



## Saving energy in a hurry

**Editorial** These days, independence of energy supply and the search for new energy sources are two sides of the same coin.

How can we expand and improve production if oil becomes increasingly expensive and, as predicted, worldwide demand for energy increases 60% by 2030?

It is a challenge that - post Kyoto - we have to face up to in all its economic, technological and ecological dimensions. Economic, because industry - and tomorrow's jobs - depend on energy. Technological, because instead of just replacing one fossil fuel with another we need to develop and expand renewable and alternative sources of energy to a much greater extent than in the past. Ecological, because energy and the environment must be made compatible if we are to avoid exposing future generations to great danger.

In this context, the regions have an extremely important role to play. They already have considerable experience at local level and via their universities and research institutions are investing on a daily basis in combining the needs of the economy and the principle of sustainable development. By developing, storing and making widespread use of renewables, the regions can ensure a decentralised energy supply and promote their own independent development. It is important that their experience should be passed on, shared and emulated so that all our citizens can benefit.

Lower Saxony was among the pioneers for research and development in the field of renewable energies and we would like to share our competencies with the AER members. We are currently setting up an expert group within the AER 'Regional policies' Committee, in order to enhance experience sharing and interregional cooperation, particularly in the field of research and development of new technologies.

As the Minister for Science of Lower Saxony, I would like to invite you all to support this AER initiative and become more involved in the current discussion on the future of research in the energy sector. Indeed, the EU's 7th Framework Programme offers the regions an opportunity to become involved as recognised partners in the urgent task of redefining future energy policy - it is an opportunity we should not pass up. <

**Lutz Stratmann**  
Minister for Science and Culture  
of Lower Saxony (D)

## Giving renewable energies a new impetus

A DETERMINED POLITICAL EFFORT TO PROMOTE RENEWABLE AND ALTERNATIVE ENERGIES IS THE ONLY WAY TO REDUCE OUR DEPENDENCE ON DWINDLING OIL RESERVES, MAINTAIN OUR QUALITY OF LIFE AND PRESERVE JOBS.

**Fifty,** sixty, seventy dollars – soon it will be one hundred, say the economic analysts. The price of crude oil per barrel (159 litres) continues to rise inexorably. The first effect in the Eurozone has been an increase in fuel prices of 20% to 30% since the start of the year - in some countries the price of unleaded petrol has risen to nearly € 1.50 per litre. These are the first signs of general inflation – increased prices on the forecourts could soon be followed by higher prices for many other consumer goods from plastic yogurt cartons to air tickets, all of which will have a negative impact on an economy that is heavily dependent on oil and its derivatives. Some observers are already of the opinion that this trend is irreversible. Claude Mandil, Head of the International Energy Agency (IEA), makes no secret of the fact that oil production is currently running at some 2 million barrels below daily requirements – despite demand for energy being set to increase 60% by the year 2030, in particular as a result of the pressure coming from India and China.

### Facing up to the facts

*"It is time to face up to the facts,* concluded French Prime Minister Dominique de Villepin in September of this year. *The oil era is coming to an end".* This makes promotion of new energies a top priority. Renewable energies. Clean energies - or at least ones that have a minimal impact on the environment, in line with the goals of the Kyoto Protocol. Everywhere in Europe – from north to south and east to west – renewables are on the political agenda of both individual states and the European institutions.

France is developing a taxation policy that favours bio-fuels; Spain aims to put € 23.6 billion into green energy over the next five years; Germany is encouraging the building of wind farms and solar plants; the EU Commission has developed a five-point emergency plan aimed at reducing demand for energy and promoting research into renewables; the European Parliament has called for binding legislation to oblige member states to increase



Wind turbines, source of renewable energy, start blooming in Europe.

the share of renewable and alternative energies to 25% of total consumption by 2020. Plenty of ambitious goals...

