Energy transitions towards a low-carbon society. Highlighting the role of the human factor

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Two major challenges are impending upon the world's energy future: the achievement of a secure energy supply, and a move from dependency on non-renewable to a dependency on renewable energy sources. Both of them have become policy priorities for the European Union (EU) due to growing concerns about environmental challenges and the fact that the EU imports about half of its energy needs. In particular, the EU is dealing with climate policy and energy security jointly: both the Climate and Energy Package and the Energy Roadmap 2050 endorse the goals of reducing greenhouse gases emissions while at the same time ensuring security of energy supply. However, low-carbon transition and energy security are not always faces of the same coin. As a matter of fact, successful policies aiming at the former may undermine the conditions at the basis of the latter, and vice versa.

As a matter of fact, to pursue both challenges at the same time requires a fundamental shift of the present paradigms, often referred at as 'energy transitions': revisions that concern entire energy systems, not just some of their parts. These changes are structural, as they modify the way energy provision is organized at the level of society. They are radical, since they may demand abandoning existing technologies even if they still work, and even if the changes occur slowly and seemingly incrementally. And the changes are fundamental, because they require that we start thinking in novel ways about energy, its provision, and how a good and just society is organized around energy.

In this light, the MILESECURE-2050 FP7 project (www.milesecure2050.eu) aims at understanding and overcoming the political, economic and behavioral traits and trends that led Europe to its difficulties in reducing fossil fuel consumption, and in diversifying its energy balance at rates which guarantee European energy security in the next years, reduce the threat of climate change, and diminish the risk of an energy gap in the coming decades. To do so, the project examines a broad set of good practices and, on the basis of the evidence emerging from the latter, builds a series of scenarios for the transition towards a low carbon, energy secure society. These scenarios explore the impact of societal processes and various governance regimes and policy mixes aiming at energy transition towards a low carbon economy, in view to provide a better understanding of aspects and potential trade-offs for energy security in Europe. Through these scenarios it is possible to assess policy initiatives in relation to their long-term impact on energy security. The 2050 timeframe is used to assess the legitimacy and efficacy of policies in terms of the capacity for societies to transit to energy security and also to consider the long-term socio-economic impact of the pursued options.

The project's results show that transitions do not only pose technological challenges, but incur enormous social and economic changes as well. These include to address the so-called 'human factor', i.e. the shift of roles and identities of individuals as citizens and consumers and producers of energy, entailing changes in repertoires of action. Changes also concern market relations and social and institutional positions. And they come with new roles and responsibilities for new actors. These changes incur friction

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and social stress. At the same time, the social domain is one resource for flexibility, improvisation and problem solving. Through reflection and anticipation, people are able to find new solutions, and to find new orientations in their lives. The proposed contribution argues that, until now, the human factor has received too little attention when it comes to the role it may potentially play in favouring energy transitions. Most policy documents and future visions focus on economic, geo-political and technological changes and at best present a scant notion of what the changes mean for individual persons, how the changes depend on individuals and the actions of local groups, and how this human factor can be mobilized and engaged.

To contribute to invert this trend, the project developes a ‘manifesto’ offering guidance towards a more thorough inclusion of the human factor into processes of governance. Because of the far-reaching consequences of energy transitions, the produced document argues how it is vital to make use of the widest possible range of kinds of knowledge: not only technological and scientific expertise, but also local and practical knowledge, knowledge created by social movements, and ideological perspectives on how society should be organized. Inclusion of the human factor is both about mobilizing people and making them carry the transition, and about making their knowledge available and putting it to use, and enrolling people in the legitimation of transitions.

Since transitions are not made from scratch, but build upon existing configurations, it is key to know what the current situation is, how current arrangements came to being, and what trends are currently visible in economic, policy, societal and geopolitical perspectives. These pose limitations to what is possibly done by individuals, while at the same time presenting the action space where things are to be changed. In this light, practicable terms for the establishment of governance structures that serve low-carbon and secure energy development and improve the position of citizens and local organizations in energy transitions are sketched out on the basis of the manifesto, and presented in the form of policy recommendations for all the involved parties and territorial levels.