

# RURAL ENERGY

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 Future of Rural Energy in Europe

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## Denied fuel choice, rural areas spew 'unnecessary' CO<sub>2</sub>



Turning to energy use in agriculture, Gardiner said it "has not been a particular focus" so far when tackling the sector's global warming emissions.

Energy use in agriculture is not easy to track down, she said, because it takes multiple forms – oil is used in tractors but also in small generators, while farms use mainly electricity from the grid. "All of them put together represent big energy use. And if you put more emphasis on that there are some gains to be made," Gardiner argued.

According to the European Commission, rural areas are however gaining importance as "centres of energy production from biomass and other renewable sources".

"In general, more focus on energy mix in policies for the agricultural sector would bring substantial greenhouse gas emission reductions," the Ecofys report concluded.

Due to limited fuel choice, households in rural areas have turned to heavily-polluting oil and coal as their main source of energy, highlighting the potential of switching to cleaner energy sources, according to a new study to be published this week.

"To date the energy use in rural areas is not really known very well," said Ann Gardiner, director at Ecofys, a consultancy which has recently finalised a study on rural energy in Europe.

"And if you want to change things for the better then you need to know where you currently stand and have benchmarks," she told EurActiv in an interview.

The study will be presented in Brussels at the 2011 Rural Energy Day next Wednesday (21 September) and was funded by a platform called FREE – Future of Rural Energy in Europe – which brings together multiple industry sectors and local authorities.

The report compares urban and rural energy mixes in five countries – France, Germany, Italy, Poland and the UK –, giving an approximate picture of energy consumption for the whole of Europe.

### Carbon emissions

Knowing the fuel mixes in rural areas is important for two reasons, Gardiner explained. First, there are higher emissions associated with certain fuels such as heating oil and coal.

As a general trend, those higher-carbon fuels are more heavily used in rural regions than elsewhere because gas networks are less developed and because rural areas have a more limited choice of fuels, Gardiner said.

For example, reducing heating oil and coal use in households and commercial buildings, would save "35 million tonnes of CO<sub>2</sub> which is the equivalent of the CO<sub>2</sub> emissions of about 3,500 small

towns," she pointed out.

"Even replacing those by lower-carbon fuels will give you a CO<sub>2</sub> emissions reduction of some 150 small towns," she added.

### Economics

Second, "there are also economic effects related to the available choice of fuels, as some are more expensive than others," Gardiner explained. Whereas heating oil tends to be more expensive, the cheaper options are usually gas and also some renewables, she said.

"If you're off the grid, there are obviously better options in terms of biomass and other renewables, such as solar and thermal, that are available and probably more economic than in urban areas. This is because of the relative cost of heating oil, for example."

While farming is probably the most important economic activity in rural areas, they have a limited – and often more

costly – choice of energy and are therefore more vulnerable to supply disruptions, particularly because of their dependence on heating oil.

In sum, including energy issues into rural development policies would extend energy choices and contribute to meeting the EU's climate goals while also increasing energy security, she said. "Particularly some renewables can make an important contribution to energy security" she pointed out.

The European Commission's Energy 2020 strategy, presented in November 2010, suggested that rural areas could make use of the European Agricultural Fund for Rural Development to seek funding for innovation projects related to renewable energies, energy efficiency and smart heating and cooling grids.

### Agriculture's untapped potential

### Buildings

The Ecofys report takes stock of the current situation but does not formulate any specific policy recommendations, Gardiner underlined.

"You have to take into account what is available in the region. And that is of course a very local and regional analysis," she said.

She also insists that the report focus on fuel mixes, but that public policies might also look at energy use in buildings. It may be easier for instance to replace coal boilers with biomass than use biomass to replace an oil boiler, she said.

The same goes for the development of local grids in rural areas, for which a certain number of buildings is required. "It might be an option in some places where you've got villages, for example, but less of an option if you are talking about widely distributed farms," she said.

# Ecofys: rural regions tend to use higher-carbon fuels

Due to limited fuel choice, households in rural areas have turned to heavily-polluting oil and coal as their main source of energy, highlighting the potential of switching to cleaner energy sources, said in an interview with EurActiv Ecofys' Ann Gardiner relating the findings of a new study.



