Introduction
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This book is the second of the ‘Loyola de Palacio’ series in the Edward Elgar Publishers collection. It gathers different papers accessible to a range of academic and professional audiences who among others include regulatory staffs, corporate economists and business lawyers. It fills a gap in the existing literature by coping with an original issue in the complex competition developed in electricity markets, the challenge of long-term contracts, and vertical arrangements to competition policy principles while such arrangements could be needed for developing investment and an optimal mix of technologies.

This book is the result of a research project entitled ‘Efficiency, Competition and Long-Term Contracts in Electricity Markets’ developed between 2007 and 2009 by the Laboratoire d’Analyse économique des Réseaux et des Systems Energétiques (LARSEN), a four-year joint research programme of the French National Centre of Scientific Research (CNRS), Electricité de France research and development (EDF R&D) division and Paris-Sud University dealing with the topic of electricity markets reforms and public policies. The contributions have been presented to the workshop jointly organized on 15–16 January 2009 by the Loyola de Palacio European Energy Policy Program of the European University Institute of Florence and the LARSEN.

The electricity sector is a complex industry given the physical and economical nature of electricity. It has been liberalized in reference to the theoretical model of decentralized competition. However, this has been followed by many unexpected effects which have required several adjustments. Conventional wisdom in electricity restructuring requires limitations of long-term contracts and vertical integration between generators, retailers and large consumers. These limitations should foster market entry and development of effective competition on wholesale and retail levels. Competition authorities seek to weaken the position of dominant firms by restricting long-term contracting and vertical integration by playing down issues of investment in capital-intensive generation equipment and
also seeking opportunities to lower prices in the long term. Attachment to these principles was particularly reflected in the position of the European Commission and some regulatory authorities.

However, consensus about this question is changing for different reasons. Long-term contracts and vertical integration can be a convenient way to maintain incentives to invest in all technologies of the generation mix. This converges with the objectives of European and national policies combining supply security and reduction of carbon emissions, given that they may need capital-intensive equipment. Such long-term issues of generation investments have been raised after some shortcomings. Changes are continuously made, pushing the quasi-experimental nature of market making to its limits, which involves coming and going between the definition of rules and industrial structures and the assessment of their effects, while regulators have an obligation to be consistent, reflected in the accumulation of judicial precedents. Beyond these conflicts, regulators are increasingly integrating long-term efficiency criteria in their decisions.

The book is structured in three parts. The first deals with an economic analysis of the possible efficiency of long-term contracts (LTC) and vertical integration in the opposite terms of investment development (long-term efficiency) on one side and imperfect competition (short-term inefficiency) on the other. The second part deals with this tension between long-term contracts and workable competition. The third part deals with antitrust jurisprudence concerning competition and long-term contracts in the electricity sector, with some insights into other network industries.

PART I LONG-TERM CONTRACTS, INVESTMENT AND LONG-TERM EFFICIENCY

In the first part, the chapters deal with the issue of social efficiency of long-term contracts and vertical integration in different ways. From the efficiency perspective, long-term contracts create opportunities for market players to diversify their generation investment between complementary technologies and helps approach the optimal technology mix. The optimal mix requires investment in reserve generation capacity and not focusing solely on gas generation plants as the unique efficient technology. Long-term contracts and partial vertical integration are arrangements which help investment in capital-intensive low-carbon technologies. From the perspective of producers and financial investors, long-term contracts with large wholesale buyers (fixed-price, fixed-quantity contracts or option
contracts) can be efficient solutions to support investment in different technologies with high capital intensity. From the perspectives of retailers and large consumers, risks would be more manageable if they could have some long-term contracts to share risks.

Chapter 1 by Jacqueline Boucher and Yves Smeers (‘Energy security and long-term arrangements’) shows with a simple model that the market is not able to deliver all the types of investments to provide security of supply (SoS). Although competition is in theory able to incentivize investments in gas and electricity sectors in order to improve security of supply, it cannot currently play that role in Europe. The financial instruments necessary to tackle SoS issues in a market environment have to deal with long-term, low-probability, high-consequence risks. Investments that contribute to security of supply require contingent long-term contracts, whether financial or bilateral, that do not exist and are unlikely to exist in the real world. Moreover the tendency of governments to intervene (in case of international disruption) in favour of their national sub-systems further jeopardizes the emergence of a forward market allowing a rational risk management.

