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THE MARKET OF ENERGY EFFICIENCY AN ANALYSIS OF THE INVESTMENT REQUIRED TO REACH THE POLITICAL TARGETS

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OVERVIEW

Targets set at the EU level to promote the use of renewable energy sources, the reduction of greenhouse gas emissions and energy saving are proving increasingly pervasive and ambitious. In particular the EU support for improving energy efficiency will prove decisive for competitiveness, security of supply and for meeting the commitments on climate change made under the Kyoto Protocol. At the end of 2006, the EU pledged to cut its annual consumption of primary energy by 20% by 2020. In fact the energy efficiency offers a powerful and cost-effective tool for achieving a sustainable energy future. Furthermore improvements in energy efficiency can reduce the need for investment in energy infrastructure, cut fuel costs, increase competitiveness and improve consumer welfare. In Italy, an Energy Efficiency Certificates (TEE) market was created, but it is meeting major difficulties of concrete realization of the targets of energy and environmental policy. The result of the difficulty 'of the energy efficiency market and take-off' that the policy goals remain distant, undermines the opportunity 'for the country's system to gain in competitiveness.

METHODS

In order to assess the systemic implications of a set of environmental policy instruments, we use a model of the Italian electricity sector[1] generated by the MARKAL-TIMES modeling tool. This class of models is usually applied to the analysis of the entire energy sector, but may also be used, as in our case, to study in detail single sectors. The model is a demand-driven optimization tool that aims at finding the mix of energy sources and technology options that minimize the overall cost for the energy-system of fulfilling the demand for energy services over the time period under review. Under different constraints (e.g. caps on carbon dioxide emissions, rapid penetration of advanced technologies, accelerated deployment of renewable energy sources), the MARKAL-TIMES approach finds the least costly solution for the policy scenario under assessment, while maintaining the balance between energy supply and demand at each time interval over the period under analysis.
In this study, a scenario approach has been adopted to examine the Italian electricity sector's future development up to the year 2020. The core projection is derived from a reference scenario, namely a business-as-usual forecast in order to take in account which consumption would be in absence of a environmental and energy policy. This scenario is intended to provide a baseline vision of how the Italian electricity sector is likely to evolve if the government does nothing to affect underlying trends in electricity demand and supply, thereby allowing us to test alternative hypotheses about the effects of new regulatory measures.
We also built two alternative scenarios which share tighter targets in terms of required electricity savings. In the first scenario we consider a constraint (lower consumption under the same demand structure) in line with the obligations deriving from the European Directive

[1] This model has been developed by CESI in the frame of the "Research on the Electricity System", in co-operation with AIEE and the Turin Polytechnic.

2006/32/EC, consistent with current energy policies in Italy. The third scenario considers a new policy in order to reach a target more ambitious.

CONCLUSIONS

This paper provides additional evidence that the Italian electricity system has a significant and largely unexploited potential for improving efficiency standards. In a global context dominated by tensions in international fuel markets, Italy looks particularly vulnerable in the face of the energy measures requested by the European Commission with the aim of protecting the environment and fighting climate change, given the composition of its generating park. High electricity prices and compliance costs, implied by the challenging EU environmental targets, risk to undermine the development and competitiveness of the Italian economic system.

The policy implication is that a new policy wold be also an opportunity for the Italian economic system in in order to be in the international scene with more efficient production process of goods and services. Furthermore, the energy efficiency creates jobs and can contribute to go out from the crisis. The same public administration can find a significant benefit through a reduction of energy expenditure and, at the same time, it can stimulate an incentive system for who must take charge of its investments.

In this context, we propose a study on the level of investment required to achieve the goals of energy efficiency and a reflection on a global pattern of stimulation of these investments that can take in account the plethora of current and future instruments, which dramatically increases their effectiveness.

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