*Ann Gardiner is director of international energy and climate policy and strategy at Ecofys, a consultancy. Ecofys is primarily active in the fields of renewable energy, energy and carbon efficiency, energy systems and markets, and energy and climate policies. It recently conducted a study on rural energy in Europe. She was speaking to EurActiv's Outi Alapekkala.*

**Your study on rural energy in Europe will be made public at the 2011 Rural Energy Day in Brussels. Why did you conduct this study?**

The study is part of and was sponsored by the FREE initiative (Future of Rural Energy in Europe), because to date the energy use in rural areas is not really known very well. And if you want to change things for the better then you need to know where you currently stand and have benchmarks.

**What were your research questions? What kind of information does the report provide?**

We wanted to see whether there were differences in the energy use, and in particular fuel use, in urban and rural regions in different countries. The fuel use is important because of two aspects: one is that if you are using certain fuels, obviously there are higher emissions associated with those fuels.

Second is that there are also economic effects related to the available choice of fuels, as some fuels are more expensive

than others. So that can have an effect on consumers in certain regions as well.

**What are the most expensive and cheapest fuels?**

Oil tends to be more expensive, in particular heating oil. The cheaper options are usually gas and also some renewables - depending on what they are.

**Your study has a special focus on five countries – France, Germany, Italy, Poland and the UK. Why did you choose these countries?**

We wanted to have a look at a group of countries that represents the majority of the energy use and emissions in the EU – the five countries represent 61% of the EU population and energy use, and 62% of the CO<sub>2</sub> emissions.

We also wanted to cover countries we thought would have different fuel mixes and were in different types of regions.

**Is your report representative of the whole of the EU's energy use in rural areas?**

There are obviously different areas with regional specificities – but I think that by choosing these five we've got a fair picture of the whole of Europe. At least you can draw the major trends from this.

**What are the main sources of energy in Europe's rural areas today?**

It is actually a mix - as our individual country results show. But what our results say is that in rural regions generally, there are more of the higher carbon fuels used in the fuel mix, such as heating oil, and coal in Poland.

As a general trend we can say that more of the higher carbon fuels are used in rural regions. Anecdotally this is what we expected as a study result, because when you think of rural areas you know that gas networks are not always expanded there.

**Should this observation – that rural areas use more higher carbon fuels – lead to an improved EU focus**

**on rural energy issues when it seeks to reduce its carbon footprint from energy use?**

It is more of a focus in rural development policy. Because you can get double benefit: by providing different energy you can get an economic benefit for the region, but you can also contribute to meet the greenhouse gas reduction target.

So there is benefit in including the topic of energy more in the rural development activities.

**How energy-secure are Europe's rural areas? Is there some form of energy production that is easier to implement than others?**

We did not really look at this aspect in our study.

In general: the more choice you have for fuel, the more secure you are, and particularly some renewables can make an important contribution to energy security. For rural regions, LPG is also an interesting option because it does not require the infrastructure of natural gas.

**Would you say that rural areas have access to good energy mixes or is access limited?**

Access is obviously limited to a certain extent by the availability of gas networks. And this choice is not available in some rural areas. Therefore the fuel mix might be limited. There is no reason why it couldn't be more mixed.

It is not always economic to extend the gas and electricity networks but there are other options that could be used more to give a greater diversity of fuel in rural areas than there is now. I mentioned previously renewables and LPG as options.

**Could one say that Europe's rural areas are very dependent on oil and that more needs to be done to increase the use of renewables to put an end to rural areas' oil dependency?**

More renewables could certainly be used and that would reduce dependence on oil, as would the use of fuels such as LPG. One observation from the report is that agriculture

is very dependent on oil: rural households less so, although they use more oil than in urban areas.

**Does your report put forward policy recommendations regarding energy use in rural areas?**

In this report we did not look at what policies should be implemented. We really see this study as the beginning of a policy process. Data is now available to policymakers and my feeling is that there is a need for a mix of policies: a top-down push maybe from the Commission, but you would probably also need a mix of different policies in different countries, because of the differences we saw between countries.

So we do not formulate any specific policy recommendations. Our report is an assessment of how things currently stand and gives a basis for future policy developments.

But there are probably also other aspects you need to look at when developing the policies, because this report was very much focused on the fuel mixes.

**What other aspects need to be looked at before developing policy recommendations on rural energy?**

As there are specific fuel mixes in particular countries, there might be easier ways to substitute different fuels, depending on the existing infrastructure of buildings, for example: if you use coal boilers – maybe it is easier to replace them with biomass compared to a situation when you are using an oil one.

But there is also the efficiency side, which we did not particularly look at: anecdotally you would say that in some European rural areas the houses are not quite as efficient. So you need to look more specifically at the energy efficiency of buildings, for example, before making policy recommendations.