### Sharing regional experience

However laudable these efforts may be, they may still fall short of what is required, according to the OECD. *"The future of renewables is triggering great interest,* according to Secretary General Donald J. Johnston. *But by 2030 renewable and alternative energies will only account for around 14% of energy production – roughly the same proportion as today. If, however, demand increases by 60% as predicted, levels of investment in renewables will be considerable, but still insufficient to reduce our dependence on fossil fuels".* With this in mind it is essential for the regions to join forces and collaborate with each other – as was demonstrated at the AER seminar in Porjus (Norrbotten-S) on 1<sup>st</sup> and 2<sup>nd</sup> July of this year. What is required is an exchange of ideas and experience that supports and complements the efforts being made at state and EU level. Our future depends on it.

DR

## Much still needs to be done

THE 25 EU MEMBER STATES MAY BE WORLD LEADERS IN THE PRODUCTION OF BIO-ENERGY, BUT MUCH STILL NEEDS TO BE DONE IF THE TARGETS SET FOR 2010 ARE TO BE ACHIEVED.

**21%** - that is the target for the proportion of electricity generated from renewable sources set by the 25 member states of the EU for 2010. It will prove difficult to achieve. The policies pursued by individual states so far suggest the figure is unlikely to exceed 18% or 19%.

The worst performing state is Greece, where "administrative barriers prevent exploitation of the high potential that exists both in wind, biomass and solar", according to the European Commission. A second problematic country is Portugal, which "has increased its non-hydro production of electricity from renewable energy by only 1 TWh since 1997. A further 14 TWh are still needed to achieve its national targets".

However, if the necessary effort is made it is likely to pay dividends. Europe offers favourable geographical conditions and already possesses considerable expertise in all areas, from hydro-power, biomass, wind power, photovoltaic, solar heating, combined power and heat generation and bio-fuels. Even hydrogen, which - according to many experts including American economist and former adviser to Romano Prodi, Jeremy Rifkin - in the form of fuel cells promises to radically change our relationship to energy. In the field of green energy, many EU states and regions are already demonstrating considerable dynamism and innovation and some, like Denmark, may even reach the target set for 2010 (29% share of renewables) by the end of 2005.

Spain is particularly active in the field of wind power. 84% of electricity generated from this source within the old member states of the EU comes from Spain, Denmark and Germany. And these countries are also responsible for the lion's share of photovoltaic energy - 70% of European production in 2003. Finland is so far the only country to fulfil the Commission's expectations when it comes to biomass, even though Brussels is of the opinion that "there is still much potential to be developed here in the new member states, where renewables - with the exception of hydro-power - are still in their infancy".

## How to achieve a change of direction

STILL FAR FROM ACHIEVING THE TARGETS SET FOR 2010, THE EUROPEAN UNION, WITH THE SUPPORT OF THE MEMBER STATES AND REGIONS, NEEDS TO PROVIDE A NEW IMPETUS TO THE DEVELOPMENT OF RENEWABLES.

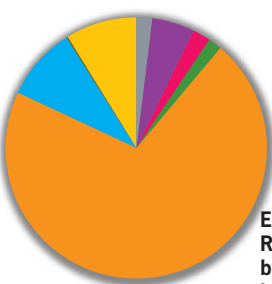
"Renewables are currently penalised by the subsidies that for decades have been granted to traditional electricity generators such as coal and nuclear power". That was the verdict of MEP Claude Turmes, European Parliament rapporteur for bio-ener-

gies on 6<sup>th</sup> July of this year. According to the International Energy Agency, between 1974 and 2001 only 8.2% of all funding in OECD countries for energy research went into the development of renewables, compared with 80% for nuclear energy!

of attractive support measures (tax credits for energy-saving heating plant and bio-fuels, favourable tariffs for feeding electricity from renewable sources into the grid), the removal of administrative obstacles (long and complex planning processes), guaranteeing equal access to the grid (objective, transparent, non-discriminatory criteria) and certificates of origin for renewables.

