

Competition in electricity markets: international experience and the case of Italy

Alessandra Ferrari^a, Monica Giulietti^{b,*}

^aDepartment of Economics, University of Reading, UK

^bAston Business School, Aston University, Birmingham B4 7ET, UK

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Abstract

As a result of European Directives 96/92 and 2003/54 on the liberalisation of the internal market for electricity, the Italian electricity sector has been subject to extensive institutional changes which have affected the competitive nature of the market. In this paper we attempt to assess the likely effect of these institutional changes on the Italian electricity industry, and focus particularly on the impact of the introduction of a centralised wholesale market. The assessment of the likely impact of these institutional changes is based on the comparison with the international experience of countries where extensive liberalisation measures have been implemented (such as the US, UK and the Scandinavian region). On the basis of this international comparison, we draw some lessons about how to promote effective competition in the Italian market and in other electricity markets which have not been fully liberalised.

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1. Introduction

The electricity sector is undergoing a major transformation. From the 1980s a series of cultural,

technological and economic changes resulted in a reassessment of the efficiency of the sector's traditional, vertically integrated structure. Some countries began to restructure and/or privatise the sector, and subsequently EU directive 96/92 made the changes compulsory to all the countries in the Union¹. The aim of the directive was to gradually introduce competition in order to create a European market for electricity. However, only a few basic principles were established clearly for all the countries by the Directive including the unbundling of different production stages, the introduction of transparent rules for the building of new generation plants, the gradual extension to final customers of the right to buy electricity directly from the producers and the right of access to the network. The actual details as to how to implement these basic principles were left to the individual countries.

* Corresponding author. Tel.: +44 121 3593611.

E-mail address: m.giulietti@aston.ac.uk (M. Giulietti).

¹ From art. 189 (now art. 249) of the Treaty of Rome, which instituted the European Community "In order to carry out their task and in accordance with the provisions of this Treaty, the European Parliament acting jointly with the Council, the Council and the Commission shall make regulations and issue directives.... A directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods". This means that member states have a duty of implementation (by 'transposing' the Directive into the national legal system) of the aims set by the directive, usually within a time constraint, but are free to choose the legal instruments and the methods for doing so.

From July 2004 Directive 2003/54 repeals Directive 96/92. The general aim of the new Directive is to speed up the integration process and the development of competition, partly because the liberalisation process was progressing very slowly in some countries, and partly because new countries have in the meantime joined the Union. The new directive is therefore more detailed than the old one on several issues, the most relevant of which are clearer rules about the unbundling of the management of production stages (especially the separation of the grid from the supply), the compulsory creation of a national energy regulator in every country, the enlargement of its powers, the increased powers of a European regulator and the immediate opening of the market to all customers, with the exception of the domestic ones for whom the deadline is 2007. This last provision is actually the only one which affects significantly Italy compared to the previous directive; all the others were already part of Italian law. Our analysis of the Italian case will therefore focus mainly on the legal provisions and policies introduced as a result of the 1996 directive.

The structure of this paper is as follows. Section 2 provides a general introduction to the characteristics of the industry and the possible models of competition. Section 3 analyses wholesale electricity markets, with particular reference to England and Wales, Scandinavia and California. Section 4 analyses the case of Italy, after the implementation of EU directive 96/92 with the *Bersani decree*, in 1999. Section 5 concludes.

2. The industry structure

The electricity production process can be divided into four different stages:

- (a) Generation;
- (b) Transmission, along the high voltage network;
- (c) Distribution along the medium and low voltage network;
- (d) Supply to final customers.

These four stages have different economic characteristics. Generation and supply (including metering and billing activities) are potentially competitive, as the technology allows more than one firm on the market therefore avoiding the market failure problems associated with natural monopolies². Transmission and distribution are instead natural monopolies, at the national and regional level, respectively, because of the network fixed sunk costs. Transmission usually includes also the activity of plant connection and dispatch. This is

² In generation, this became true especially by the end of the 1980s, as the introduction of combined cycle gas turbines (CCGT) reduced the minimum efficient scale.

because one of the main characteristics of electricity is in fact its non-storability, which makes the instantaneous balance of demand and supply a necessity to keep the system safe and avoid interruptions.

The traditional structure of the industry is a vertically integrated one. The driving idea behind liberalisation and restructuring is to separate the potentially competitive stages from those with natural monopoly characteristics, subjecting the latter to regulation in order to avoid the creation of monopolistic rents.

In general, competition among generators should increase efficiency, by reducing costs and therefore prices to final customers. If prices are correctly determined they should also give correct signals as to whether and where to install new generation capacity. This, however, depends on the structure of the whole industry, and on the effectiveness of competition, effectiveness being dependent on the number of agents both on the demand and the supply side, the kind of plants they have, the characteristics of the wholesale market, etc.

Nevertheless, in general terms, the separation of transmission and distribution makes it necessary to define the rules for access to the network (regulated or negotiated access)³. Moreover, different pricing systems (uniform, zonal or nodal) shall reflect more or less the underlying transmission costs. Finally, rules must be set to guarantee the safety, stability and equilibrium of the network.

Following *Hunt and Shuttleworth (1996)*, three main models of electricity markets can be identified, with progressive degrees of competition. These are the Single Buyer model, competition between distributors and generators, and competition among suppliers.

2.1. The Single Buyer model

This is a monopsonistic model. Competition is introduced only among generators, which sell their product to a single agent, the Single Buyer (who might or might not also be the System Operator⁴). The Single Buyer sells the electricity to the distribution companies which in turn sell it to the final customers, over which they maintain monopoly power. All costs are therefore transferred to the final customers.

In the wholesale market, electricity is bought and sold via long term agreements based on the offers of the producers and the demand forecasts of the Single Buyer. The long term nature of these agreements protects the producers from market risk and, by reducing the cost of capital, it facilitates investment.

This model is therefore still substantially integrated. For the competition to be effective it is essential to have

³ The European Council of Barcelona has recently suggested the compulsory use of regulated access.

⁴ This is the organisation (private or public) which manages the transmission grid.

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