

# Introduction

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The texts published in this book analyse the various ways in which competition is introduced in electricity industries in Europe. They are papers presented at the international conference 'Electricity in Europe in the 21st century: what performances and what rules of game?', held at the Paris-Sorbonne University under the high patronage of the European Commission.<sup>1</sup> All the papers were revised and their content updated three times between November 1998 and May 2002.

The issues of reform in the electricity supply industry (ESI) in Europe have been on the agenda for a while and remain a high priority among policy-makers, feeding political debates and controversies between economists. Some pioneering countries, such as the United Kingdom and the Scandinavian countries, deregulate their own electricity industries by themselves; but others define reform in terms of the requirements of European Union Directive 96/92 on electricity markets. There are considerable differences between the European Commission and some member states and, as a result, a number of institutional compromises have been defined in various European countries for implementing regulatory reforms.

What is the consistency and the viability of the new competition-based model promoted by the European institutions and a number of governments? The prevalent institutions and the structures of each ESI have shaped the types of market-rule, public service regulation and industrial structure changes that were adopted in each reform. However, the improvement effects of each reform and the performance levels of new electricity markets are still not clear, regardless of what regulatory adjustments have been decided internally or imposed at European level.

Much of the book is given over to a description of the reforms in Western Europe, and their institutional analysis; the texts deal with ten European Union member states and Norway and Switzerland as associate members. In addition, it contains an analysis of the strategic adaptations of electricity companies in some countries (Germany, Scandinavia), on the one hand, and of the strategic behaviour of new players on the organized markets (Nord Pool) or before the regulator in the distribution and retail supply

business (the regional electricity companies in Great Britain), on the other hand.

The Introduction presents the full range of institutional reforms and the new ESIs' industrial organization in Europe for testing the hypothesis of convergence. The rest of the book consists of three parts, each subdivided into chapters according to geographical regions: Northern Europe with the United Kingdom and the Nordic Countries, Western Central Europe with Germany, Denmark, Austria and Switzerland and, finally, Southern Europe with France, Belgium, Italy and the Iberian states. This grouping reflects successive generations of reforms and the similarity of the institutional and cultural environment of the national ESIs in each region.

Based on nine European reform case studies, the general overview in Chapter 1 by Jean-Michel Glachant (University of Paris XI, France) characterizes the differences of the models of reform in three dimensions:

1. The legal and regulatory dimension, with change in entry rules for the different market levels and for access rights.
2. The area of commercial infrastructures with the creation of market devices: pools, exchanges and informational infrastructures.
3. The area of industrial and ownership structures, with changes either by legal mandates (divestiture, demerger and privatization) or by entrants and incumbents (alliances or mergers and acquisitions, diversification or refocusing, country growth or strategic decisions, internationalization).

The conclusion is that the convergence of European ESIs' rules and industrial organization was far from being realized in 2001 and that, in view of technical and non-technical obstacles such as cross-border interconnections, congestion and imbalances, a pan-European market would not be a reality for at least two years.

Part I analyses various aspects of pioneering reforms: the United Kingdom since 1990 and the Scandinavian countries with Norway in 1990 and Sweden and Finland from 1996 to 1998. Three chapters deal with the British reform; the first covers the continuous adaptation of the regulation, especially in the light of the permanent tension between efficiency and equity objectives (Chapter 2 by Gordon MacKerron, consultancy group specialist and formerly of Brighton University), the second covers the change of the British model from the centralized market arrangement (the electricity pool) to a decentralized arrangement (Chapter 3 by Carine Staropoli, Assistant Professor of University of Paris I), and the third covers the regulation of monopolistic activities in distribution (Chapter 4 by

Christoph Riechmann, consultancy group specialist and formerly of Köln University).

Gordon MacKerron focuses the analysis on the trade-off between efficiency and equity. The main thesis is that efficiency largely prevailed until 1996, with a more balanced situation developing afterwards for protecting efficient national coal generation, on the one hand, and consumer interests, on the other (Utilities Act, 1999). However, the results are still at odds with increasing tariff differentiation in households, reflecting the continuous tension between public goals efficiency and equity in a deregulated electricity market.

