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EUROPEAN POLICYBRIEF

MILESECURE 2050

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

This brief deals with interim findings and related policy implications of the MILESECURE-2050 project from the analysis of local "anticipatory experiences" of energy transition in Europe, using the holistic approach of human energy. This approach enables to grasp the human factor as a constitutive element of energy systems in transition.

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Introduction

The study of anticipatory experiences of a low carbon society

This policy brief is based on a Europe-wide study into communities that anticipate at the local level some basic features of a future low-carbon society, i.e. **Anticipatory Experiences** - AEs. This "anticipatory" approach was developed in order to face the challenge of studying possible future dynamics focusing on concrete factual elements and not on mere hypothesis. The AEs were found to be operating at different local scales ranging from neighbourhoods and towns to major cities. Anticipatory experiences can be considered as already existing pieces of a future low-carbon society. The **human factors** that contributed to the success of each AE have been analysed and will be used as inputs to predictive models in the next phase of the project.

Evidence and Analysis

The way to achieve energy transition

Although there is a broad agreement about **the need for energy transition**, the most effective way to achieve this **remains unclear**. The attempts made so far, that have not been able to get the expected results, can be traced to three main approaches (or combinations thereof):

- those based on the penetration into society of new greener and efficient **technologies** (technological drive);

- the approaches based on the introduction of **new rules or restrictions** that citizens must accept (normative drive);

- the perspective in which **new attitudes** toward energy consumption (and savings) **must be interiorized** by the population (ethical drive or lifestyle drive).

If it is true that each of these approaches is needed to realize energy transition, all three are based on a vision of change in which both the social and the individual dimensions are relegated to a function of "acceptance" of decisions that come from the outside. It is true that these visions of the energy transition recognize the importance of social and anthropological feedback, but they **tend to consider the human factor as a mere receptor, not an agent of change**. What actually is lacking, is the perspective of human agency, as a constitutive element of the transformation of the energy systems.

The rise of the human factor

What can be observed in the anticipatory experiences, and that represents a discontinuity and a break with the past is, on the contrary, the **rising of the human factor**, from an ancillary or peripheral role (which occurs only downstream in the process of change), to a lead role in the change of energy systems (upstream in the process of change). The human factor becomes pivotal in the energy transition at least for two distinct reasons:

- the change of energy systems is inevitably accompanied, and at the same time is made possible only, by a **deep social change**;

- the rise of the human factor is linked to the **emergence of new risks and threats** to energy security.

A deep social change occurs with energy transition

The depth of change and the discontinuity in the management of energy systems, as observed in the anticipatory experiences, are characterized by the following traits.

- **Anticipatory awareness**. Rather than attempting to follow only ethical or moral imperatives, AEs' promoters are compelled by an awareness that dangers of different types at local or global levels can represent future setbacks for their communities.

- **Critical attitudes to contemporary society**. AEs are characterized by their critique of both the way contemporary society is managed and organized, and the management of traditional energy systems within it. They tend to express a general criticism of the way power is exercised as top-down in character and reserved for the privileged few. They see authority as being oriented toward high resource consumption, against nature, and failing those who are community oriented.

- **Adoption of innovative approaches**. AEs are and see themselves as highly innovative experiences which break with the past, devel-

oping the capacity to bring together professional backgrounds of different types; a strong tendency to adopt a holistic approach that enables them to act on a wide range of aspects of social, economic, technological and cultural life.

- **The construction of new social configurations**. Perhaps because of its innovative character, energy transition seeks to reconfigure social space and to develop shared meanings for the different communities involved. With the emergence of new leaders, the activation of symbols and myths related to energy transition, and a passionate participation of citizens in the process of change are pushing for a general synchronization of all actors toward the objectives of the energy transition.

New challenges arise along with human factor

It is perhaps not surprising to find that the path travelled by many AEs was not entirely smooth or unobstructed. Energy transition can lead to many different forms of tension, opposition and resistance, that **may put in danger the energy transition** and could result in **new risks for energy security**. The pressure of deep changes, the transition to a low carbon society and the effort required to adapt to new ways of living generated instances of socio-cultural stress which needed to be handled sensitively by good levels of self-governance. Some of these stresses included:

- **Social conflicts**. The different actors involved in AEs tend to defend their own interests, acquired positions, professional routines and their own spaces from the changes that occur in the transition process. There is evidence of conflict between the promoters of AEs and, for example, constructors, professionals and technical staff of the municipalities, public administrations, commercial enterprises and even environmental groups.

