TOWARD A LOW CARBON AND ENERGY SECURE SOCIETY. WHERE IS THE EU GOING?

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The intellectual debates focusing on the limits to growth that followed the oil crisis in the 1970s revealed the close interactions between environmental, development and energy security issues. Since then, the rise of climate change concerns on the public agenda and, more recently, of the emergence of the Low Carbon Society concept have accelerated the need for a both quantitative and qualitative assessment of related strategies and policies. In order to shed some light on this issue, the FP7-SSH-2012-2 Multidimensional Impact of the Low-carbon European Strategy on Energy Security, and Socio-Economic Dimension up to 2050 perspective (MILESECURE-2050) project aims at understanding and overcoming the political, economical and behavioural traits that prevent Europe from reducing fossil fuel consumption and diversifying its energy balance at rates guaranteeing energy security at the horizon 2050.

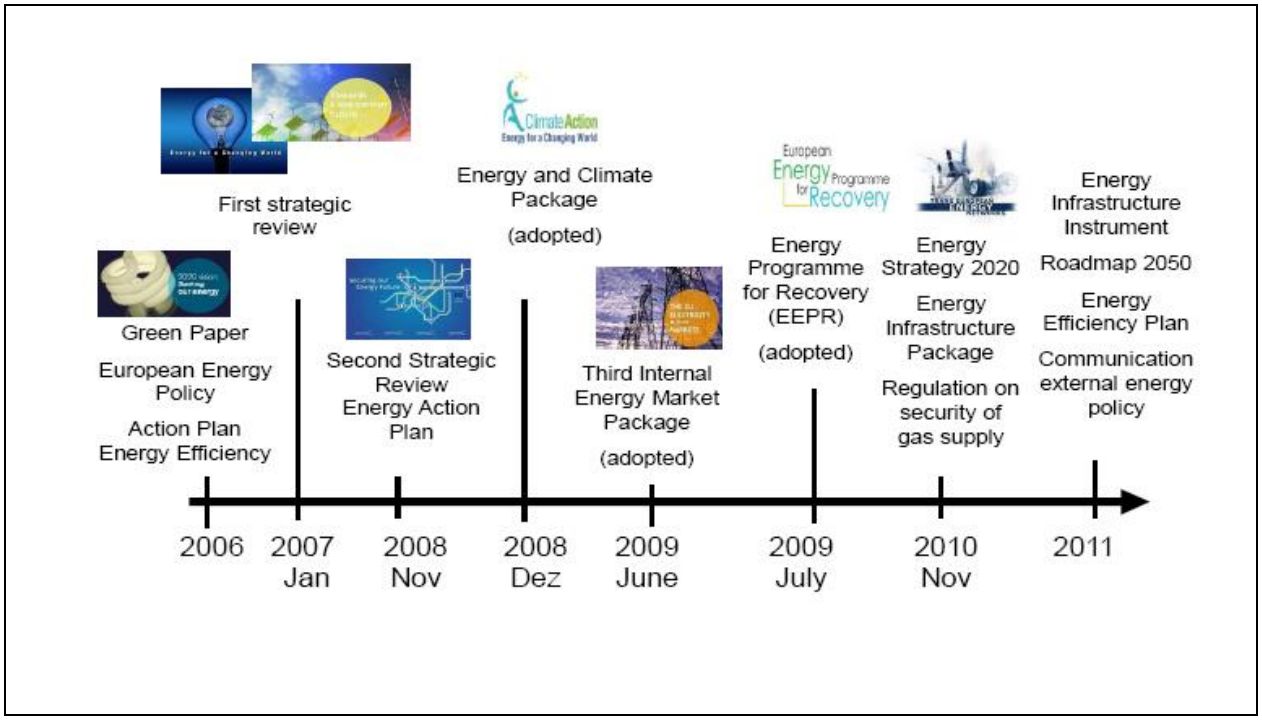

Figure 1 - Timeline of EU energy policy (Source: Vinois, 2010)

Building on the preliminary results of the project, the remaining of this short paper provides an overall analysis of EU energy strategies and policies. In particular, the historical evolution of energy policies at the European scale had benefited from a growing momentum during the last decade, starting from the publication of the Green Paper (2006) titled "A European Strategy for Sustainable, Competitive

and Secure Energy" up to the Green Paper (2013) on "A 2030 framework for climate and energy policies" moving through other main documents as "Energy 2020. A strategy for competitive, sustainable and secure energy" (2010) and The "Energy Roadmap 2050" (2011) (See Figure 1).