### Regional know-how and the R&D Framework Programme

Despite being dubbed "too nuclear-friendly" by parliamentary rapporteur Jerzy Buzek, the 7<sup>th</sup> Framework Programme for Research and Development (FP7), with its budget of € 2.9 billion for energy research (2007-2013), in conjunction with the program "Intelligent Energy for Europe" (€ 780 million) opens up new prospects for renewable energies and promises to contribute towards the 2010 targets being achieved after all. An important proviso is that the regions should be involved as equal partners in the decision-making process, as is already happening with the campaign for raising public awareness of sustainable energies during the period 2005-2008. They also should be given an opportunity to bring their local knowledge in this area that often requires more than purely theoretical consideration.



Electricity from RES in EU-15, by source (%) in 2001

Biogas	0.31%
Solid biomass	0.80%
Biowaste	0.35%
Geothermal electricity	0.25%
Hydro (large-scale)	10.75%
Hydro (small-scale)	1.40%
Photovoltaics	< 0.01%
Wind onshore/offshore	1.33%

Total contribution of RESE to electricity consumption in 2001: 15.2 %

In 1997, in a bid to achieve a change of direction, the European Commission launched a broad-based initiative for promoting green energies in the belief that this was the only way to combine independence of energy supply, adherence to the environmental goals set in Kyoto and recovery of the economy. However the first interim reports suggest that the target of achieving a 12% share of overall power consumption for renewables in the EU-15 will have to be corrected downwards to 9% or 10%, if growth in the use of renewables for heating and cooling remains so sluggish.

### Community measures

The situation is all the more alarming, according to Claude Turmes, because "a minimum target of 35% green electricity by 2020 would have to be set for the European Union to maintain its position as a world leader in bio-energies". It was against this background that the Parliament and Commission, on the 26<sup>th</sup> of May, underlined the importance

## Regions favour sustainable energies

THE DEVELOPMENT OF RENEWABLE ENERGIES IS SET TO RADICALLY CHANGE THE SOCIO-ECONOMIC FACE OF EUROPE. THE MOST LIKELY BENEFICIARIES WILL BE THE REGIONS, WHO ARE ALREADY PREPARING TO EXCHANGE KNOWLEDGE AND TECHNOLOGICAL EXPERTISE.

**"The revolution** has already started, wrote American economist Jeremy Rifkin in our spring 2004 dossier. *I would bet that in a few years there will be just as many fuel cells as there are computers today*". Now, about a year later, even though hydrogen technology is still in its infancy, the use of fuel cells is starting to be discussed in a number of key areas - particularly for motor vehicles. Trials have been under way for the last 30 years in the R&D centre operated by the PSA automotive group and as part of European research programmes such as HYDRO-GEN, NEMECCEL or Bio H<sub>2</sub>. Next year, a number of models produced by Peugeot are expected to be equipped with fuel cells. Even at this year's Frankfurt International Motor Show, vehicle manufacturers Honda introduced a hybrid vehicle in the well-known Civic series that is powered by fuel cells and has one of the lowest levels of emissions of any vehicle in the world. But is this a technology that is only of interest for certain commercial applications? Certainly not, according to Jeremy Rifkin: every natural raw material (biomass, wind energy, geothermic energy, solar energy etc.) can be used to produce hydrogen. "Hydrogen is a regional and local product, he adds. *If, as I assume, the fuel cell becomes commonly used, it will mark the end of the monopoly of a small number of energy giants; the regions and even individuals will become generators of energy*".

### Strengthening the regional economy

And that is the whole point: this is about more than just moving away from the oil era. The changes currently taking place are as far-reaching in their impact as the industrial revolution or the development of the Internet. A radical change is taking place in our ways of thinking and acting – and it does not just cover fuel cells but all types of renewable energies. According to the European Parliament, in a situation where oil reserves are rapidly dwindling, energy policy should no longer be determined by supply and dominated by a single technology but should involve an integrated approach based on three elements: the intelligent use of energy (conservation, increased energy-efficiency), the use of low-density energy sources (e.g. solar heat collectors) and reduction of the distance between energy producers and consumers. The immediate result will be that the regions become less energy-dependent and more competitive.