- **Dissonance with the surrounding reality**. Bias or skepticism towards energy transition can create hostility within communities towards stereotypes (sometimes considered radicals or hippies) and against some of the technologies used (such as the aesthetic impact of wind turbines). Dissonance is also expressed in the inadequacy of regulatory frameworks for advanced technologies and the risk of experimenting with new solutions at the local level.

- **Tensions due to personal resistance to change**. This can arise from people's reluctance to adapt to new solutions offered by AEs. Not all citizens are inclined to adopt more sustainable lifestyles, to invest their savings (or even to apply for funding) or to take up the measures for energy efficiency. This can occur because of a fear of new technological solutions, or a worry that they will provide lower levels of comfort.

- **Conflicts within the promoter group**. Those promoting innovative projects and profound change, such as those introduced by AEs, are themselves subject to significant forms of stress. Conflicts arise from

factors such as the acquisition, use and maintenance over time of financial resources; the management of relationships (including intergenerational relationships) and the acquisition of decision-making powers or governance status.

The Human Energy approach

The discovery of the depth of change and of new risks arising within the AEs highlights the strong weight of the human factor both at the practical and at the experiential level. It is possible to say, on the basis of what the experiences analysed have "anticipated", that in the future the human factor will have a significance that will go far beyond an increased environmental sensitivity. **The human factor will turn upside-down the energy systems in transition**. This is why, to study and to cope with the energy transition, it is necessary for us to talk about "**Human Energy**" (this concept was used before, also if in other and different contexts, by the French philosopher Teilhard the Chardin and the father of the modern alternating current electricity supply Nikola Tesla).

Why human?

One of the most important results of this research is **making explicit and visible the latent role that the human factor exerts in energy systems in transition**. Studying the AEs is clear that, for the analysis of energy systems in transition, it is crucial to adopt a broader concept that does not just include technological aspects but also social and personal dynamics. **Human Energy is a holistic and all inclusive understanding**, articulated in **three dimensions** that show different ways in which the human factor lies behind the energy system:

a) **Social energy** is the human capacity to bring together different forms of social activism that coordinate, and orient different social actors toward common goals and to overcome conflicts and oppositions that may represent a waste of energy;

b) **Endosomatic energy** represents the human capacity of effecting profound changes at the personal level in one's daily actions and convictions, in view of using the body in synergy with the energy system as a whole.

c) **Extrasomatic energy** is the human capacity to activate and use the natural resources through the adoption of all kinds of equipment, technology or machinery (using all energy sources, whether carbon or low carbon);

Why energy?

Energy is the capacity to do a work. MILESECURE-2050 sheds a light on **how human factor may be able to make energy transition work**. Human energy is essential both to trigger energy transition, and to manage and overcome risks that energy systems in transition run. The research analyses this twofold role of human energy by interpreting each

of its three dimensions **in terms of a social action** conductive to the success of the transition. In fact **three social functions** can be identified, corresponding to the three dimensions of human energy. Those functions are listed below.

Social energy: the cybernetic function

The social dimension of human energy can be interpreted as an adjustment of human and social relations that emerge in the context of the energy transition **as a tendency of self-regulation**. Such an adjustment – fulfilling what was called the cybernetic function – allows the governance of the energy transition (see also the work of Nobel Prize winner Elinor Ostrom). Tensions and conflicts that arise in the energy systems in transition are managed through a series of continuous, coordinated and simultaneous actions, like:

- the **active participation of citizens** in decision making;
- the widespread **practice of negotiation** for the resolution of conflicts and disputes between different social actors in the area;
- the ability to maintain a **continuous and multilateral communication** on multiple levels (from informal to institutional communication);

