



UK ESPON Contact Point Commentary Report

## **Final Report of Regions at Risk of Energy Poverty (Re-Risk) Summary**

This project focuses on territorial patterns in energy consumption, rather than on infrastructure and networks, which were covered in the ESPON 2006 project on *Energy services, networks and territorial impacts of EU energy policy*. The economic and transport structure, as well as the social situation and the climate conditions, make some regions more vulnerable to energy poverty than others. However, increasing prices for fossil fuels also open up opportunities for the development of renewable energy resources and the creation of new sources of income and employment.

Analysis of data results in a typology as follows:

**Typology 1a “Regions with problems and potential”**. These are the service oriented urban centres – the hearts of the Pentagon - and semi-rural, often tourist-oriented coastal and island regions in the South of Europe. The high solar power photovoltaic (PV) potential of many of the regions in this latter group is an important asset. However, rising energy prices could lead to changes in transport patterns both in terms of commuting and loss of traffic volumes in the transport hubs. Also, the higher than average unemployment rates in 2007 are an indicator for possible social problems both in the semi-rural and capital city regions.

**Typology 1b “Well-off, with trouble ahead”** is made up of central, industrialized regions, including the more industrial coastal (harbour) and Pentagon areas, with low potential for developing wind and solar energy. The competitiveness of these regions could be severely affected by rising energy prices if efforts to improve energy efficiency in industry and transport fail, but their starting position is much more favourable than that of regions grouped in typology 2.

**Typology 2 “Struggling, looking for jobs and a brighter future”** is composed of the most vulnerable regions in terms of social cohesion, located mainly in the East of Europe, with high energy demand both for heating and cooling. These mostly peripheral regions do have potential to develop renewable energy systems, but lack the resources to do so. The number of regions grouped in this typology is smaller than those considered lagging, according to data from 2005 – 2007, but may have increased considerably in the wake of the economic recession.



EUROPEAN UNION  
Part-financed by the European Regional Development Fund  
INVESTING IN YOUR FUTURE



## UK ESPON Contact Point Commentary Report

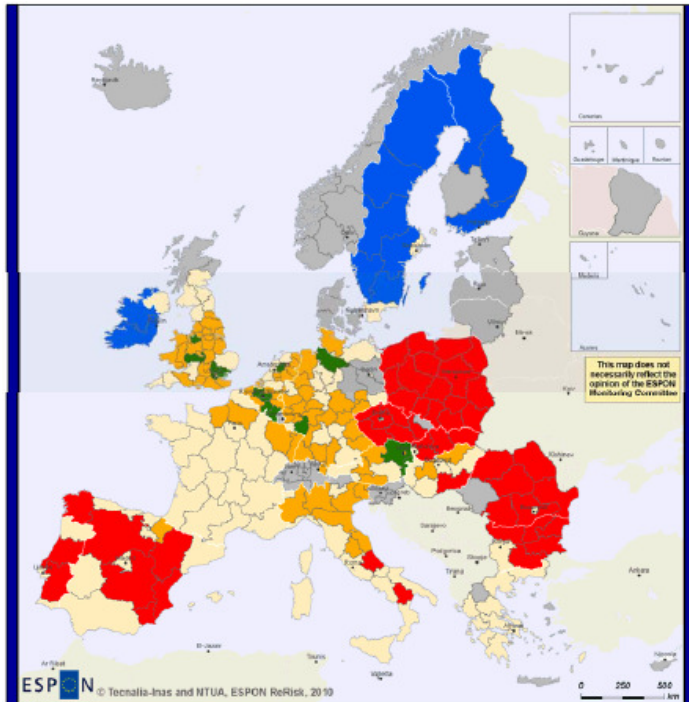
**Typology 3 “Wealthy and commuting”** is mostly made up of regions belonging to the Pentagon “hinterland”, in which wealth creation is dependent on accessing near-by centres of economic growth. The main challenge related to rising energy prices in these regions is that of guaranteeing affordable mobility. There is a high potential for polycentric development in these regions, but fewer possibilities for using wind and solar power.