Carine Staropoli presents the reform of the British pool in relation to the claimed objectives (avoiding rule-gaming and improving market efficiency) by analysing the trade-off between tighter co-ordination (the pool case) and increased market reliance (the New Electricity Trading Agreement [NETA] case). Different analytical exercises on each market design, based on game theory, experimental method and simulation, have contributed to the selection of new market rules. It is argued that the effects of change in market rules and institutions are in fact difficult to dissociate from those of a more competitive configuration after horizontal deintegration by divestiture in production.

Christoph Riechmann focuses on the specific issue of pricing for distribution network access by the regional electricity companies (REC) in the England and Wales system. Under partial price-cap regulation, the incumbents' own related competitive retail supply businesses may be favoured by reducing grid access charges on the segments where the incumbent is the dominant retailer, and conversely for the other segments. The author uses an empirical model for investigating how network operators should be expected to behave and compares the results with an empirical investigation of the RECs' pricing practices. He finds that discrimination with regard to competitively supplied customers is made easy, as newcomers will initially target the largest customers.

The following two chapters deal with the Scandinavian ESIs in two different ways: by assessing the performances of the Norwegian-Swedish electricity market (Chapter 5 by Eirik S. Amundsen of Bergen University and Lars Bergman of the Stockholm School of Economics) and the comparative business strategies of the main producers and suppliers in the three Nordic countries (Chapter 6 by Atle Midttun, Joar Handeland and Terje Omland of the Norwegian Business School).

Eirik Amundsen and Lars Bergman mostly focus on the design and performances of the new electricity markets integrated by the Nord Pool, comparing them with the former British markets. The emphasis is on the institutional design adopted for the organized markets (merit-order

dispatch, real-time dispatch, transmission pricing and future markets). The performances concern developments in final prices and grid rents, consumer mobility, control of market power on the pool and regulatory performance aimed at preventing competition-distorting cross-subsidization. (The comparison tends to show that the Norwegian–Swedish system has performed quite well since its introduction and is a viable alternative way of promoting efficiency within the electricity sector).

Atle Midttun, Joar Handeland and Terje Omland deal with the way in which various degrees and forms of public ownership in the four Nordic countries influence the business strategies of the main producers and suppliers. Indeed, these countries, which were pioneers in the liberalization of the ESI with England and Wales, maintained public and municipal ownership. It therefore appears that the Swedish and Finnish ESIs have exhibited far more dynamic patterns of transformation and structural positioning than has the Norwegian ESI. The institutional diversity in the Nordic countries demonstrates two more general points for the European electricity economy; on the one hand, it could limit the commercially driven concentration process but, on the other hand, positional location within the diversified European institutional space will be a major competitive factor for the main electricity players in the future.

Part II covers the second wave of reforms in Western Central Europe, concerning previously fragmented ESIs. The following are presented, in succession: an analysis of the effects of the different reforms in Denmark, Germany and the Nordic countries (Chapter 7 by Ole Jess Olsen and Klaus Skytte), the effects of the German reform on the corporate strategies (Chapter 8 by Lutz Mez of the Free University in Berlin), a presentation of the Austrian reform (Chapter 9 by Reinhard Haas, Hans Auer and Wolfgang Orasch, of the Vienna University of Technology) and the Swiss reform (Chapter 10 by Franco Romerio of Geneva University).

Ole Jess Olsen and Klaus Skytte develop an analytical coverage of the German and Danish ESIs in relation to the issue of market integration with the Nordic ESIs. They present the main features of national reforms in these countries with a focus on Denmark in order to identify barriers to cross-border competition and market integration. These barriers are mainly due to different elements of market power in relation to vertical integration (generation, transmission, supply) and to horizontal market power on national markets during periods of congestion of transmission capacity.