Endosomatic energy: the repositioning function

For centuries the dominant trend has been to minimize the physical effort through the use of machines. It seems that in the context of the energy transition we witness an albeit partial reverse of this trend. In fact, in the energy transition individuals must reposition themselves into a new energy (and social) system in which the relationship between the human body and the surrounding social reality changes deeply. The endosomatic (or personal) energy is activated in energy transition to face the challenges associated with the **increased use of the body in the daily lives**. This action – fulfilling what was called "**the repositioning function**" – is to be considered as a continuous work of **psychophysical adaptation**. Repositioning function refers to phenomena such as:

- **increased resort to muscular strength** and the use of the body, not only in the field of mobility (walking or cycling), but also in other fields (such as an increased use of body warmth to face the low temperatures heating system)
- **new attention toward practical issues of everyday life**, such as food, health and physical well-being, waste management, etc.;

Extrasomatic energy: the localization function

The **localization function** regards the way in which the change from carbon energy sources to low carbon and efficient technologies takes place. In the energy systems in transition, the **technologies** and the services for the production, transport and consumption of energy, **become more accessible and visible** to the people who are led to develop a direct control of energy systems, both at the personal level, and at the collective level. Localisation function refers to phenomena such as:

- a **localized production of energy**;
- the presence of **technical skills also spread** among the citizens;
- the **shared ownership** of the means of production and self-production of energy.

Policy Implications and Recommandations

The implications and recommendations for policy arising from the outcomes of this stage of MILESECURE-2050 research are summarized below.

I. Reverse Direction of Policy Influencing

To realize low carbon energy transition across Europe a shift in the direction of policy influencing is required. This would move from top down centralized supply to bottom-up localized governance and management. This would reposition the role of the human factor in the transition process from being marginal to being at the core of low carbon energy policy.

Ignoring human energy, both in its ability to be innovative and in its destructive potential, may be as dangerous as denying the existence of climate change.

II. New social coalitions

The transition toward a low-carbon society requires the activation of new social coalitions, ie. a wide range of actors operating on several levels to realise the energy transition as a common endeavour.

New social coalitions should involve subjects that might promote the activation of human energy in each of its functions. The localisation function requires, in addition to the involvement of citizens, also the involvement of constructors, professionals, technicians, energy companies, and of those involved in scientific and technological research in this field. The cybernetic function requires the activation of a wide range of public actors from local authorities to national and international ones; as well as private actors such as domestic and local enterprises, associations of citizens, the media, and so on. The repositioning function may involve actors from sport, health and food sector.

III. Future

Energy transition can be tackled only with a widespread anticipatory praxis, that is, in anticipating today the solutions that can address the problems of the future.

It is important to improve the anticipatory capacity of the actors involved in at least three distinct levels:scientific level, political level and general level (involving the full range of local stakeholders, from decision-makers and businesses to ordinary citizens).

IV. Identifying and scaling-up

The study of the energy transition should extend the analysis to the anticipatory experiences at national and international level to meet new European targets.

Low carbon energy transition can be accelerated to meet new European targets by identifying and transferring successful but local anticipatory experiences to surrounding communities and beyond.

For the energy transition to materialize an immediate investment on the human factor is needed.

V. Invest on human factor now

The AEs have taught us how human energy may be the greatest opportunity to move towards a low-carbon society when activated at the proper time, or may become the biggest obstacle if not taken properly and timely into consideration. On the basis of the above considerations, the time to focus/invest on human energy as a key of the energy systems in transition seems to be just now.

Research Parameters

The identification of the Anticipatory Experiences

This policy brief is the second of its kind delivered in the framework of the MILESECURE-2050 project. The research team analysed 90 projects in 19 European countries which were selected from a long list of over 1,500 potential candidates. Some of the experiences analysed attempted to change a single aspect of their communities such as better sustainable transport, energy efficient housing, or the generation of property-level renewable energy. Others wanted to produce a holistic sustainable community that incorporated a fully functional and independent low-energy network. In synthesis, all AEs had developed, or are actively developing, sustainable ways of producing, consuming and transporting energy.

Map of the 90 AEs identified and analysed in the framework of MILESECURE-2050 project.

Project Identity

Project name

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- ENEA, Agenzia Nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (Rome, IT)
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