**Regarding the extensive use of coal in Poland: do you think coal could be substituted with biomass?**

There are no technical barriers to coal being substituted by biomass. The timescale over which that would be possible

would depend on establishing supply routes and we did not look at those in this study.

**Apart from Poland, your report notes a small share of coal use in rural areas in the UK and Germany, but of course nothing compared to the extent it is used in Poland. Do you want to comment on that?**

You can generally say that where you've got oil and coal use - it is an indication that the gas network doesn't extend to those areas. Both the UK and Germany also have a history of their own production of coal.

**Your report also recommends targeted support for low-carbon and renewable energy in rural areas. What exactly do you have in mind?**

A lot of national policies that are aimed at renewables will apply in rural areas as well. In our opinion different approaches are needed to get those policies into the area, or probably you need different approaches to providing information. But we did not particularly look at that in this study.

**Are you aware of any plans for increased support for rural areas on energy topics in the future EU budget, regional funds or the Common Agricultural Policy, for example?**

The topic is becoming more prominent. I don't know of any specific initiatives – and this is also why we believe that our report is well-timed because it can be built into this policy discussion.

**What would be an ideal energy mix for rural areas? Is there one form of energy that is 'better' than others?**

It depends on the country. One of the things is that if you're off the grid there are obviously better options in terms of biomass or other renewables, such as solar and thermal, that are available and probably more economically than in urban areas. This is because of the relative cost of heating oil, for example. LPG can also contribute to the mix, as it is available without

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large changes in infrastructure and is in fact already used to a certain extent.

But you have to take into account what is available in the region. And that is of course a very local and regional analysis.

**Did you look at the development of local grids in rural areas?**

The balance there is having the right number of buildings that can be attached to the grid. As I understand it, they work better when there is a certain load available. So it might be an option in some places where you've got villages, for example, but less of an option if you are talking about very [widely] distributed farms, etc.

**Your report also looks at CO<sub>2</sub> reduction potential in different countries' rural areas. What results did you get on this topic?**

If you can replace everything with renewables you obviously have higher emissions reductions.

We said that if you actually only reduce the heating oil and coal use in households and commercial buildings, then you can save 35 million tonnes of CO<sub>2</sub>, which is the equivalent of the CO<sub>2</sub> emissions of about 3,500 small towns, which is a lot.

But here again you really need to look at the economics of it. Even replacing those by lower carbon fuels will give you a CO<sub>2</sub> emissions reduction of some 150 small towns in Germany alone.

**You talk about the GHG emission reduction potential in particular in agriculture – why is that?**

Obviously it is quite an important economic sector in rural areas – probably the most important economic sector in rural areas. But it is also a sector which has not had so much emphasis on energy use. Obviously there are other GHG emissions from agriculture and they are subject to policy developments – but energy use in agriculture has not been a particular focus.

As for energy use in agriculture, we looked at fuel use in tractors and electricity used in farms. In quite a few areas of agriculture farms have generators, which often use oil as well.

The thing is that agriculture is quite a difficult sector to tackle because there are a lot of different uses of energy and thus sources of emissions. But all them put together represent big energy use. And if you put more emphasis on that, there are some gains to be made – partly because it has not been tackled so much before.

**Did you give any recommendations on energy use in agriculture in rural areas?**

No. That's definitely beyond the study and it is a relatively complicated area.

Obviously there are things like being able to use biogas from farm waste, etc – but then there are a lot of discussions

about what the correct scale of that would be, and that needs to be taken into account.

**Regarding rural areas' energy issues, what is the main topic: is it about access, price, 'greenness' or inefficiency?**

This study has shown that there is a fuel difference between rural and urban areas in a lot of countries, and in some countries the difference is quite pronounced. And where fuels are higher carbon it gives an opportunity to reduce emissions.

Benefits also depend on the mixture of access and the economics, because they are very much interconnected.

## Rural renewables still obstructed by red tape



Clean energy projects in rural areas are still being held back by administrative burdens, one year after EU member states began implementing their National Renewable Energy Action Plans (NREAPs), EurActiv has learned. However, Brussels believes the situation is improving.

"Lengthy and cumbersome authorisation and planning procedures continue to be important barriers to the growth of the renewable energy sector in the EU, and it is especially the case for electricity," an EU official told EurActiv.

Internal research suggested that renewable energy promoters and developers were "most concerned with long lead times and high costs of obtaining permissions," according to the official.

"However, we are convinced the situation is improving," he added.