**Typology 4 “Cool and windy, but working”** have a heavy industrial base, combined with extreme peripheral location on the coastline and the high energy demand for heating in these, mostly Nordic, regions. However, opportunities for the further development of wind energy are considerable and the risk of energy poverty in households is low as long as the job situation remains as it was in 2007.

### **Clustering of regions by features of energy policy**



## UK ESPON Contact Point Commentary Report



### EU Regions

#### 4 clusters+

- Cluster 1a
- Cluster 1b
- Cluster 2
- Cluster 3
- Cluster 4
- Data Missing

Regional level: NUTS 2  
 Source: NTUA processing, 2010  
 Origin of data: ESPON, 2009  
 © EuroGeographics Association for administrative boundaries

### The UK picture

The regional economies in the UK with the highest exposure to energy price rises appear to be mainly the Mersey belt, East Yorkshire and North Lincolnshire (where 7.25% of jobs are in industries that have high energy purchases), and the West Midlands. However, Inner London tops the league in terms of the percentage of industrial employment in industrial sectors with high energy spending. However, this figure paints a rather misleading picture, since industrial employment in Inner London is much less significant than tertiary sectors.

Outer London shows up as having a high level of commuting and also high levels of air travel. The NUTS 3 areas with the other London airports and also Greater Manchester are also highlighted by the air travel statistics. Similarly, Cheshire, Herefordshire, Worcestershire and Warwickshire and Bedfordshire/Hertfordshire all figure amongst the 15 leading commuting regions in the ESPON study. If





#### UK ESPON Contact Point Commentary Report

commuters are calculated as a percentage of the total population then Essex is added to the list of leaders.

Analysis at the national level shows the UK towards the lower end of the spectrum on gas prices for industrial consumers, but towards the higher end with respect to electricity prices. Ireland stands third highest on both.

In social terms energy poverty is linked to high unemployment, but also to factors like high house prices and high divorce rates, and high levels of household debt. Data on household debt is not available for all countries at NUTS 3 level, but at national level, the UK household debt as a percentage of GDP was third highest out of 21 countries (Netherlands leads, followed by Portugal). The UK is also shown as sixth in the “at risk of poverty” rate for 2005.

Overall the data on which the project has been able to build so far is quite limited, and goes back to 2005, so that the effects of the current economic situation cannot be explored. We do know, however, that gas prices follow oil prices with a time lag of about 6 months, and that 70-80% of gas price contracts in Europe are indexed to oil prices. Also electricity wholesale markets are becoming increasingly integrated, which tends to level out price differences between countries that have different fuel mixes for electricity production.

There is a table in the Scientific Report giving the data for UK NUTS 2 regions.

### Scenarios

The scenarios are based on the common hypothesis that energy prices will remain at a high level, but political response to this challenge is different.

- **Scenario 1 “Green High-tech”** assumes a quick development of renewable energy sources, both large and small-scale, in which the regions gain greater influence on energy policy. In this scenario, regions can specialize on certain types of renewable energy production and will benefit from cooperation and shared networks.
- **Scenario 2 “Energy-efficient Europe”** assumes a greater use of natural gas by 2030, while trying to keep Europe’s energy dependency within limits through important efficiency gains in all sectors and a move towards more regionalized economies. In this situation, regions that depend on gas supplies from one producer region only, will have to deal with a higher risk of supply interruptions, but economic development will probably follow a fairly balanced and more sustainable path.
- **Scenario 3 “Nuclear Energy for Big Regions”** assumes that the power sector will remain highly centralized, since few players are able to carry out the needed investment. The logical consequence would be to “go electric”





UK ESPON Contact Point Commentary Report

both in industry and transport, but these decisions will be little influenced by local and regional policy makers.

- **Scenario 4 “Business as usual”** assumes a focus on clean coal which benefits mining and harbour regions. Production from coal power plants will become even more expensive when technologies for carbon capture and storage are widely deployed. This could lead to a situation, in which high energy prices provoke continued backlashes in a world economy that is not able to function “as usual”. In this case, a large number of regions, and especially the urban areas, will face severe social problems over longer periods of time, due to the increase of consumer prices.

The implications of the scenarios for the different types of regions are interpreted as shown in the following table.

