Reaction (SNCR) system to ensure very low NOX emissions. Due to its high level of automation the plant can be run unmanned, based on periodical visits for supervision.



Stem, Sonja Ewerstein, [sonja.ewerstein@stem.se](mailto:sonja.ewerstein@stem.se)



## Headquarters of Københavns Energi A/S

The utility, Københavns Energi A/S (KE), built a new and modern headquarters in 2004. In line with the trend for new office buildings the building demonstrates environmentally friendly solutions and has large window areas. In order to get a comfortable indoor climate it was necessary to provide some kind of sunshading. When selecting the sunshade it was important to find a solution that would not hamper the excellent view from the windows over a part of the new district of Copenhagen, Ørestaden. Also the aesthetics of the building should not be spoiled. The building is very visible for thousands of metro passengers passing by every day. KE, the architect, and a PV module manufacturer developed a new type of lamella system with PV integrated. The installed PV power is 36 kWp, and the annual yield is expected to be 18 MWh



Københavns Energi A/S, Thomas Brændgaard Nielsen, [tbni@ke.dk](mailto:tbni@ke.dk)  
Danish Technological Institute, Søren Poulsen, [soren.poulsen@teknologisk.dk](mailto:soren.poulsen@teknologisk.dk)



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## Renewable energies demonstration area in León

The project is located in León city centre, besides one of the bridges over Bernesga River. EREN noticed an appropriate site to install a small hydro plant just in the city centre. Both the Municipality of León and EREN agreed to build the small hydro plant, and to add to the project an area of demonstration of renewable energies, to be visited by schools.

The small hydro plant makes use of a net chute of 3.84 m and is designed to exploit a flow of water from 4 to 20 m<sup>3</sup>/s, allowing an ecological flow of 1.200 l/s over the dam. The turbine is a double-regulation Kaplan with a maximum power of 674 kW. 4.100 equivalent hours of operation are estimated per year.

The renewable energies demonstration area is built just over the small hydro plant, and it consists of educational materials (such as panels, posters, scale models) which are combined with monitoring systems for both thermal and PV solar panels integrated in the roof and for the small hydro plant below.



EREN, Ricardo González Mantero, [gonmanri@jcy.l.es](mailto:gonmanri@jcy.l.es)



## Solar power station Göttelborn at the location of an old colliery

The world biggest solar PV-power station is located in Saarland near the French boarder.

On a surface of 165.000 m<sup>2</sup>, 50.000 solar modules will be installed by the end of the first half-year 2005. On a former pond of an old colliery the construction of a photovoltaic plant with a final power rating of 8,4 MWp has begun. The first construction phase ended in August 2004. The location is situated at about 15 km from Saarbrücken, the capital of Saarland. When the new power plant is completed, it will produce electricity for about 3400 households.

The location in Saarland and especially on the old colliery was chosen because in the South-West of Germany the solar radiation is quite high. The global radiation



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for the location was at 1120 kWh/m<sup>2</sup> and year between 1981 and 2001, corresponding to calculations of the German meteorological service. Furthermore there is no shading danger from surrounding buildings or woods, and moreover the plant is installed on top of a hill. So the solar modules are irradiated by the sun during the whole day.



AZES, Barbara Dröschel, [droeschel@azes.de](mailto:droeschel@azes.de)

## Development of photovoltaic solar energy in Navarre

Navarre is making substantial advances in the use of renewable energies. In 2005, electric power produced by renewable energies will amount to 70% of total consumption.

The Government of Navarre, acting as energy policy promoter, has several financial aid programmes for small renewable energy use installations.

Current energy policies in Navarre focus on the promotion of individual installations.

The National Renewable Energies Centre – CENER is expected to further enhance the development of photovoltaic solar energy in Navarre via its specialised centres, one of which focuses specifically on PV and thermal energies.

This type of installation shall be promoted in the future, in compliance with European Directive 2002/91/CE on the energy performance of buildings.

Navarre is also the seat of the National Training Centre on Renewable Energies, established to meet the training needs of the renewable energies sector.



Gobierno de navarra, Gaspar Domench Arrese, [gdomenca@cfnavarra.es](mailto:gdomenca@cfnavarra.es)



## "Intelligent Energy - Europe" Programme

"Intelligent Energy - Europe" (EIE) is the Community's support programme for non-technological actions in the field of energy, precisely in the field of energy efficiency and renewable energy sources. The duration of the programme is from 2003-2006.

EIE is intended to support the European Union's policies in the field of energy as laid down in the Green Paper on Security of Energy Supply, the White Paper on Transport and other related Community legislation. Its aim is to support sustainable development in the energy context, making a balanced contribution to achieving the general objectives of security of energy supply, competitiveness, and environmental protection. The programme is structured in four fields :

**SAVE:** improvement of energy efficiency and rational use of energy, in particular in the building and industry sectors.

**ALTENER:** promotion of new and renewable energy sources for centralised and decentralised production of electricity and heat and their integration into the local environment and the energy systems.

**STEER:** support for initiatives relating to all energy aspects of transport.

**COOPENER:** support for initiatives relating to the promotion of renewable energy sources and energy efficiency in the developing countries.



[http://europa.eu.int/comm/energy/intelligent/index\\_en.html](http://europa.eu.int/comm/energy/intelligent/index_en.html)

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