According to the mentioned strategies, the European Union's strategic pillars, the well-known concepts of sustainability, security of supplies and competitiveness, have been operationalized though the choice of five *priorities*:

- Achieving an energy-efficient Europe, also by consuming less energy
- Promoting a European integrated energy market. Nowadays the energy market is still fragmented in a number of different national economies, where large enterprises operate according to quasi-monopolistic criteria. This situation is inefficient in terms of energy efficiency, prices value, competitiveness of enterprises etc.
- Making consumers active agents in the energy market, and achieving high levels of safety and security. The ongoing problems between the Ukraine and Russia and the recent interruption of gas supplies have meaningfully shown how the energy security has become a concrete issue in everyday life.
- Extending leadership in energy technology and innovation. Right now the EU is on the cutting edge in the field of energy technologies and renewable energies. But competition in this field is quite fierce, as technologies and innovations come not only from the USA, but also from many emerging countries.
- Strengthening the external dimension of the energy market. This refers to the production of partnerships with external suppliers and, more in general, to work for a global partnership in order to face the global problems of the environment.

The introduced Strategies documents had also crucial implication for the process of energy-related policy-making. More in detail, a number of policies promoted by the EU have a direct and indirect impact on energy security and on the environment (Figure 2):

- Renewable energy and energy efficiency policies, focusing on the promotion of alternative energy sources and technologies, which may be useful in order to improve energy efficiency.
- Environment and climate protection. The EU is a particularly virtuous example in this concern, due to its implementation of the Emission trade system (ETS) and of the carbon capture and geological storage directive. It also established a so-called European Climate Change Programme, focusing on environmental protection and climate change policy.
- Energy security concerns also market integration and security of energy supplies, as previously discussed.In this concern the EU adopted a so-called Energy Infrastructure Package that identifies 12 priority energy corridors, strategic areas and projects of common interests.
- Energy sources in relation to low-carbon. There are various energy sources that need to be considered carefully: for example nuclear energy policies are quite controversial and mainly organized at a national level. As far as conventional sources are concerned, it is important to underline that the energy mix will depend on the development of renewable energy technologies, market liberalization, fossil fuels prices and the cost-effective application of carbon capture and storage technologies.
- Technology and innovation are evidently pivotal. Improvements in technology are the only possibility in order to escape disaster and to keep on living by current standards, if this is at all possible. The EU has always invested a lot in support for innovation. In countries like Itlay, in which national investments in research are low (1.1% of GDP), funds mainly come from the EU, and therefore SET Plan and Horizon 2020 are, and will be, of paramount importance.