Brook Riley, a spokesman for Friends of the Earth Europe, an environmental pressure group, cautiously agreed. "For sure the Renewable Energy Directive is having an impact because it sets out binding targets that countries have to meet in their NREAPs," he told EurActiv.

But member state implementation of the Directive was patchy. "There's a big difference between Germany and Poland on renewables," Riley said.

The EU acknowledges this problem but maintains that renewables should be considered a "priority in all local planning and infrastructure," according to the official, with "simplified procedures applied to smaller

and decentralised renewable energy producers."

**Access to sustainable and clean energy**

Despite making up 90% of the EU's territory and 56% of its population, rural communities often face problems accessing clean energy at an affordable price. They have a limited choice of energy options – oil and coal are still commonly used – and are more vulnerable to supply disruptions.

But renewable projects still tend to run into opposition from countryside residents, angry at unsightly wind turbines and overhead cables. "To get public support for the new infrastructure, we can bury cables rather than put them overhead," Riley suggested.

Energy companies often oppose such measures because they could cost 5-7 times more, Riley said. "But if you're held up for 10-15 years because of public opposition, it would have been far cheaper to have built underground to begin with," he said.

**Energy infrastructure at stake**

Rural energy campaign groups such as the Future of Rural Energy in Europe (Free) point to other areas of concern for countryside dwellers. Rural housing is also frequently energy inefficient, they say, and because of their dispersed nature, rural communities may suffer from poor grid connectivity.

The EU official told EurActiv that Brussels needed to help improve such energy infrastructure because of the "huge investment challenge" involved in meeting the EU's 2020 targets on clean energy.

But "under no circumstances can EU policy in the field of permit granting procedures for new infrastructures undermine the EU's legislation in the field of environmental protection," he stressed. Stakeholder and citizen consultation periods should also not be shortened, he added.

The EU believes that smart grids offer a potential way to help rural consumers save energy, and money, by shifting their electricity usage away from peak hours. One of the 'greenest' benefits to a smart grid update would be "the fuel savings and CO<sub>2</sub> reduction

from [not] having to send meter-readers to rural locations or travel to customers' homes for troubleshooting," the official said.

Smart grids could also help minimise blackouts and brownouts, improve telecommunications, and better integrate the renewable distributed generation, the EU executive believes.

The Commission is currently planning a legislative proposal on energy infrastructures that it says will increase transparency, and stakeholder involvement. The proposal will establish a "regime of European interest" to streamline the permit granting process and fix a time limit for decision-making processes.

The initiative, which will be unveiled in late October, will try to extend and upgrade the EU's power and gas grid network, delivering renewable power to areas where it is needed.

Speaking in Wroclaw, Poland, on 20 September, the EU's energy commissioner Günther Oettinger announced that the €200 billion which EU countries need to invest over the next 10 years would be partly met by promoting private funding with public money.

"In our proposal we have called for smart co-financing by means of project bonds and grants, and perhaps other financing instruments," he said.

By 2014, a single electricity market is due to be created across the EU, to deal with rising demand, changing demand patterns, and variable supplies.

# Out of the woods? Rural Europe (re)turns to forests as main energy source



Wood is already the most widely-used source of renewable energy in Europe, but the European Commission is looking at additional measures to help rural regions seize their potential for power from biomass.

According to the European Commission, wood already accounts for approximately 80% of the biomass used for renewable energy.

And the multiple uses of wood make forests a key factor for the rural economy and employment, it believes.

Forests cover more than 155 million hectares (37%) of the EU27's land area and a further 21 million hectares is covered by other wooded land.

However, the Commission believes there is a clear potential to intensify forests' energy utilisation as only up to 70 % of the annual forest growth being harvested, with some 42% being used for energy.

In addition, wood burning is considered to be largely carbon neutral if forests are cultivated in a sustainable way, making it an environmentally-welcome alternative to oil and coal in rural areas.

Another advantage of biomass is that it may be directly stored and drawn upon for use at any time, unlike wind or solar electricity that need to be consumed directly or converted in order to be stored.

## Forest bioenergy set for increased CAP support

While forest policy is primarily a national competence, the EU Forestry Strategy and Action Plan, adopted in 2006, stressed the role of forestry in the

context of rural development.

The EU's main instrument in the field of forestry is the European Agricultural Fund for Rural Development (EAFRD), which is part of the second pillar of the Common Agricultural Policy (CAP).

The fund already includes measures that can be used to support bioenergy from forests, and the European Network for Rural Development (ENRD) which looks after the implementation of the bloc's rural development programmes has a Joint Thematic Initiative for Forestry.