The regions install more and more log heating systems for their public buildings.

### Transfer of expertise and technology

With this in mind, a large number of regions have become involved in promoting renewables in recent years: hydrogen research in Bavaria (D) and Valencia (E), wind power in Lower Saxony (D), offshore wind farms in Öresund (DK/S), biomass in Upper Austria (A), geothermics in Ile-de-France (F) and on the Azores (P) and hydrothermics in Norrbotten - the Swedish region that hosted the AER seminar on promoting renewable energy and rational energy management in European regions that took place on 1<sup>st</sup> and 2<sup>nd</sup> July 2005. The conclusion reached after two days of hard work in Norrbotten was that the regions have extensive expertise when it comes to specific applications of renewables such as street lighting, district heating, green modes of transport, waste collection etc. They have also invested in training of local partners as well as research and development, and have set up public-private partnerships for funding the development of tomorrow's energy infrastructure.

The existence of this expertise and the willingness of AER member regions to pass it on and generate synergies fits in with the new approach taken by the European Commission, which launched a four-year campaign on 18<sup>th</sup> July that aims to "raise the awareness of decision-makers at local, regional, national and

European level, spread best-practice, ensure a strong level of public awareness, understanding and support, and stimulate the necessary trends towards an increase in private investment in sustainable energy technologies".

### AER working group

For the same reason, the German federal state of Lower Saxony will be setting up a working group on the topic of promoting renewable energies at the next meeting of the AER 'Regional Policies' Committee in Devon (UK) on 20<sup>th</sup> October 2005. The objectives of the working group will be as follows: developing joint R&D initiatives within the AER and promoting an exchange of expertise and experience with other regions, particularly in the new EU member states and neighbouring states.

In addition to the environment, a large number of other areas would be affected by the introduction of a sustainable and efficient policy on renewables. New jobs would be created and individual and regional development promoted. The example of Cornwall (UK) shows that regions can benefit directly from renewable energies. By reducing its energy costs by up to 50%, Cornwall has been able to invest the money saved into measures to stimulate the entire region's socio-economic development.

# Europe's regions opt for environmentally friendly electricity

FROM 1<sup>ST</sup> TO 3<sup>RD</sup> MARCH 2006, THE FEDERAL STATE OF UPPER AUSTRIA WILL BE ORGANISING FIVE SPECIALIST CONFERENCES AS PART OF WORLD SUSTAINABLE ENERGY DAYS 2006. FOR THE AER, THIS OFFERS AN OPPORTUNITY TO ENCOURAGE AN EXCHANGE OF INFORMATION AMONGST THE REGIONS.



Photo: Alsace Region

In order to better protect the environment, local authorities turn to green energy for their transports.

**How can** the cost of energy be reduced? How can sustainable development become a key factor for personal and regional development? How can public-private partnerships best function? What would the human, social and economic impact of an environmentally-friendly energy policy be, given that, until recently, "green" energy was widely regarded as too expensive?

These are the questions to which Upper Austria will be seeking answers during its World Sustainable Energy Days from 1-3 March 2006. Organised every year in Wels by the Upper Austrian Energy Agency (Energiesparverband) as part of the International Energy Trade Fair (100,000 visitors expected) the event brings together 800 participants from 54 states, all of them experts in the field of renewables. The aim is to persuade the general public and companies in both the public and private sector to focus on (re)shaping tomorrow's world. A utopian vision? By no means. The green revolution has already started: some regions and cities such as Ferrara, Heidelberg, Oslo, Stockholm and, in particular, the southern German city of Freiburg, are excellent examples.

