

MILESECURE-2050

Multidimensional Impact of the Low-carbon European Strategy on Energy Security, and Socio-Economic Dimension up to 2050 perspective

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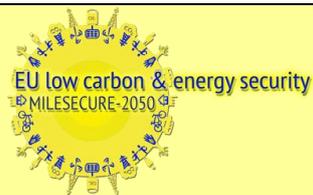
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At a Glance

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Welcome to the second issue of the MILESECURE-2050 e-Newsletter

MILESECURE-2050 is a FP7 [SSH.2012.2.2-2](#) project funded by the European Commission. It aims to understand the political, economic and behavioural factors that will be influenced by European policies that seek to reduce fossil fuel consumption in the decades leading the middle of the 21st Century. Issues covered by the project include the diversification of European energy balance at rates which guarantee European energy security to the middle of this century (2050), the reduction in the threat from climate change, and the diminishing of the risk of an energy gap leading to interruption and shortage.

The project is divided into [7 Work Packages](#). These Work Packages cover the collection and analysis of policies, trends and existing energy scenarios; evaluation of concrete anticipatory experiences on energy transition; identification of both options and factors influencing the energy transition processes and its societal effects; development and testing of multidimensional models of interrelations between energy transition processes factors and social/individual consumers behaviours; elaboration of a scheme for improving the governance of energy transition processes; and the development of a European policy guidelines and recommendations.

This second issue of the e-Newsletter presents some of the main findings of the first two Work Packages (both WPs will end in the first half of 2014):

- ❖ [WP1](#): Analysis of energy policies, trends and existing scenarios from the national to the worldwide level;
- ❖ [WP2](#): Analysis of concrete anticipatory experiences on energy transition at the local level

This e-Newsletter issue also includes the information about the Project Management Committee (PMC) and Steering Committee (SC) meeting in Paris which was held in Paris on 19th and 20th December 2013. This meeting covered progress of the project to date and also discussed other energy related events and relevant parts of the first calls associated with Horizon 2020.



Funded under Socio-economic Sciences & Humanities

MILESECURE-2050 Consortium

The [Consortium](#) is formed by 4 Universities, 4 Research institutes and 3 SMEs, corresponding to 11 European Partners, as follows:

[POLITO](#) - Italy
[MUSTS](#) - Netherlands
[PLUS](#) - Austria
[USAL](#) - United Kingdom
[IEn](#) - Poland
[LSC](#) - Italy
[ENEA](#) - Italy
[JRC](#) - Belgium
[ECOLOGIC](#) - Germany
[SMASH](#) - France
[EnergSys](#) - Poland



HORIZON 2020 – First calls

The European Commission has published on 11th December 2013 the first calls of the [Horizon 2020](#) - the EU program supporting research and innovation. The budget of the project for the timeframe 2014 – 2020 will reach almost 80 billion Euro.

The first calls include many topics focused on the multidimensional aspects of energy system transition like for example:

- ❖ *Socioeconomic research on energy efficiency*
- ❖ *The human factor in the energy system*
- ❖ *Modelling and analysing the energy system, its transformation and impacts*
- ❖ *Empowering stakeholders to assist public authorities in the definition and implementation of sustainable energy policies and measures*
- ❖ *Consumer engagement for sustainable energy*

Analysis of energy policies, trends and scenarios

As a part of the first MILESECURE-2050 Work Package, a [report](#) on key methodological approach in multidimensional analysis has been prepared. It includes a review of the main European Union energy policies and trends and focuses on how the energy security concept has been handled by the recent scientific debates. A key outcome of this approach was the ability to identify and select economically rational energy security strategies.

European energy policy

Today European energy policy is characterized by national approaches portraying it as one of the least successful areas of integration despite its importance for everyday life. One possible explanation for this is the complexity of the marketplace and the issue of security of supply in particular. Going back over the literature review on this topic, the discussion is indeed mostly conducted without a clear idea of the dimensions of energy security and its relative significance. In recent years, increasing attention has been devoted to the need for adopting integrated approaches to energy policy making, but the risk is that policies aimed at the reduction of greenhouse gas emissions will affect the resilience of the energy system and its ability to tolerate disturbance and deliver stable and affordable energy services to consumers. The multi-dimensional aspect of EU energy policy is evident in the interconnections between energy security and the transition from one type of energy to another. At the energy system level, the last century appears to be moving towards a decarbonisation and diversification of the energy portfolio with an increasing weight of low-carbon and locally available energy sources. The energy sector has experienced major accidents and catastrophes that have marked its history, and now is contending with climate change objectives and energy security all of which are key drivers for future European energy policy. Policymakers are now under increasing pressure to ensure sustainability of energy resources use, competitiveness of energy markets and security of energy supplies.