The initiative includes forest biomass for energy generation as one of its three specific topics, placing a particular focus on heating at local scale.

The Commission proposal to reform the CAP for the post-2013 period, to be tabled early next month, is expected to include more measures on forest within the EU's rural development policy and have measures available for member states who wish to prioritise forests and renewable energy production.

Current EAFRD measures can be used, for example, to support small-scale processing of wood (chips, pellets) in micro-enterprises. Small companies can also get support to produce renewable energy from forest biomass for local electricity and heating.

## Getting supply chains up and running

Looking forward to the future CAP reform for 2014-2020, policymakers are looking at how best to use scarce EU funding to support forests as a source of bioenergy.

Juha-Matti Markkola, an official at the Finnish National Rural Network, told EurActiv that the priority should be to get the supply chains up and running in order to "guarantee the supply" of woody biomass to power plants.

Nearly 80% of Finland is covered by forests and the country is at the forefront when it comes to using wood biomass for energy generation. Markkola said local communities in Finland are already using small-scale thermal power stations that use wood chips to heat schools and communal buildings all over the country.

But this is only possible thanks to extensive investments in developing and setting up the supply chains that are essential for the use of forests for energy. "You need someone to get the wood out of the forests, another one to transport it to the plant and yet another entrepreneur to run the plant," Markkola summarised.

Markkola suggests channelling EAFRD funding to support groups of enterprises involved in the wood bioenergy supply chain. In that respect, he underlines the importance of supporting process innovations that would enhance the supply chain's efficiency.

But technical innovations are important as well because wood harvesting conditions can sometimes be challenging, he said, referring to difficult terrains such as swamps, wetlands or mountainous areas.

Communication, training and advisory services to forest owners regarding bioenergy potential are also badly needed, he added.

For Markkola, the current overarching policy challenge of sustainability and climate change represent "a big potential for rural areas". Forest bioenergy is "a big business" for rural areas he said, as the supply chains bring jobs and money to rural communities.

And depending on the regions, he said the price of wood fuel is already competitive with other conventional forms of energy. This is true in particular in areas which otherwise would be dependent on heating oil, he added, referring to the rising price of the fossil fuel.



## Mountain regions call for EU focus on local energy

Political and financial support is needed from the EU to help rural areas develop renewable energies at local level such as biomass and small hydro, according to Euromontana, an association representing Europe's mountainous regions.

While the EU currently has many initiatives to develop renewable energy in urban areas, such as the smart cities initiative, Euromontana regrets that the specific needs of rural areas are too often being neglected.

As far as energy policy goes, "we would like to see a stronger interest from the EU towards small communities and rural areas," said Marie Guitton, project manager at Euromontana, the European association for co-operation and development of mountain territories.

In the end it is about having the best mix of different renewable energy sources that are locally available – whether solar, wind, hydro, biomass or geothermal heat, Guitton said, adding that "their optimal use should be developed locally."

## Energy security in mountainous regions

Whereas Europe's urban dwellers take uninterrupted electricity flow all year round for granted "a municipality in a mountainous region in France can have more than 10 electricity cuts per year due to storms and other climatic conditions," Guitton noted.

Indeed, storms and avalanches are commonplace in mountainous regions, which can damage high-voltage power lines, causing electricity cuts and compromising infrastructure.

"Having local grids powered

by renewable energy sources would greatly enhance mountainous regions' energy security," Guitton said, calling for greater focus on local grids with the possibility of plugging into the grid energy from different sources.

Euromontana would also like policymakers to give rural areas the means to develop energy alternatives at the local level.

"People living in remote rural areas should have the option of not heating their homes only with petrol to put it simply," Guitton said. They should be offered the opportunity to improve their situation and to use resources close to them, she added.

While the EU's future energy priorities focus on developing large energy "corridors", Euromontana is highlighting the need to better consider "what can be done locally and how can we better use what we already have," Guitton said.

## Mountains: Big potential for biomass

Currently, the most widely-used renewable energy source in mountainous regions comes from large hydroelectric plants, most of which were built after the Second World War.

But the potential in Europe has already largely been exploited and there is little room left for additional big hydroelectric dams, Guitton says, underlining the "potential for smaller plants and micro turbines at very local scale".

Meanwhile, the biggest potential seems to lie in biomass. Indeed, 40% of Europe's mountainous areas are covered

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by forests, making mountainous regions a potentially huge source of energy as well as jobs for local economies, Guitton said.

Wood logs can of course be used to heat a fireplace, but households can also equip themselves with a boiler that uses pellets or by-products of wood production such as saw mill dust, she said.