**Table 10 General Overview of Scenarios and Clustering Results.**

General overview of scenarios and clustering process	Scenario 1 “Green High Tech”	Scenario 2 “Energy-efficient Europe”	Scenario 3 “Nuclear Energy for Big Regions”	Scenario 4 “Business as Usual?”
Energy-related policies	Large-scale renewables connected by the European grid and small-scale renewables for local consumption Energy from waste and material recovery from recycling High investment in R&D and education	Energy efficiency all along the chain Nuclear phase-out Large-scale renewables Increased gas imports	Grid extension High level of investment in nuclear energy and security Renewables take off, but stagnate	Increased use of coal and gas for electricity generation Phase-out of nuclear Lack of investment in the retrofitting of buildings and local networks
Other policy domains	ICT and infrastructure policies International climate change agreements on GHG Participatory planning processes	Technological development in efficient technologies (R&D) Regionalisation of economies, polycentric development Hybrid / electric cars and car-sharing	Moderate investment in R&D and education No international agreements on GHG but European climate change policies Electrification of the transport system	Low R&D Low investment in education No agreements on GHG, removal of European ETS Inadequate urban planning
Governance	Increased autonomy for regions with regard to energy policy priorities	National energy efficiency strategies implemented on local level	Centralized (national and EU level)	Protectionist (national and EU)
Region with opportunities	Regions with high PV and wind potential Rural regions with natural resources and access to large cities	Regions with energy-intensive industries but with clean technologies and access to secure gas supplies; agricultural regions	Regions with industries with high electricity consumption and central urban regions	Medium-sized cities surrounded by resource rich areas Coal and harbour regions
Regions experiencing threats	Regions with high fuel costs Regions with industries with high energy purchases (need for adaption)	Regions dependent on long-distance freight transport (islands, remote..) and commuting	Regions with high l/t unemployment rates and/ or low disposable income Peripheral regions	Urban regions with l/t unemployment rate and lowest income Regions with energy-intensive industries Tourism-dependent regions
Expected performance of regional typologies				
Cluster 1a “With problems and potential”	Highly favourable for rural and coastal regions with high solar and wind potential	Negative for the most peripheral coastal areas	Favourable for Metropolitan and Pentagon regions with high levels of employment in the knowledge economy	Increasing poverty and overcrowding in metropolitan areas
Cluster 1 b “Well-off, with trouble ahead”	Need for developing renewable resources others than solar and wind	Strong positive impact on the competitiveness of the more industrialized Pentagon areas	Need for accelerating transition to more service-oriented activities	Weaker impact on harbour regions, danger for industrial areas to slide into the category of struggling regions
Cluster 2 “Struggling, looking for jobs and a brighter future”	Possible positive impact if resources for the development of renewables can be found	Highly positive if affordable clean energy technologies can be accessed by industries in these regions	Increased burden on households, due to rising costs for heating and fuel purchases	Job opportunities for Eastern coal regions, but “no way out” for the rest
Cluster 3 “Wealthy and commuting”	Strong opportunities for polycentric development	Living standards could be negatively affected in these areas due to increased costs on car ownership Strong positive impact on the competitiveness of industrial strongholds in the North, but possible negative impacts of increased transport costs	Favourable, due to increased electrification of transport systems	Deteriorating infrastructures in cities and urban sprawl
Cluster 4 “Cool and windy, but working”	Strong positive impact on Nordic and Irish regions with high wind potential		Favourable only for industries with high electricity consumption	Strong risk of losing industrial base and employment

**Policy recommendations**

The UK government’s “Pay as you save” scheme is commended. The need for effective marine spatial planning is noted in relation to development of off-shore wind farms. An approach based on “urban metabolism” is recommended to enable quantification of inputs, outputs and storage of energy, water, nutrients, materials and waste.





UK ESPON Contact Point Commentary Report

**Project details**

Lead partner: INNOBASQUE

Other team members: Nordregio; National Technical University of Athens

Related ESPON reports: ESPON 2006, project 2.1.4, *Energy services, networks and territorial impacts of EU energy policy.*

Contact person: [nblazquez@innobasque.com](mailto:nblazquez@innobasque.com)



EUROPEAN UNION  
Part-financed by the European Regional Development Fund  
INVESTING IN YOUR FUTURE