The human factor

European mitigation policies designed to lessen the affects of climate change are currently insufficient to deliver low carbon targets and technological change is unlikely to occur fast enough to deliver low-carbon transition in isolation. User behaviour might play the central role in curbing emissions through major improvements in efficiency, awareness, renewable diffusion and energy behaviour change. Renewable energy sources are already successful in penetrating the energy generation market, but recent research has shown a big discrepancy between what people say they are prepared to acquire and use and what they actually do in practice. Another under evaluated problem is the process of integration into society, where the energy systems have to face two main challenges. The first is whether consumers can adapt to the present or future technological and behavioural expectations of a low carbon society. The second is whether energy systems can assert a new identity, and exert a greater control over itself and over the present and future social dynamics.

All these questions require appropriate tools, which should be able to assess the complex interactions between climate change and energy security in a social context using a holistic, system-wide integrated assessment framework to analyse the impact of specific security events, the level of risk linked to these events, and the cost of measures which would shield communities against the most harmful effects of these events.

Main findings

- ❖ The comprehensive conceptual [review](#) concluded that it will be necessary to establish an optimal level of energy security for Europe. To find that level, security should be derived through the concept of risk, and can be therefore categorized on the basis of two dimensions: temporality (when and how long the energy is delivered) and provenance (where the energy is produced).
- ❖ From this, two types of strategies can be then put in place: control (mitigation strategies) focusing on internal events; and response focusing on external events.

Upcoming Energy Related Events

February 24-25, 2014
[3rd Annual International Conferences on Sustainable Energy and Environmental Sciences \(SEES 2014\)](#)
Singapore

The SEES 2014 aims to challenge and inspire the environmental science community through the interchange of knowledge and sharing of best practices in a global-scale context and toward advances for a low-carbon future.

March 6-7, 2014
[iiSBE Net Zero Built Environment Working Group Organizational Meeting and Symposium - Gainesville Florida \(USA\)](#)

The Symposium is an opportunity for design professionals, researchers, industry, and government to exchange information on research, case studies, and emerging best practices centered on the net zero built environment concept strategy.

March 27-28, 2014
[2014 International Conference on Water, Energy and Environmental Management \(ICWEEM\)](#)
Madrid (Spain)

ICWEEM brings together leading academic scientists, researchers and scholars to exchange and share their experiences and research results about all aspects of Water, Energy and Environmental Management, and discuss the practical challenges encountered and the solutions adopted.

The response strategy would seek to maintain the level and quality of energy services by improving the capacity of the system to adapt to the upcoming events.

- ❖ In the very short-term timeframe, the main threat is that of sudden disruptions leading to systemic failure. The main internal threat is related to the statistical variability of energy system variables. A key characteristic of these events is that their probabilities are reasonably well known, and hence can be classified as risks. The way the value chain of the market is organized is also very important. A strictly related category of threat is that a faulty market design can lead to a poor performance of the energy markets where there are several potential reasons of market failures. The main internal concern is the uncertainty around the long-term evolution of energy demand and again the way the energy markets are organized is the key. The threats that are external to the system are mainly related to geopolitical, geological and environmental issues. This is the aspect of energy security uppermost in the minds of policy makers. The consequences of these stresses on the energy system are twofold: a direct effect in terms of energy mix and cost; an indirect effect related to the way they affect the long-term trajectory of the system, with the possibility that it becomes more vulnerable to short-term shocks.
- ❖ Finally, further long-term threats can be either internal or external to the system, as they are related to geological and environmental issues. This may include possible exhaustion of energy sources, the social acceptance or rejection of controversial technologies like nuclear power or shale gas, and the potential indirect effects of climate change on the energy system.

The strategy that MILESECURE-2050 was set up to address would seek to predict and manage the cause of the threat to energy security in Europe by correcting the flaws in the market design which hinder sufficient investments in total and flexible capacity. Once the events that can threaten the security of the energy system have been identified, it will be necessary to assess the ability of the system to cope with these events. This can be done by looking at the dynamic interactions of its components including the stability and adequacy of the system in relation to internal threats, and resilience and robustness in relation to (mainly) external threats. A secure energy system will be one that has an appropriate combination of these four properties.

Synergies and trade-off between environmental, economic and social issues

Although energy security concerns were one of the main motivations for putting a Climate Convention on the international agenda in the late '80s, [research](#) undertaken by the MILESECURE-2050 team has discovered that among the scenarios emerged which consider the future transformation of European energy systems from a high to a low carbon model, very few address the potential synergies between climate change and energy security issues.

Climate talks have indeed progressively come to be structured around the objective of limiting global temperature rise to 2°C above pre-industrial levels. This has partially put aside the linkages with other development issues, in particular energy security in modelling exercises, although the assessment of co-benefits of climate policies has become a key challenge of the debates in the Group III of the IPCC report released in 2014.

