

Sergio Bruno, Fabrizio Lacalandra and Massimo La Scala
**PRICE SCENARIOS IN THE REGIONAL SOUTH-EAST EUROPE
ELECTRICITY MARKET AND COST-BENEFIT ASSESSMENT OF A
PHYSICAL INTERCONNECTION WITH ITALY**

Sergio Bruno: DEE – Politecnico di Bari, Bari, Italy, e-mail: bruno@deemail.poliba.it
Fabrizio Lacalandra: MBI – Energia, Pisa, Italy, e-mail: flacalandra@mbigroup.it
Massimo La Scala: DEE – Politecnico di Bari, Bari, Italy, e-mail: lascala@poliba.it

Overview

The study is aimed at forecasting and comparing, in a long term scenario, electricity prices of the markets belonging to two large areas, Italy and South-East Europe (SEE). This comparison is the first step for performing cost-benefit studies on a project of physical interconnection of the two above mentioned areas. A physical electric link between Italy and the SEE (through Albania or Montenegro for example) would improve system reliability in terms of adequacy, permit energy exchanges, reduce prices and increase the total social welfare of the two areas. Price simulations are obtained by means of long-term simulator of market dynamic behaviour. The cost-benefit assessment on such interconnection project would also be carried-out.

Methods

Simulations have been carried-out on a market simulation software developed for performing previsions on the long-term. For long term simulations some hypotheses have been made regarding: seasonal and annual load increase in Italy and in the SEE; variability of fuel costs; seasonal assessment of hydro resources; authorizations for new plants or scheduled repowering programs; new authorizations if the reserve margin is below a certain threshold; increase of the elasticity of demand (up to a certain limit); strategic behaviour of price-makers.

The Italian electricity market have been modelled according to its features and regulations whereas the South-East Europe market has been modelled according to the regional structure proposed by the REBIS project [1] right after the fifth SEEER (SEE Energy Regulators Work Group) Forum. The proposed structure is based on an initial developing phase (Initial REM) where SEE regional markets operate by means of bilateral contracts and “third party access”, and a second phase with a fully developed regional market (Full REM).

Results

Simulations have been carried-out considering different value of certain parameters (annual and seasonal load increase rate for example). Three principal price scenarios for both Italy and SEE have been simulated, namely a maximum price, a minimum price and an average price scenario. An example of the results that can be obtained with the long-term simulator are shown in Fig. 1 and Fig. 2. The two figures represent respectively the monthly average price forecasted for the next 20 years in the Italian and in the SEE energy market.

The comparison of the two average cases give an idea of what the price differential between the two areas will be in the next 20 years. This kind of study might be adopted within the cost-benefit assessment of an electrical interconnection between Italy and the SEE (i.e. one or more submarine cables connecting the South of Italy with Albania or Montenegro).

More previsions regarding the usage of such interconnection and yearly total exchanged power between these two areas will permit to address results about the feasibility of the investments, possible configurations and estimated times for the return of the investment.

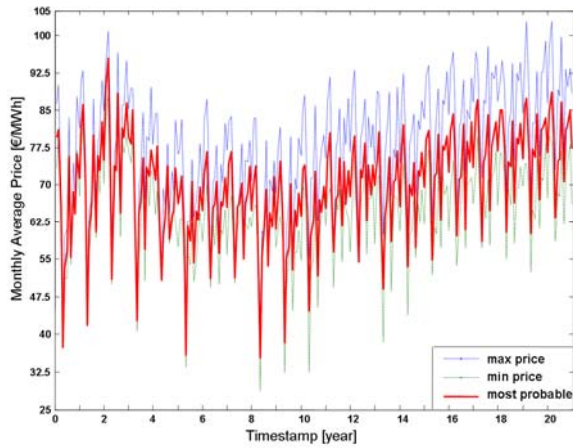


Fig.1: Price scenarios for the Italian electricity market

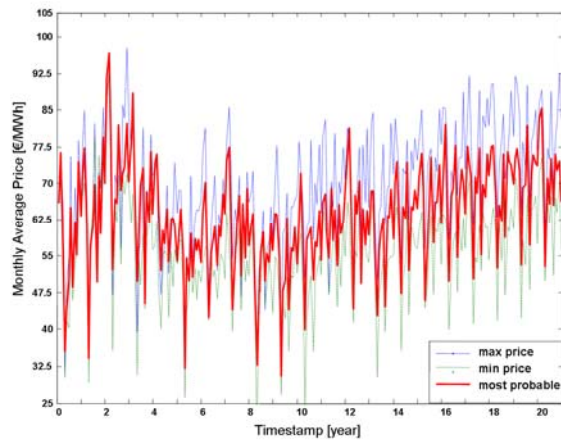


Fig.2: Price scenarios for the SEE electricity market

Conclusions

Long-term simulations of the regional SEE and of the Italian electricity market show that a significant price difference will be experienced between these two areas if they will be kept physically separated. An electrical interconnection between the two areas would permit energy to naturally flow from the lower marginal cost areas to the higher marginal cost ones: prices would be levelled, competition and open access would lead to an overall increase of social surplus. Market simulators for long-term previsions can be adopted for a cost-benefit assessment of such investments, showing the most attractive solutions and their advantages.

References

Regional Balkans Infrastructure Study – Electricity (REBIS) – Full REM Implementation Plan. EU CARDS Programme for the Balkan region – Contract n. 52276.