Chapter 2 by Fabien A. Roques (‘Long-term contracts and technology choices in electricity markets’) explores how long-term fixed-price contracts for fuel input or electricity output affect agents’ power-generation technology choices in decentralized electricity markets. Investors (the so-called ‘entrants’) might find it difficult to find counterparties to sign long-term power contracts, and have therefore a greater incentive to choose technologies with the lowest intrinsic market-risk exposure, such as gas plant. A portfolio approach shows that fixed-price long-term power purchase contracts benefit proportionally more to capital-intensive technologies such as renewable, carbon capture and sequestration (CCS) and nuclear plants. Contractual arrangements which shift risks away from investors on to buyers or sellers change the investment risks and returns associated with different generation technologies.

Chapter 3 by Dominique Finon (‘Investment and competition in decentralized electricity markets: how to overcome market failure by market imperfections?’), analyses market failures hindering a timely and optimal capacity mix. The main market failure here is with risk management, namely, the impossibility of transferring a major part of risks borne by the producer on to consumers, as opposed to the former utility regime. The chapter develops an empirical analysis of the way to secure investments in generation by vertical arrangements between generators and large purchasers, that is, suppliers (retailers) and electro-intensive consumers. Various types of long-term contracts between generators and suppliers (fixed-quantity, fixed-price contract, indexed price contract,
tolling contract, financial option), as well as vertical integration appear to be instruments to allocate risk. But there is never a perfect alignment of parties’ interests. The originality of the chapter is to emphasize complementary conditions for establishing long-term contracts related to new capital-intensive investment which help align interests. For generator–supplier contracts, retail competition must be sticky or limited by the legislator in order to transfer a large part of risks to consumers on different market segments. For generator–large consumer contracts, the latter must be involved in ownership and operation of the generation asset. This suggests that the impact of long-term contracts on power-generation technology choices facilitates the deployment of capital-intensive low-carbon technologies frame a new trade-off for regulators, as for competition authorities.

Chapter 4 by Richard Meade and Seini O’Connor (‘Comparison of long-term contracts and vertical integration in decentralized electricity markets’) proceeds to a complementary analysis of problems arising in contract markets because of transaction costs. The authors identify possible causes of hold-up as well as other contracting problems that can result in inadequate investment, less supply security and increased threat of market power. Specifically, hold-up risks arise not just from the threat of competitive retail entry, but also owing to the competition faced by industrial customers, and other factors such as generator fuel mix and fuel supply security. Additionally, contracting is further complicated by factors such as mismatches between the preferred load profiles of generators and their customers, information asymmetries regarding generator outage rates and fuel security, generator market power and strategic bargaining (in which more informed parties negotiate better contractual terms than less informed counterparties). The resulting shortcomings in electricity contract markets suggest that they are a non-robust toll to deal with market power, retail competition, investment and supply security issues. Instead, the authors argue that vertical contracts are imbalanced, often arising artificially as an imposed element of electricity liberalization reflecting initial reform priorities and concerns. High levels of vertical integration should not be a cause for concern, but may rather represent a more ‘natural’ structure for the electricity sector.

Chapter 5 by Gert Brunekreeft (‘Vertical relations and energy networks: selected issues’) focuses on vertical integration between market businesses and transport network in electricity and gas in relation to investment in transport lines. Referring to the European preference for unbundling, it compares the coordination of investments between network users and the network owner, either inside a vertical firm or in an unbundled setting in which the market should provide coordination.
The author criticizes coordination by market signals (‘locational pricing’) and market-friendly mechanisms (‘tendering procedure’), and argues in favour of the necessity of exemption of third party access rules for the development of electricity interconnectors. Long-term capacity contracts are viewed as an institutional condition to develop the network and interconnections. One claim put forward in this chapter is that the transportation contracts, important as they are for network investment, may cause a situation of multiple equilibria. In a case of insufficient liquidity in the market for transport capacity rights, shippers will not sell to the market, but rather they will hoard their rights and thus prevent the development of the market. Conversely, if the market is sufficiently liquid, shippers will want to sell to the market (if this is profitable) precisely because they will be confident that, if needed, they can buy back the rights at market prices.