Main findings

- ❖ The MILESECURE-2050 project puts forward preliminary insights based on a quantitative modelling architecture (IMACLIM) to assess the multi-dimensionality of energy security and interactions with other policies areas. Contrary to most models which study equilibrated growth pathways, this innovative framework integrates

April 9, 2014
[Annual Congress 2014 of the European Energy Research Alliance \(EERA\)](#)
Brussels (Belgium)

EERA is an official part of the European Commission's Strategic Energy Technology Plan (SET-Plan). The Congress will feature a dedicated session on the state of play of the SET-Plan integrated roadmap. The European Energy Research Alliance brings together more than 150 European energy research organizations in an effort to strengthen, expand and optimize EU energy research capacities.

June 8-12, 2014
[International Conference on Clean Energy 2014 \(ICCE\)](#)
Istanbul (Turkey)

ICCE-2014 is a multi-disciplinary conference on the clean energy sources and technologies, and will provide a forum for the exchange of latest technical information, the dissemination of the high-quality research results on the issues, the presentation of the new developments in the area of clean energy, and the debate of future directions and priorities.

June 23-27, 2014
[EU Sustainable Energy Week \(EUSEW\)](#)
Brussels (Belgium)

The EU Sustainable Energy Week is composed of a large number of not-for-profit events, activities and projects presentations promoting energy efficiency or renewable energy. Activities such as exhibitions, conferences, online events, performances, guided tours, open door days, workshops, media campaigns and concerts are foreseen.

second best features of the economy: disequilibrium on the labour market, imperfect foresights of energy prices and inertias of the energy systems and infrastructures.

- ❖ This first set of scenarios show that the assessment of the synergies and trade-offs between climate policies and energy security issues is complex. Focusing on Europe, the results highlight two messages. First, time matters: the effect of climate policy on energy security indicators depends on the time horizon considered. Then, for several indicators there are trade-offs, i.e. climate policy makes some energy security indicators worse, in particular high energy costs which directly affect households in the short and medium terms.
- ❖ These findings will have to be completed by a more in-depth analysis of the key social, economic and environmental challenges at the national level in [Work Packages 2](#) and [3](#). This "raw material" will contribute to build scenarios in [Work Package 4](#) which will show out the drivers and consequences of various energy transitions.

Anticipatory experiences

The [second research investigation](#) currently underway until April 2014 in the MILESECURE-2050 project is an analysis of individuals and groups that have moved towards sustainable energy consumption. The theme of this work is Anticipatory Experiences (AEs) of Energy Transition. Experiences in this context are considered to be "anticipatory" when, at the local level they lead to ways of producing, managing and consuming low carbon forms of energy in a proactive manner, well in advance of the implementation of a policy that would encourage or compel such behaviour. The experiences studied to date have focused on the introduction of technological, organizational or life-style choices that contribute to a more environmentally sustainable society. This is a cross-cutting study which is intended to deepen the understanding of the social phenomena connected with the process of transition towards a post-carbon society. There are special references to elements such as the role of inertia forces, time lags for changes and ruptures, and the behaviour of key actors and driving forces. All this work is connected with the idea of giving a sounder empirical basis to the construction of scenarios which is the focus of the next phases of MILESECURE-2050 ([Work Packages 3](#) and [4](#)).

Starting from a long list of 1,700 cases, the community studies were narrowed down to, 90 experiences from 19 European countries. These have now been assessed and studied according to a large set of criteria. This Newsletter contains a summary of the findings which will be more fully reported in the next issue (Number 3).

Characteristic of the community initiatives

The case studies that conformed to the Anticipatory Experiences (AEs) definition were extremely diverse in both their aims and for their methodology and approach. To cope with this wide range of examples the researchers grouped them into one of the following activity areas:

- ❖ Renewable Energy Production
- ❖ Sustainable Mobility & Transport
- ❖ Sustainable Housing
- ❖ Sustainable Services & Industry
- ❖ Transversal (or cross-cutting) Sustainable Approach

The last group was created to classify 27 Anticipatory Experiences cases that were of a mixed nature, namely not focused on one specific activity.

The community initiatives were selected from across Europe although there were fewer examples from the eastern part of the Union. There was also an attempt to include small-sized (individual urban neighbourhoods or rural/isolated communities with a population of

June 28-July 2, 2014
5th World Congress of Environmental and Resource Economics (WCERE)
Istanbul (Turkey)

The Congress is jointly organized by the Association of Environmental and Resource Economists ([AERE](#)) and the European Association of Environmental and Resource Economists ([EAERE](#)), in cooperation with the East Asian Association of Environmental and Resource Economists ([EAAERE](#)).

July 9-12, 2014
2014 AESOP Annual Congress
Utrecht (Netherlands)

Through international exchange of scholarship and experience the Association of European Schools of Planning (AESOP) Congress provides an assessment of progress towards more adaptive and co-evolutionary approaches to planning.

