The economics of district heating, by Francesco Gullì

This article focuses on district hearing and especially on CHP (Combined heat and power generation) district heating. In particular, the author aims at highlighting the real technological and economic nature of this kind of energy supply. This in order to check how useful heat delivered to final consumers is priced. Three basic topics are analyzed. Firstly, the author focuses on technological issues. Secondly, he investigates the structure of CHP costs in order to understand whether this activity is a natural monopoly and/or whether inter-fuel competition is effective enough. Finally, the author discusses about the need of pricing regulation.

Keywords: district heating, inter-fuel competition, pricing regulation

JEL classification: Q42, L51

Infrastructural equipment and regulation. Key interventions for sustaining security and development of the Italian natural gas market, by Alessandro Fiorini, Antonio Sileo

The paper compares potentialities and criticalities of the Italian gas market. The aim of this work is not only the creation of a competitive market, which can guarantee the security of supply, but also the ambitious perspective of turning Italy into the Southern European gas hub. These challenges have as their most important obstacle a complex scheme of relations, involving both National and European governments. In this context, the most debated evolution is certainly the complete (ownership) unbundling between Eni, the Italian gas market incumbent, and Snam Rete Gas, the Italian TSO. Another discussed issue is the efforts of infrastructural expansion, supported by new specific regulations of the Italian Authority for electricity and gas. The purpose of this expansion, apart from the security of supply and energy security, is to have a direct influence on pricing and trade, in order to revaluate Italy's role in the European energy arena.

Key words: Security of supply, energy security, gas hub, take-or-pay contracts, excess of capacity

JEL classification: L51, Q41, Q48

Cooperation in the initial stages of infrastructure projects: a conceptual model and survey of Italian utility managers, by Giuseppe Cappiello, Paola Garrone, Paolo Nardi

This paper examines the role of collaborative initiatives in local infrastructure projects. It seeks to establish that cooperation between local governments, utilities, and other stakeholders has the potential of reducing the transaction costs that hinder the early stages of infrastructure investments. Having developed a conceptual model of cooperation between local actors in infrastructure projects (CLAIP), a survey was designed to obtain evidence of the main benefits and costs of collaboration in the construction of local water and transport infrastructure. The findings that emerge from managers' opinions confirm that one of the main benefits of collaborative initiatives is the opportunity to acquire and transfer know-how in areas of the project containing problems or risks. CLAIP may also prove useful as a means of strengthening project governance, and increasing public acceptance of the facilities involved. Among the respondents, the managers who are most positive about CLAIP are likely to work in small and privately-owned or public-private utilities.

Keywords: infrastructure investment, transaction costs, cooperation, stakeholders

JEL classification: D74, N54, L97

Cost-benefit analysis of carbon dioxide capture and storage considering the impact of two different climate change mitigation regimes, by Sebastiano Cupertino

This study examines a typical decision-making process aimed at assessing the merits of constructing a new coal-fired power plant with three possible investment options: two with different Carbon Dioxide Capture and Storage (CCS) plants and one without. A Costs-Benefits Analysis (CBA) is carried out considering that the industrial investment may be affected by two alternative climate change mitigation regimes. The results show the impact of specific climate change mitigation regimes on the balance between the financial value and the socio-economic implications of investment in a CCS oxy-combustion or post-combustion plant. Therefore, this study aims to define which CCS plant option is the optimal investment choice that could be considered a financial and socio-economically sustainable climate change strategy.

Keywords: Carbon Capture and Storage technology, climate change, Costs-Benefits Analysis, oxy-combustion/post-combustion plant

JEL Classification: Q51, Q54, Q55, Q58

Non-CO2 greenhouse gas mitigation modeling with marginal abatement cost curves: technical change, emission scenarios and policy costs, by Samuel Carrara, Giacomo Marangoni

The abatement of non-CO2 greenhouse gases (OGHG) has proved to be of par-

amount importance for reaching global mitigation targets. The modeling of their abatement is normally carried out referring to marginal abatement cost (MAC) curves, which by now represent a standard approach for such an analysis. As no evolution scenarios are available to describe future mitigation opportunities for OGHGs, exogenous technical progress factors (TP) are normally imposed, producing progressive MAC dilatation over time. The main aim of this work is to perform a sensitivity analysis evaluating climate and economic effects of imposing various TPs under different policy scenarios. The analysis shows that TP variation has a considerable impact on the climatic and economic results.

Keywords: environmental economics, non-CO2 greenhouse gases, marginal abatement cost curve, technical change

JEL classification: Q54, Q55

Tools and models to support water management in agriculture under policy and climate change. The Trebbia irrigation district experience, by Guido Maria Bazzani

The Water Framework Directive (WFD) should guarantee the "good status" of nearly all European waters by the year 2015, the achievement of this ambitious goal is made more difficult by climate change which is recognized to have a strong impact on freshwater resources. Agriculture has been identified as a strategic sector and environmental objectives are progressively integrated into the reformed agricultural policy. The use of models and tools is recommended in the WFD to support the implementation process of the Directive. This paper first briefly clarifies the policy context, then considers tools and models applied in Italy to water management and agriculture. Recommendations are then presented on how tools should be used, taking the Trebbia irrigation district experience in the Po valley as an example, where a participatory process supports the Irrigation Board in preparing the water conservation plan.

Keywords: Decision Support, Model, Water, Agriculture, Policy, Climate change

Jel classification: Q15, Q16, Q25

Hydrocarbon exploitation and macroeconomic performance: a structural var approach for basilicata, by Floriana Florestano

The impact of the energy sector on the economy is large. Energy in all its forms (fuel, gas, minerals etc) is a crucial input of production and also of growth. This explains why it is important to analyze the relationship between macroeconomic performance (of a country, region, area) and energy. And this is even more relevant

for countries rich of natural resources. Italy is the 4th hydrocarbon producer in Europe (after Norway, UK and Denmark) and more than 70% of oil its oil production comes from Basilicata, one of its smallest regions. Thus, the main aim of this work is to study the relationship between hydrocarbon extraction and GDP, employment and value added in construction in Basilicata. Overall, we obtain consistent empirical results independently of the methodologies adopted. The analysis showed that there is a very weak evidence that hydrocarbon exploitation has produced growth in Basilicata.

Keywords: hydrocarbon, local content, macroeconomic performance, VAR analysis

JEL classification: Q43, E0, R11

Sustainability in organic and conventional farming: towards a multicriteria model based on simulated farm indicators, by Maurizio Canavari, Nicola Cantore, Sergio Albertazzi, Marco Della Chiara, Giuliano Vitali, Claudio Signorotti, Guido Baldoni, Concetta Cardillo, Antonella Trisorio, Guido Maria Bazzani, Roberta Spadoni, Domenico Regazzi

In this paper we report our efforts to develop an inter-temporal model for the evaluation of the impact of organic farming on greenhouse gases emissions, that we called BIOSUS-MAD. The model focuses on the maximization of farmer's net income though different crops rotations constrained to the use of resource inputs; outputs of this optimization process are numerical values for key variables useful to estimate a set of social, economic and environmental indicators. These indicators will feed a multi-criteria model providing a synthetic and comparable sustainability overall index. This approach makes MAD a potentially useful tool for policy-makers to get an ex-ante assessment of the effects of agro-environmental policies. The model can manage different scenarios and could provide useful information to policy makers by running simulations incorporating European economic and/or environmental policies.

Keywords: sustainability, multicriteria analysis, farming, agricultural economics

JEL classification: Q15, Q16, Q57