## A rosy future for green regions!

With a reputation as Germany's sunniest city, Freiburg has built more than 6,500 special energy-saving houses linked to environmentally-friendly means of transport in its Vauban and Rieselfeld districts. "New environmental industries have sprung up and jobs have been created, particularly in the field of municipal services, according to the Freiburg-

FuTour Internet portal. 450 companies and some 10,000 employees now generate annual turnover of some EUR 1 billion in the environmental sector alone". Baden-Württemberg's "green city" is unique in the sheer variety of what is on offer. "Freiburg and the surrounding region have a range of sustainable products and technologies that is unequalled anywhere in the world: low- and passive-energy housing, solar collectors, photovoltaics, wind power, hydro-power, biomass plants, combined heat and power stations".

It also has R&D centres, university courses, a regional travelcard (monthly season ticket for the entire public transport network), ecologically-designed housing, railway stations, municipal buildings, factories - and even a football stadium - provided with solar power.

Freiburg may at present be an exception in the European context, but the revolution currently taking place in energy supply means it is likely to have many imitators. The example of Freiburg demonstrates that sustainable development at regional level can be of great importance and an entire region can benefit in terms of energy autonomy, enhanced quality of life and the creation of new jobs - provided the political will is there.

## The AER takes up the discussion

This is the message that the Upper Austrian Energiesparverband intends to put across during World Sustainable Energy Days by organising five specialist events:

- European Energy Efficiency Conference,
- Renewable Heating and Cooling,
- European Pellets Forum,
- Green energy business - new client, new markets,
- Conference on "Green electricity for Europe's regions".

This last topic, which will be dealt with in collaboration with the AER, is of great importance for regional development policy: "The regional and local levels have a crucial role to play in achieving European objectives for electricity from renewable sources", explains Christiane Egger, Director of the Energie-

sparverband. Not just because they are the source of many new initiatives in the field of green electricity but also because it is at local and regional level that many of the obstacles can be overcome". That is why the leading role of the regions and the importance of an exchange of ideas are so crucial.

Member regions of the AER interested in taking part in this exchange of experience should contact Agnès Ciccarone, Executive Secretary to the AER 'Regional Policies' Committee, or Estelle Delangle, Assistant:  
Tel. +33 3 88 22 74 37/38  
Email: a.ciccarone@a-e-r.org  
e.delangle@a-e-r.org

For further information about the World Sustainable Energy Days see:  
[www.wsed.at](http://www.wsed.at)

A report on the AER seminar on renewables and efficient energy use held on 1<sup>st</sup> and 2<sup>nd</sup> July 2005 can be found at: [www.a-e-r.org/events/regional-policies-committee/2005/seminar-norrbotten/](http://www.a-e-r.org/events/regional-policies-committee/2005/seminar-norrbotten/)



**AER - ARE - VRE Dossier**  
**Saving energy in a hurry**  
**Autumn 2005**  
Thematic dossier of the Assembly of European Regions (AER)

**Responsible for publication** - Klaus Klipp  
**Chief editor** - Barbara Skoczylas-Thauront  
**Consultation** - Agnès Ciccarone, Estelle Delangle  
**Editor** - Christophe Nonnemacher  
**Editorial assistant** - Francine Huhardeaux  
**Translations** - Ursula Gerstenmaier (GB & D)  
**Design and layout** - Agence Contexte - Strasbourg (F)  
**Printed by** - OTT - rue Pins - 67310 Wasselonne (F)  
Print run (in three languages) : 4 500 ex.  
Reproduction permitted with acknowledgement of source.  
October 2005

**AER**  
General Secretariat - 6, rue Oberlin - F-67000 Strasbourg  
[www.a-e-r.org](http://www.a-e-r.org) - Tél. : +33 3 88 22 07 07  
Fax : +33 3 88 75 67 19 - E-mail : [infopresse@a-e-r.org](mailto:infopresse@a-e-r.org)

Brussels Office - 2 place Sainctelette - B-1080 Bruxelles  
Tél. : +32 2 421 85 12 - Fax : +32 2 421 84 81  
E-mail : [s.cools@a-e-r.org](mailto:s.cools@a-e-r.org)