August 26-29, 2014
54th European Regional Science Association (ERSA) Regional Congress
Saint Petersburg (Russia)

The 54th ERSA Regional Congress will target a wide audience formed by policy professionals and researchers interested in spatial economics and planning, regional and local development and related issues.

September 2014 (TBD)
The Italian Presidency Conference on the European Strategic Energy Technology Plan (SET Plan)
Italy (TBD)

Italy will be organising the EU Technology Summit 2014. The conference will take place in Italy during the Italian Presidency of the Council of the European Union. The Conference will be organized by ENEA (Agenzia Nazionale per le Nuove tecnologie, l'energia e lo sviluppo economico sostenibile).

less than 10,000 inhabitants), as well as medium-sized (urban or "rurban" with a population of between 10,000 and 100,000 inhabitants) and large-sized (urban agglomerations of more than 100,000 inhabitants).

The search also considered the length of time that each initiative had been running. Most of the examples had been in operation for quite a while and only a third of those identified were launched after 2005. One in six cases had been in place for more than 20 years.

It was important to assess the scaling-up capacity of the experiences to ensure that the approaches used in one area could be repeated in another region or country. There was a moderate tendency, though not prevalent (30%), to replicate the anticipatory experiences in the study elsewhere.

The study found that AEs seem to be characterized by a reasonable level of "funding mix." Although the main sources of funding are local governments, European funding was used in about 60% of cases.

Social media analysis

The social acceptance of policy is among the many factors influencing the success of the transition to new energy paradigms. However this aspect is often overlooked. The recent mass phenomenon of social media like Twitter and Facebook has led, in a process driven by the users themselves, to the creation of ever-growing digital repositories of the public's perception, emotion and opinion on practically every current issue. This includes the subject of renewable energy sources. Access to this social media data, going back to 2007, is possible in the case of Twitter. Within [Work Package 2](#) (Analysis of concrete anticipatory experiences on energy transition at the local level) another MILESECURE-2050 research team tapped the volumes of available data and performed a close examination of the 90 anticipatory experiences. The researchers found that the degree of public involvement and expression varied greatly between the different local projects. Experiences that directly involve people, e.g. Amsterdam's bike city project, or have become recipients of awards or featured in mass media tended to generate substantial volumes of public expression on social platforms. Others remain virtually muted. In this continuing [research](#) thread, details of this public expression of interest in anticipatory experiences toward energy should continue to throw light on the qualitative aspects of this expression throughout the rest of the study. This will add to the understanding of how people view energy transitions, and which of their aspects add or subtract from the wide social acceptance that is one of the prerequisites of their success and future sustainability.

MILESECURE-2050 Project Management Committee (PMC) and Steering Committee (SC) meeting

December 19-20, 2013, Paris (France)



The second [MILESECURE-2050 PMC and SC meeting](#) was held in Paris on 19th and 20th December 2013 at the Centre International de Recherches sur l'Environnement et le Développement (CIRED) with attendance of all the project participants. The meeting was chaired by the project coordinator Prof. Patrizia Lombardi (POLITO).

to discuss the progress of each of the Work Packages.

The aim of the two days meeting was to review the project to date and

September-October 2014 (TBD)
[LCS-RNet 2014 Annual Meeting](#)
Rome (Italy)

[LCS-RNet](#) (International Research Network for Low Carbon Societies) is a practical platform of researchers/research organisations that are making close contributions to individual countries' low-carbon policy-making processes. The 2014 Annual Meeting will be held between September and October.

October 28-31, 2014
[Sustainable Energy Policy Strategies for Europe](#)
[14th IAEE European Energy Conference](#)
Rome (Italy)

The Conference is organised by International Association for Energy Economics (IAEE) and Associazione Italiana Economisti dell'Energia (AIEE) in cooperation with the Guido Carli Free International University for Social Studies - LUISS, that will host this conference.

During the meeting the results of the analysis of main trends in European energy policy and of European geographies of energy security, technology and economics and overview of the definition of macro-regional scenarios of energy security were presented by Marco Santangelo (task leader) and Silvia Crivello (POLITO).

The results of the identification of (local) anticipatory experiences results and the conclusions to this study were also heard by participants. This work was presented by the task leaders Giovanni Caiati and Gabriele Quinti (LSC).

The development of explanation of the process to identify and categorize the influential factors regarding societal processes was presented by Arne Riedel (ECOLOGIC). The lab experiments on the form of focus groups and the overview of the focus groups selection process and identification of the countries part of the analysis has been introduced by the task leader Giovanni Caiati (LSC).

The project promotion and dissemination tools (e-Newsletter and policy briefs), organisation of the project regional workshops and thematic sessions during international events as well free access to knowledge (Open Access Publishing) have been discussed.



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