One of Euromontana's members, the city of Vatra Dornei in Romania, has a big plant that collects the sawdust

from all saw mills in the area to produce energy and heat for the city network.

Euromontana is currently doing a study to see how the forest supply chain can be better exploited in mountainous areas. It is also looking at how to develop local supply chains, because sometimes the wood is harvested and then sent elsewhere for sawing before being brought back for local use.

"If the wood is sawn locally, it is an additional economic activity that is important for

mountain regions" which can boost the local economy, Guitton stressed.

### Managing local projects, with EU help

However, Guitton also stresses that mountainous regions, like many other rural areas, are "not big enough" to engage in EU energy and climate initiatives such as the Covenant of Mayors, which supports municipalities in implementing clean energy and

cut carbon dioxide emissions.

When you come from a small municipality or village you simply don't have the administrative capacity, staff, knowledge or money to engage in such projects, she said.

But these smaller areas "can still do a lot," Guitton insisted.

A European-funded project called RURENER is currently seeking to fill this "capacity gap" through helping small communities set up sustainable energy action plans.

Euromontana itself has

developed and submitted a proposal for a project under the EU's Intelligent Energy Europe programme, which supports initiatives to improve energy efficiency and the use of renewables.

"Our project proposal is about continuing to do what the RURENER is currently doing, but specifically in mountainous regions," Guitton explained, noting that due to cold winters there is a great potential to save heating energy from buildings in mountain regions.

## Mountain areas: EU should help boost local energy potential

Political and financial support is needed from the EU to help rural areas develop renewable energies at local level such as biomass and small hydro, according to Euromontana, an association representing Europe's mountainous regions.



*Marie Guitton is project manager at Euromontana, the European association for the operation and development of mountain territories. Members of Euromontana include regional development agencies, local authorities, agricultural organisations, environment agencies, forestry organisations and research institutes. She was speaking to EurActiv's Outi Alapekkala.*

### What characterises mountainous regions and what are their specific energy issues compared to other rural or indeed urban areas?

We share some common issues with other rural areas, of course, like remoteness and the small size of villages and communities. Notwithstanding that there are of course some bigger cities in mountainous areas as well.

So for rural areas the problem is about access to the energy mix – you don't have domestic gas in remote villages because the infrastructure is too expensive

to build and the final cost per capita would be too high.

As for mountainous areas, the cost of building gas infrastructure would be even higher because of the slopes and related difficulties in building the infrastructure. For this reason people often still heat their homes with petrol, which is more polluting.

Another characteristic of mountainous areas is the higher frequency of storms and avalanches, which frequently damage electric lines, cause power cuts and compromise the security of the infrastructure. Here, you might want to build the infrastructure underground to make it more secure, but it would increase the cost even more.

### How energy-secure are mountainous areas at present?

I learned from the project manager of RURENER – an EU-funded project to support small communities to help them set up energy action plans – that a commune in a mountainous region in France can have more than 10 electricity cuts per year due to storms and other climatic conditions.

The number of climatic incidents is also expected to increase with climate change, and mountainous regions are predicted to be the first ones to suffer from that.

But we need to find a solution to put an end to these power cuts.

### What do you see as potential solutions to improve the situation and what role could renewable energies play in making mountainous areas more energy-secure?

Another specific characteristic of mountainous areas is the

availability of renewable energy sources.

The first one is water and it is already used a lot. There are a lot of dams that produce hydroelectricity. There is not really any room for improvement of its use, at least regarding building new large-scale dams, but there is potential for smaller plants and micro-turbines on a very local scale.

But regarding hydropower, the question is also about how to reward mountainous regions for the production of this electricity, which is then sold to other areas. In some countries, like in Norway, there is a well-defined mechanism to reward the mountainous regions for this.

It is not only about the municipality where the dam is built, but about the larger territory being used. You need to have good management of the area around the dam to make sure there is enough water. So it is about forest management as an 'ecosystem service', for example.

We think that not only should the dam's host municipality be compensated, as is often the case (through taxes from the company, for example), but also the other municipalities that belong to the same water basin. They could get a return for participating in the production of electricity through managing the area.

Ways to deal with this issue differ between the different European countries.

### Would you say that water is the most important renewable source of energy in mountainous regions?

It is definitely at least the most exploited one to produce electricity. But you also have other energy sources which can be much better exploited.