Lutz Mez focuses on the interaction between changes in market structures and corporate strategies in the German market. The reason for the reform is the poor performance of the leading electric utilities as coordinated monopolies and the failure of regulation. The author shows that

privatization and deregulation reform created mitigated forms of competition under a self-regulation regime and have favoured the biggest utilities' competition strategies, which involved concentration in a narrow oligopoly of two major and two minor competitors backed by foreign utilities. The general institutions of the economy ('alliance capitalism', a German style of regulation and *ex post* competition regulation) explain this particular co-evolution of rules and strategies.

The following two chapters deal with the deregulation reform of two fragmented and mostly public electricity supply industries in Austria and Switzerland. Reinhard Haas, Hans Auer and Wolfgang Orasch provide a description of the Austrian reform implemented in 1999 before analysing the constraints on the development of effective competition and the lack of reform effects on transmission tariffs and geographical price differentiation. Franco Romerio presents the incremental process of reform in the very fragmented Swiss system by raising several important issues: the efficient type of third party access, the need for regional system operators (issue of property rights on the high voltage [HV] grid) and the assessment of stranded costs on nuclear and hydro assets.

Part III deals with reforms in the Southern and Latin Europe, where the ESIs were generally concentrated in a public monopoly: first come the institutional dynamics of the French ESI (Chapter 11 by Dominique Finon of IEPE, CNRS and Grenoble University), followed by presentations of electricity sector restructuring in Belgium (Chapter 12 by Aviel Verbruggen and Erwin Vanderstappen of Antwerp University), Italy (Chapter 13 by Arturo Lorenzoni of IEFÉ and Bocconi University in Milan) and Spain and Portugal (Chapter 14 by Maria Isabel R.T. Soares of Oporto University).

Dominique Finon first analyses the dynamics of the French reform by considering the introduction of market rules in the highly integrated French ESI as a destabilizing factor in this industrial organization; it leads to tension between competition-based logic and a dominant position by the incumbent, and justifies intensive supervision by an independent regulator, significant rule-making and innovation in market institutions (exchanges and auctions) to help non-discrimination in access to networks and balancing services. Institutional and organizational asymmetry with other ESIs also creates pressure for harmonization. Two scenarios of destabilization in the distinct French institutional environment are drawn: a limited contestability with fair grid access but preservation of the integrated industrial organization, and effective competition with horizontal deintegration and power exchange creation. An exploration of the various driver effects shows the French ESI's capacity to enter competition effectively, but with limits imposed by the nuclear legacy.

Aviel Verbruggen and Erwin Vanderstappen present a comprehensive analysis of the regulatory and structural change of the Belgian ESI in an environment of scattered powers between federal, regional and local public authorities. They critically comment on different key rules of the reform and its implementation: the power of the regulatory authority, the long-term co-ordination of investment, the independence of the transmission operator and the formalization of public service obligations.

Arturo Lorenzoni presents the new regulatory framework and industrial structure of the Italian ESI, adopted after a long political and legal transition. He points out various aspects of the radical nature of the Italian reform: the demerger of the incumbent Ente Nazionale per l'Energia Elettrica (ENEL) in generation, transmission and (partly) distribution, the creation of a power exchange for economic and technical co-ordination, and the crucial role of a regulatory authority with strong powers for changing market rules and industrial structures. He raises several generic issues: control of the incumbent's market power and conditions of liquidity of a day-ahead power exchange.

Maria Isabel R.T. Soares describes the deregulation of the Spanish and the Portuguese electricity markets in their various aspects, as well as market rules and institutions, and the system of binding contracts for small generator sales to system operators (public service regime in Portugal, special regime in Spain). The presentation includes an analysis of incumbents' market power in the new industrial structure, taking account of strategic alliances, mergers and acquisitions. She shows that the integration of the two markets is constrained by differences in institutional rules and physical constraints and, therefore, is not yet a way of compensating incumbents' market power in the respective national markets.

## NOTE

1. These papers express only the opinions of their authors and are not binding on the European Commission.