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Regulatory Uncertainty and Inefficiency for the Development of Merchant Lines in Europe

Adrien de Hauteclocque¹ and Vincent Rious²

Abstract— This paper evaluates regulatory uncertainty and inefficiency that may prevent merchant transmission investors from committing in Europe, in particular when they are dominant generators. We argue that market players may perceive regulatory uncertainty to acquire exemption on merchant line mainly because of the discretion given for the application of Art. 7 of the Regulation 1228/2003 on cross-border exchanges. However we show that an emerging strategy of the European Commission for granting exemption on merchant transmission line can be eventually derived from recent legal and regulatory proceedings. It mainly consists in relying on TSOs to build merchant lines. We demonstrate that this strategy is neither a first best nor a second best given imperfect unbundling and the current flows in the allocation of regulatory powers. Indeed, it prevents merchant line investment by dominant generators with low generation cost while they have currently more incentive than TSOs to build merchant lines. Since unregulated merchant transmission investment by generators would be problematic, we show eventually that the current strategy of the application of Regulation can easily be fine-tuned to reach this second-best optimum.

Index Terms—Regulatory uncertainty, merchant line, exemptions, long term contract

I. INTRODUCTION

THE development of the transmission network is insufficient in Europe (DGComp, 2007). For the moment, restructuring has not succeeded in building a regulatory framework to incentivize the required increase in interconnection capacity through investments. Regulated investments face the national tropism of regulators and the conflict of interest of some integrated companies. And merchant investments to upgrade interconnections may also have difficulties in developing, while some generators with low costs has incentives to build merchant lines to export their power in areas with higher generation cost. This paper evaluates regulatory uncertainty and inefficiency that may prevent merchant transmission investors from committing in Europe, in particular when they are generators, and more

especially dominant ones.

A transmission network with optimal capacity is essential to support at least cost well-functioning competitive and reliable wholesale and retail markets for electricity. The transmission network allows generators and consumers to trade power (Brunekreeft *et al.*, 2005). It can expand the geographical expanse of competition among power suppliers and thus give consumers access to lower cost energy. By expanding competition over wider geographic areas the transmission network can increase the effective number of competitors and reduce market power and thus prices. A well functioning network facilitates the transmission of power from areas with concentrated and cheap resources of energy being for instance nuclear, wind or even coal to match demand and supply efficiently at different network locations to achieve economic and reliability goals (Joskow, 2006b).

In Europe, regulated and merchant transmission investments were considered to develop interconnection. In theory, unbundled independent and well regulated TSOs that coordinate such that network users feel they face a unique TSO over the interconnected network are the best organization of power transmission activity (Costello, 2001; Pollitt 2007). For the moment, such organization has not been achieved all over Europe. Interconnection capacity is then insufficient and limits cross-border exchanges that remain the main sources of competition between incumbents in Europe.

With EU Regulation 1228/2003 on cross-border exchange,³ relying on merchant transmission investment was thought to be a solution for the development of interconnection. It gives the possibilities for third parties to invest in transmission. With merchant transmission investment, private investors are invited to construct electricity transmission lines in return for the rights to the revenue created by the spot price differential across the line. These market prices would therefore signal the need for and provide the revenue to finance that investment.

Art. 7 of the Regulation allows new interconnectors to be exempted from regulated third party access, under rather stringent conditions, at least on paper. Vandezande *et al.* (2007) have noticed that these criteria are not very accurate.

¹ Ph.D. Candidate, University of Manchester School of Law and Associated Researcher, ADIS/GRJM, Department of Economics, Univ. of Paris 11. (e-mail: adrien.de-hauteclocque@postgrad.manchester.ac.uk)

² Assistant Professor, Department of Power and Energy Systems at Supelec (e-mail: vincent.rious@supelec.fr)

³ Regulation (EC) No 1228/2003 of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity, O.J. 2003, L 176/1. This possibility was already present in the first regulation on cross-border exchanges and is kept in the project of third liberalization package.

Then they can let a lot of discretion to the energy regulators and the European Commission in their application, which fosters regulatory uncertainty.

For an efficient investment in transmission network, legal and regulatory rules should be characterized by the two following features, whatever investment is regulated or merchant. First these rules should be steady or at least predictable. Indeed transmission line is a long term irreversible investment with a lifespan of at least fifteen to twenty years. A transmission owner is paid for the whole lifespan of its lines. He must then know with sufficient certainty the rules that apply for its remuneration to commit investment for such a long time. Otherwise uncertainty will prevent investment (Carruth *et al.*, 2000)

The second feature that legal and regulatory rules must fulfill to lead to an optimal transmission investment is indeed the search for efficiency. Of course, the behavior of investor participates to the efficiency of investment and its operation. But the legal and regulatory framework is fundamental for such a widely regulated activity because it sets incentives on the investor such that its profit maximization approaches the social welfare maximization (Joskow, 2006a, b). If there is an institutional difficulty in implementing regulation that leads to the first best optimum (or respectively to the second best optimum), the law and regulation should then be built to reach the second best optimum (respectively the third best optimum, etc.).