Here the first one would be biomass, because there are a lot of forests in mountainous areas:

some 40% of mountainous areas in Europe are covered by forests. So there is a huge potential to use this biomass – either directly with wood logs to heat a house or through local plants via the use of by-products of wood production, such as saw mill dust.

One of our members in Romania is using sawdust to produce energy. In their city, Vatra Dornei, they have a big plant that collects the sawdust from all saw mills in the area and then this is used to produce energy and heat for the city network.

So thanks to the big forest cover, Europe's mountainous areas have a big biomass potential compared to other rural areas – but of course this potential is also country-specific.

### What is the current use of biomass in mountainous regions and do people heat their houses with wood?

I'd say that it is quite common for households to have a fireplace. But what can be improved regarding biomass is the scope of its use. Not only having a fireplace in your house but also having a boiler which works with wood pellets, for example. However, this can of course be done in other areas as well.

In addition, the biomass supply chain could be local, because you have all this wood available. So there is an opportunity to develop local supply chains and the local economy.

### Could mountainous areas also export biomass for energy?

Yes, and I think some regions already export more than they transform locally.

It is clear that mountain forests could be exploited more for their biomass potential, but

also for wood construction. Euromontana is actually currently doing a study on forests, on how to improve the harvest of mountain wood and the wood supply chains in mountainous areas.

In that study we are also looking at how to have local supply chains, because sometimes the wood is harvested and then sent elsewhere for sawing before being brought back for local use.

If the wood is sawn locally, it is an additional economic activity [that is] important for mountain regions. Moreover, there are by-products as well and all this related activity can boost the local economy.

In addition, we also need to consider the organisation of local grids and networks – like in the example of that Romanian city using sawdust to produce heat used in a local network.

There is currently a lot of research on smart and local grids and these indeed need to be developed with the possibility to plug into the grid energy from different sources. With local grids you can avoid cuts in electricity and avoid loss of power due to long-distance transportation of energy in the grid.

Having local grids powered by renewable energy sources would greatly enhance mountainous regions' energy security.

In the end it is about having the best mix of different sources of energy in every region. In every region there are a variety of sources of energy – water, biomass, solar, wind, geothermal heat – and their optimal use should be developed locally.

### What kind of energy support or initiatives do you expect from the EU?

There are currently a lot of

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initiatives in the EU to develop renewable energy, like the smart cities initiative. However, as its name indicates, it is focused on cities. But what do you do when you are in a remote rural area?

### So you would like to have something more specific on rural areas, such as 'energy-smart mountains'?

Yes.

There is for example the Covenant of Mayors to support municipalities who want to do sustainable energy action plans (SEAPs). But you have to be big enough to engage in producing a SEAP. You need to have the staff and knowledge to do that. When you come from a small municipality or village you simply cannot engage in doing a SEAP following the Covenant

of Mayors' recommendations.

This is why the RURENER project and initiative was developed in the first place - to focus on small municipalities that have less administrative capacity, knowledge and money, but can still do a lot.

Euromontana has now developed and submitted a proposal for a project under the EU's Intelligent Energy Europe programme, which supports initiatives to improve energy efficiency and the use of renewables. We submitted the project because there is a real need for this kind of action in mountainous regions as well.

The climate in mountainous areas is harsh and winters are much colder than elsewhere, so you need to improve energy efficiency and make sure, for example, that your home is well [insulated] not to waste energy.

Our IEE project proposal is

about continuing to do what the RURENER is currently doing, but specifically in mountainous regions.

### Do you expect any political support or action from the EU?

We would like to see a stronger interest from the EU towards small communities and rural areas, as currently the focus is so much on urban areas. Of course we don't want to have any opposition between urban or rural areas, as they are complementary.

Electricity used in urban areas comes from nuclear plants, but also from water plants located in mountain regions, and we'd like this to be better acknowledged.

Furthermore, we'd like the EU to acknowledge that people living in rural areas must also be given the means to develop new

energy alternatives in their own areas. And this touches upon everything from administrative capacity and climatic problems to infrastructure set-up and problems related to possible power cuts.

People living in remote rural areas should have the option of not heating their homes only with petrol - to put it simply. They should be offered the [opportunity] to improve their situation and to use, for example, the wood close to them.

Finally, it is also a matter of territorial cohesion.

In the future CAP post-2013, we would naturally welcome measures on forests and biomass because mountainous areas' biomass potential is currently underexploited. However, production of biomass for biofuel is clearly not an issue for mountainous areas, because using its agricultural land for food pro-

duction should be a priority.

While energy is of course also a national and regional-level issue, the EU sets priorities with its programmes and policies - like the one on smart cities.