PART II LONG-TERM CONTRACTS AND IMPERFECT COMPETITION

This part focuses on the impact of long-term contracts on the efficiency of electricity markets, from the theoretical point of view and in reference to practice. Long-term contracts have been seen as foreclosing potential efficient entries on wholesale and retail markets, and the regulators’ ability to monitor wholesale prices. Such prices and other key variables such as generation costs are less easily observable. A more liquid market would help for transparency. However industrial organization theory also affords new insights on contracting entries in generation: entries appear easier if entrants could be helped by long-term forward contracts, that makes market more contestable. Moreover, the theoretical approach of competition shows that forward contracts do weaken the incentives of oligopolistic firms to exert market power on short-term markets. In practical terms limiting long-term contracts to limit market power will miss its target.

Chapter 6 by Guy Meunier (‘Imperfect competition and long-term contracts in electricity markets: some lessons from theoretical models’) gives the state of the art in economic literature. Several streams in industrial organization provide insights to analyse long-term contracts in electricity markets. Most analyses of electricity markets have focused on forward contracts and agree on the positive effect of forward markets on the short-term efficiency of electricity wholesale markets. Such analysis of short-term forward contracts relies on the assumption of no arbitrage, the simplicity of the contract structure and the absence of bargaining
between parties. The complexity of long-term contracts observed, and particularly the existence of exclusionary clauses, call for another type of analysis. Exclusive dealings are subject to controversy and are at the source of important literature on the subject. It appears that the precise structure of the market considered, the contractual environment and the bargaining process, influence the possibility of inefficient strategic use by an incumbent of exclusive agreement to prevent efficient entry. Long-term contracts can be detrimental if an adversely affected party is absent at the contracting stage (such as final consumers or entrant) or if the contractual environment is too limited. While inefficient entry deterrence can be the purpose of an exclusive agreement, it is not called for to damage all the contractual environment to prohibit only some practices.

Chapter 7 by Petter Longva (‘Long-term contracts in electricity markets: long-term contracting and risk management from the point of view of a large consumer’) develops a balanced view on the way competition is altered by long-term contracts. As a former manager of the risk management division of an industrial group, the author argues, first, that to secure investments in new factories, power-intensive industries need to secure long-term power prices at an affordable level, and to enter into long-term contracts for new generation equipment. He sees that the Commission’s efforts to weaken the position of dominant generators by restricting long-term contracting has instead hurt the interests of power-intensive industries, while not developing market liquidity. He argues for a multi-step development of the electricity market. In an early phase, the creation of a day-ahead exchange should have top priority. Contracts may indeed contain clauses that have a negative effect on the development of market liquidity, but these clauses are more related to volume flexibility than to contract duration. Most long-term contracts with a fixed volume will improve market liquidity, since they transfer volumes from a flexible player (generator) to a less flexible player (consumer) who has to use the market to balance their portfolio. In a later phase of market development, the lack of trust in market pricing due to real or potential spot-price manipulation should be the main issue. In electricity markets, foreclosure is in most cases a less critical issue and the main ‘cure’ currently used to combat foreclosure does not serve this purpose. Limiting the duration of long-term contracts does not weaken the dominant players, because price transparency is not improved, and volumes for potential market entrants are available from the spot market anyway.