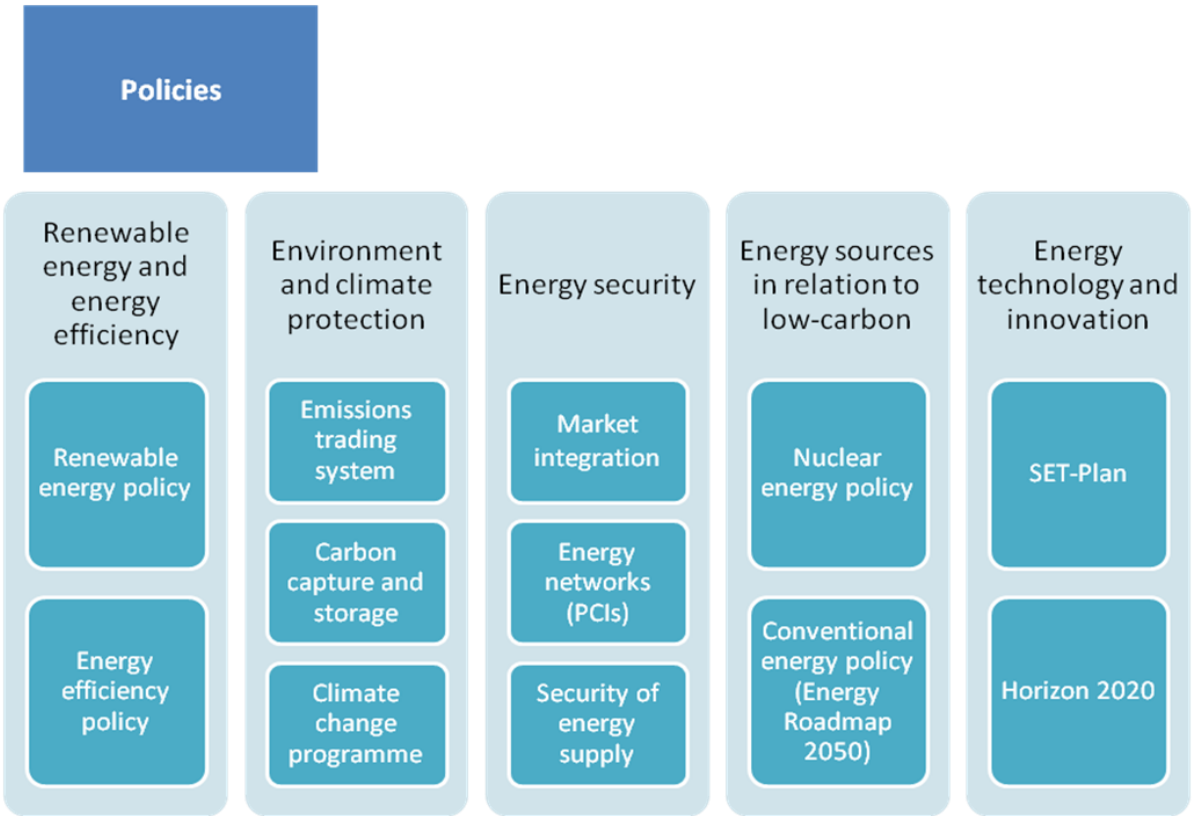

Figure 2 – Summary of EU energy policies (Source: Authors' own elaboration)

The preliminary analysis developed in the framework of the MILESECURE-2050 project leads to three main keywords - dependency, consumption, and integration - that are able to describe the current situation of EU energy security and low carbon transition strategies, as follows:

Dependency is a major issue to describe the EU energy scenario, both in terms of trends (i.e. all those market, societal, economic and geopolitical features) and of strategies (i.e. the directions to take in order to achieve expected results). The reason for this is that, on one hand, EU is and will be depending from imports for the vast majority of its energy needs (with an increasing dependency rate of 9% from 1999 to 2009), while, on the other hand, the possibility that a fair degree of energy independence could be achieved rely both on much higher investments on renewables and on the use of less sustainable energy sources (as in the case of nuclear energy, coal, oil). To this extent, the whole EU seems to be moving away both from fossil fuels (-5,9% in 10 years since 2000) and from nuclear energy (a more modest 0,7%), but the situation varies dramatically in the different Member States, with only Latvia and Sweden that can account to renewables for one third of their gross inland primary consumption. Furthermore, there is an internal issue of dependency within the EU because Member States act differently on the market (there is not anything such as a "single EU buyer"), have different national/internal resources (as in the case of the oil available to countries facing the North Sea), have different policies regarding the balance between traditional and renewable energy sources notwithstanding the role of EU addresses and directives, have to face market and societal inertia that may hamper efforts towards change.

Consumption seems like the other face of the coin of the issues just mentioned, at least because it seems to exacerbate the dependency of the EU (and of some Member States more than others) from

certain level of provision that may require increasing expenditures (as in case of market fluctuations) or complex energy mixes (as in the case of those countries that have to rely almost totally on energy import). According to the latest available data (2010), the EU is actually the third major global consumer (13,4% of the total world consumption, only behind China and USA), but what is more worrying is that different economic sectors rely on different energy sources and that each sector depends heavily on one or few energy sources. This is almost the contrary of what should be expected in terms of consumption to avoid an excessive dependency rate. Again, also in this case there is a consumption issue at EU level but national situations may vary consistently. To be more specific, consumption calls for a closer look at lifestyles, societal organisation in the energy field, different patterns according to local environmental and cultural conditions, etc. At the local level, for instance, is possible to see the perverse effects of a missing consumption policy in terms of industrial competitiveness and the related phenomenon of the "carbon leakage", that is re-localisation because of increased production costs in the EU

Integration calls for a better harmonisation of policies and interventions at different levels, from the local to the EU and beyond. It seems, in fact, that the issues that have been raised in terms of dependency and consumption would greatly benefit by a coherent strategy able to develop into coherent policies in the whole EU. Differentiation of energy sources and energy imports and the promotion of self-reliance are at the core of EU energy strategies but the filtering down of directives to Member States and regions seems to weaken the effort. For instance, the need for a single, coherent energy market has been made explicit (EC, 2012) but still the process is in the making. A second dimension of integration is related to the energy mix that – in order to be part of a successful transition towards low carbon societies – needs to be oriented towards a more sustainable use of traditional energy sources and to an increasing role of renewables.

The future research steps in Milesecure-2050 project will focus on the devising of a comprehensive framework to explore in greater depth the wide range of impacts of a low-carbon scenario on energy security.

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