
Introducing Rerisk- Regions at Risk of Fuel Poverty

Project presentation²⁴

The reduction of energy and the increasing levels in fuel prices is one of the major problems threatening the potential development of European regions. The implications of these trends have a direct impact on the productive structures of the regions.

An attempt to study these effects and identify the most vulnerable regions as far as development concerns is made in the context of the ESPON Project – RERISK (Regions at Risk of Fuel Poverty). The aim of RERISK is to identify the regions of Europe, whose production base and as a consequence the growth prospects appear to be threatened by the prospect of rising energy prices, so with the help of appropriate policies by decision-makers to enhance their socio-economic base.

Fuel Poverty is a concept that is increasingly being discussed on political level and also in relation to households that cannot afford to pay their energy bills and whose health might be affected for lack of access to energy services. However, rising fuel prices will not only have an impact on the micro-level of households, but may actually pose a risk to the competitiveness of entire regions.

Obviously, not all European regions will be equally affected by rising fuel prices, since the potential and actual state of development of alternative energy sources in the regions vary considerably. The capacity of the regions to respond to price increases and mitigate their impact on the regional economy may be limited due to demand-side factors, such as the insufficiency of transport infrastructure, which is not able to cope with a higher share of commuters switching to public transport or which does not admit greater freight volumes. Prospering rural regions next to metropolitan areas may find new business opportunities thanks to bio-energy, but peripheral regions with population losses and a large percentage of elderly people may not be able to exploit their potential of renewable energy.

However, there are numerous policy options available on regional level to deal with rising fuel prices, both in the energy field (rapid deployment of renewable energy technologies and progress in energy efficiency) and in other policy areas. To mitigate social impacts, fuel costs might be specifically considered in subsidies to low-income households or subsidies may be redirected to improve the energy performance of social housing. Improved interregional cooperation, especially in border regions, may improve the accessibility of urban poles of employment by public transport. New commercial or production activities and also new neighbourhoods could be situated along already existing public transport infrastructure in order to reduce the need for private car use.

Climate change impacts on the provision and consumption of energy are integrated into the overall analysis. More extreme temperatures may create the need for additional or more powerful appliances in regions with a rather moderate climate, but may also have an impact on bio-crop production or hydroelectric plants. More and more insight on these possible impacts is presently being gained in international, European and national research projects and through modelling exercises. Energy services (or the lack of them) may be crucial to cope with crisis situations, which derive from the combination of extreme weather conditions, social isolation and health problems.

The objective of this research project therefore consists of linking already available data on the energy production and consumption in the European regions with their spatial characteristics, as

²⁴ Project presentation by Anastasia Biska, National Technical University of Athens, email: abisca@survey.ntua.gr

well as additional socioeconomic and environmental indicators in order to obtain a clearer view on how the increase of energy prices might affect different types of region and which are the policy options available to regions in order to cope with this challenge.

This research project focuses on typologies of regions already defined in previous work for the ESPON Programme, adding a “fuel poverty risk profile” to the already available information on spatial trends. Concretely, the regional classification of NUTS 2 is considered as the basic unit of analysis. Nevertheless, an important effort will be carried out to include other dimensions in the regional analysis in order to define a regional typology that is relevant for energy-related questions, drawing on criteria that have been analysed in previous ESPON projects. The referred dimensions are related to spatial organisation and consist of urban areas (including metropolitan regions), polycentrism (including border and cross-border regions) and connectedness (including islands and island-like conditions).

The research of the project is based on the following research and dissemination activities:

- **Preliminary data availability, evaluation and configuration of the regional analysis units.** The objective of this task is to analyse the available data from other ESPON projects as well as from international and regional statistical sources, propose a detailed list of indicators and define a regional scope.
- **In-depth analysis of the regions’ present vulnerability in view of rising energy prices.** This task uses the collected data and the defined indicators from the previous task in order to define regions’ present vulnerability in view of rising energy prices, taking into account the climate zone of the regions and other specific regional factors that influence energy consumption, socioeconomic and social welfare indicators (i.e. income per capita, percentage of population with high levels of dept), demographic indicators (i.e. percentage of elderly population), energy demand factors (industry energy intensity, household and primary sector), population capacity indicators (available energy resources and production / generation facilities), transport infrastructure (modal splitting of passenger and road transport).
- **Clustering of regions on common features relevant for the risk of fuel poverty.** Based on the indicators developed, a factor analysis is carried out that generates in a new regional typology which reflects the risk of fuel poverty. The clustering is taking into consideration the regional typologies previously identified: urban-rural regions, border and cross-border regions, insular regions. A vulnerability index which is a compendium of the most relevant factors obtained through the factor analysis is also created. Both regional typology and vulnerability index contribute to build a fuel poverty profile for each type of region.
- **Future scenarios: impacts of spatial mega-trends and emerging trends on the risk of fuel poverty.** Hypotheses about the future development of the identified mega-trends in different types of European regions are formulated, thus defining the key drivers for the scenarios. A selection process of hypotheses regarding the key drivers’ impact on the risk of fuel poverty in different type of European regions is carried out for the final development of the scenarios. The work process includes: selection of the most probable sets of hypotheses for the selected key drivers and determinants, thus defining the framework for three basic scenarios, selection of the preferential set of policy options for each of the three scenarios and cross-checking of all hypotheses in order to exclude contradictions within each of the scenarios. In addition, some relevant case studies are carried out in order to complete the future scenarios based on already identified spatial challenges with emerging trends, for which there is presently not enough data available to calculate scenario consequences. Finally, a validation of the scenarios as well as the case studies is carried out from project partners and representatives of the ESPON programme.
- **Policy recommendations.** As a result of the futures scenarios based on quantitative data as well as case studies based on qualitative data, ReRisk will elaborate guidelines and recommendations, which European, national and regional actors could apply in order to

cope with the risk of fuel poverty, considering their present vulnerabilities. These guidelines or recommendations will have a special focus on climate change (i.e. vulnerability of energy infrastructure to climate change, climate change impacts on biomass production etc), recommendations for spatial development and territorial cooperation and conclusions for regional competitiveness and sustainable growth.

- **Dissemination.** The dissemination activities will use the communication channels generally available to partners involved in the project (web pages, newsletters, conferences, scientific journals) and will also participate in dissemination events held by ESPON Programme, in the framework of international conferences and seminars (e.g. trans-national activities of the ECP Network, events organised by the CU).

The Partners involved are the following:

INNOBASQUE: Project Lead Partner – Project Manager: Daniela Velte

e-mail: dvelte@inasmnet.es, tel.: +34 94 3003700, fax: +34 94 3003800

NORDREGIO: Project Partner

Contact Person: Patrick Galera-Lindblom

(e-mail: Patrick.Galera-Lindblom@nordregio.se)

NTUA: Project Partner

Contact Person: Maria Giaoutzi

e-mail: giaoutsi@central.ntua.gr