Chapter 8 by Machiel Mulder (‘Competition and long-term contracts in the Dutch electricity market’) analyses the significance of long-term contracts at different levels of a quite decentralized market – the Dutch market. How essential are long-term contracts in terms of numbers, and
what is the impact on competition? On one level the chapter considers the relationship between players in the wholesale market and the infrastructure owners. On a second level, the role of long-term contracts is analysed in the wholesale markets between generators and buyers (suppliers mainly) in relation to the trading behaviour of electricity producers. It shows that in the Dutch context, long-term contracts are not systematically searched by investors to trigger investment decisions. Finally, the chapter analyses the retail market, discussing the role of long-term contracts between suppliers and consumers. It shows the limited impact of long-term contracts on competition. Although specific parties might conclude bilateral long-term contracts (between a generation company and a large industrial user, for instance), these contracts do not prevent other parties from also buying or selling electricity. In the retail market, long-term contracts might hinder competition if consumers could not easily cancel the contract. In the Dutch retail market, however, regulation has been implemented to protect consumers and to enable consumers to efficiently change contracts if needed. The main message is that for competition policy monitoring, concentration represents a more important threat than vertical arrangements.

PART III COMPETITION POLICY AND LONG-TERM CONTRACTS

The third part investigates how long-term contracts are treated under European Union competition and state aid law. The decision practice appears to evolve in the European Union (EU) because sectoral specificities in electricity and gas industries are increasingly taken into account by regulators. Antitrust authorities moderate their position, in particular concerning long-term contracts between entrants and large consumers.

Chapter 9 by Adrien de Hauteclouque and Jean-Michel Glachant (‘Long-term contracts and competition policy in European energy markets’) starts with the statement that long-term supply contracts often have ambiguous effects on competitive structure, investment and consumer welfare in the long term. In the new market context, these effects are likely to be worsened and thus even harder to assess. Since the release of the Energy Sector Inquiry in early 2007, the portfolio of long-term supply contracts of the former incumbents has become a key target for the European Commission and national competition authorities. It is widely believed that European Competition Authorities take a dogmatic view on these contracts and systemically emphasize the risk of foreclosure over their positive effects on investment and operation. This chapter depicts
the methodology that has emerged in the recent line of cases and argues that this interpretation is largely misguided. It shows that a multiple-step approach is used to reduce regulation costs and balance anti-competitive effects with potential efficiency gains. However, if an economic approach is now implemented, competition policy is constrained by the procedural aspect of the legal process and the remedies imposed remain open for discussion.

Chapter 10 by Leigh Hancher (‘Long-term contracts and state aid: a new application of the EU state aid regime or a special case?’) explains the way jurisprudence has been established on pre-reform long-term power purchase agreement (PPA). The standard ‘test’ is whether the contracts in question would have prevented efficient alternative suppliers from accessing customers, hence reducing consumer welfare. The application of this test requires complex market-based analysis. The two state aid decisions discussed here investigated how it was most efficient to allocate risk in energy markets and to some extent attempted to analyse how different forms of vertical arrangements could allow for a suitable allocation of risks. However, the decisions did not put forward any real market analysis to support the conclusion that the PPAs were inefficient. Rather, it would appear that the Commission considered that the risk should have been allocated differently, and based its conclusion on the assumption that if it had not been for these contracts, liquid wholesale markets would have developed more rapidly. This type of market structure should have delivered a better outcome.

Chapter 11 by Adrien de Hauteclocque, Frédéric Marty and Julien Pillot (‘The essential facilities doctrine in European competition policy: the case of the energy sector’) raises the question of the implementation of principles related to the so-called ‘Essential Facilities Doctrine’ (hereafter EFD) in the European energy sector. Based on a study of US and European jurisprudence, it first shows that these principles are subject to different interpretations and that the European conception is not necessarily a panacea. It then studies the evolution of European competition policy regarding essential facilities and shows that EFD principles are currently implemented with more vigour than ever before. However, the new challenges the European Union faces may lead regulatory and competition authorities to derogate from the existing doctrine. The special case of nuclear capacities in France is then analysed in the context of the EDF/Direct Energie case and a new French electricity law (the so-called NOME) which allocates drawing rights on historic nuclear assets production to competitors of the nuclear enterprise.

The conclusion of the book, a synthesis of the EUI/LARSEN workshop ‘Efficiency, Competition and Long-term Contracts in Electricity Markets’
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(held in Florence on 15–16 January 2009), which is authored by Adrien de Hauteclocque, sums up the main economic and legal findings of this book on vertical arrangements, economic efficiency and competition policy in electricity markets.