But when the EU gives priorities, for example on 'energy towards 2050', we would like to see more concretely that there is also an interest in local-level issues, because these are currently not really dealt with and there are no incentives.

Future priorities mainly focus on securing the provision of energy and developing energy corridors to transport energy from some areas to others, and this is of course relevant and needed.

But what about considering what can be done locally, and how can we better use what we already have everywhere? We'd like to see more incentive from the EU on this - both political and financial.

## Polish villages eye shale gas to break coal addiction



Polish rural communities largely depend on low-cost but dirty coal for their heating, but under pressure from Brussels to provide cleaner energy, Warsaw is proposing controversial shale gas wells as an alternative.

"In small villages, each house has its own individual heating system - mostly based on coal - because access to other [heating sources] is difficult," said a Polish diplomat in Brussels.

Many Polish villagers were switching to burning wood in their coal stoves instead - because it was cheaper and locally available, explained the diplomat, who was speaking to EurActiv on condition of anonymity.

But storage problems were keeping demand for coal high and EU money would be needed to change the situation, according to the official.

"Definitely we must have it because we have to decrease the emissions of the [greenhouse

gases," he said. "Without European money it will be more difficult and take longer."

### Shale gas move

Poland currently generates around 95% of its electricity from coal. However, Prime Minister Donald Tusk said on 18 September that the government is planning a strategic move towards shale gas production beginning in 2014.

Ninety shale gas exploration permits have been issued so far to energy companies such as Total and ExxonMobil.

Poland is thought to possess around 5.3 trillion cubic metres of natural gas reserves, and Tusk is aiming to achieve 'gas security' for his country by 2035. He said he had been "assured that well conducted exploration and production would not pose a danger to the environment."

But, amid environmental concerns, France has already

frozen shale exploration licenses and banned 'fracking' - a process of hydraulic rock fracturing involving toxic chemicals and even radioactive materials.

To allay such fears about shale gas - which Cornell University scientists found had a carbon footprint 20%-100% greater than coal - Brussels announced earlier this month that it would draft EU-wide rules on shale tapping.

The diplomat saw no problem with extracting shale from rural areas, as it would be done in "empty space". Nonetheless, shale reserve concessions in Poland cover large tracts of the countryside.

"We have very strict environmental rules, and in Poland we are the most water efficient country," he said. "Water is very crucial to us and if there is any risk of water contamination, I do not believe we will start any exploitation."

A 2008 US documentary Gaslands famously showed graphic evidence of shale gas contaminating groundwater supplies, with rural residents lighting their tap-water.

But the diplomat was not convinced. "Contamination could only come from water which is going [deep] into the ground and then coming out because the gas is 4 or 5 kilometres below surface level and the deepest water we use, is from 700 or 800 metres."

A report by the Tyndall Centre in Manchester University found that "There is a clear risk of contamination of groundwater from shale gas extraction," it concluded. "It is important to recognise that most problems arise due to errors in construction or operation and these cannot be eliminated."

### Wind potential

Poland does possess other energy resources. A 2009 study by the Global Wind Energy Council found that the country could potentially install 13GW of wind energy by 2020.

Indeed, Warsaw passed a power purchase obligation for renewable energy sources in 2000 and amended it in 2003 and 2008. But a European Commission report in 2007 found that fines were not being enforced and there was a failure of compliance.

Nonetheless, the country has a commitment to achieving a

15% rate for renewables in final energy consumption by 2020 and a 20% rate by 2030.

Problems remain however. The Polish official explained that "we do not have strong enough winds to make these windmills work. Only [in] a few regions in Poland could they be installed."

In scenic rural areas, "people don't want windmills because they say it will destroy the picturesque view," he added

The official also voiced some less orthodox complaints. "Environmentalists say windmills are not good for the birds and the animals living in underground," he said. "They're also not good for fish, because [they make the] fish disappear. In fact this equipment also produces infrasound which we don't hear, but animals can."

Julian Scola, a spokesman for the European Wind Energy Association was taken aback by the charge. "Wind power is supported by all the major environmental groups because it's a clean source of power which combats climate change, the greatest threat to biodiversity," he said.

Wind energy caused fewer bird fatalities than power lines, buildings or vehicles, he stated, and the EWEA had never come across instances of harm to underground animals or fish caused by wind turbines.

"Poland has substantial potential for wind power that the government is not exploiting," he said.

# EU urged to focus on rural energy needs, carbon solutions

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## Additional coverage on the EurActiv Network:

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