In the case considered here, the investments by the TSOs are not sufficient to develop interconnection capacity. Regulation should then permit all possible options for welfare-increasing merchant lines. As of today, we notice that a tenth of exemptions have been treated in Europe for gas investment, whatever pipelines or LNG terminals, and only two in electricity. And all the exemptions were granted, generally with minor modification (Van der Vijver, 2008). This allows predicting a common regulation of exemption in gas. In electricity however, the lack of precedents and the subsidiarity that applies for the grant of exemption cast doubts on the way the exemption will be granted, which fostered regulatory uncertainty.

One generally defends the idea that transmission must be unbundled from generation because generators had relatively poor incentives to interconnect their systems. Stronger interconnection will give some opportunities for competitors to enter the incumbent's home market (Brunekreeft and Newbery, 2006). This is true for a generator whose costs are higher than the average. But a generator with lower cost than its neighbors clearly has an incentive to develop transmission to some extent to go and compete with generator with higher costs. Even more, Sauma and Oren (2007) show that a net exporting producer has the incentives to fund and support social-welfare-improving transmission investments⁴. For instance, generators with a lot of nuclear and wind power capacity may want to develop interconnectors with the surrounding areas.

⁴ This is conclusion can also be extended to the gas industry.

It is not sure that the European regulatory framework authorizes generators to build merchant lines. Uncertainty is especially strong for generators dominant in their home markets on their legal rights whether to develop and own a merchant line or to acquire a long term contract to access the line through an open season, especially with regards to the particular harsh antitrust treatment they currently face on their long term supply contracts (see *EoN Rurhgas*,⁵ *Distrigas*⁶ and now *EDF-Electrabel*⁷ and *GDF* who are all under attack for these contracts).

Literature has dealt with different theoretical questions surrounding merchant line. Following the seminal Hogan's (1992, 2002) idea of financial transmission rights⁸, Bushnell and Stoft (1996) suggest a transmission rights allocation rule based on the concept of feasible dispatch. Under this allocation rule, a transmission investor can select any set of transmission rights if and only if the set of existing transmission rights and these new ones corresponds to a feasible dispatch on the newly modified grid. They prove that such a rule can reduce or, under ideal circumstances, eliminate the incentives for a detrimental grid expansion while rewarding efficient investments.

The Bushnell and Stoft's paper has however the drawback to use implicitly stringent assumptions about the cost structure of transmission. They assume that transmission line has no economies of scale and no lumpiness. Taking into account these characteristics, Perez-Arriaga *et al.* (1995) and Joskow and Tirole (2005) show that merchant transmission investment would result in suboptimal transmission capacity.

Joskow and Tirole (2000) also show that this conclusion is even worsened if a net importing producer is allowed to own transmission rights (by buying some to a merchant line investor) as it gives a supplementary tool to exert market power. Nevertheless, as we already said, Sauma and Oren (2007) show that a net exporting generator owning transmission rights has an incentive to support socially efficient transmission investment. Other saying, a net exporting producer has a clear incentive to build transmission as it allows him to increase his market share and profit.

The paper is grounded on this idea of generators building power transmission lines on their own. We explore the regulatory uncertainty and inefficiency that surround such projects in Europe.

Some papers have more specifically dealt with the merchant transmission lines in the European regulatory framework⁹. But these questions have never been extensively discussed. De Jong *et al.* (2006) raise only financial and regulatory issues but keep most questions opened. Vandezande *et al.* (2007) make

⁵ See Bundeskartellamt, Discussion Paper, 2005 and Kühne, 2006.,

⁶ Notice published pursuant to Art 27(4) of Council Regulation (EC) No 1/2003 in Case COMP/B-1/37966 – Distrigaz, O.J. 2007, C 77/48.

⁷ European Commission press release MEMO/07/313, 26 July 2007.

⁸ Rights that entitle holders to receive congestion rent derived from the use of the transmission capacity in the context of nodal pricing systems

⁹ See also Littlechild (2003, 2004) on the empirical analysis of merchant lines in the Australian regulatory framework.

an analysis of the criteria for exemption through the study of Estlink and conclude on the need to precise the Regulation. Brunekreeft (2004, 2005a) analyzes regulatory issues concerning merchant lines, respectively the effect of merchant lines on competition, the ownership questions and access regimes. He concludes that merchant lines may not raise competition problem in Europe although it is not clear what the relevant market that must be considered for the study of exemption is. As for ownership questions, he asks whether there should be any restrictions for generators. As for access regimes, he globally argues that general competition law may suffice for unduly restricting access.

This paper explores the uncertainty and the efficiency of the emerging strategy of the European Commission regarding exemption for power transmission lines. We argue that regulatory uncertainty may be perceived by market players mainly because of the discretion given for the application of Art. 7 of the Regulation 1228/2003 on cross-border exchanges. Brunekreeft has pointed out some of the questions that this discretion raises. Section II uncovers the mechanics of regulatory uncertainty for the granting of exemptions. Section III shows that a strategy of the European Commission for granting exemption on merchant transmission line is emerging and can eventually be derived from recent legal proceedings and regulatory evolutions. Section IV demonstrates why this emerging strategy is neither a first best nor a second best. And section V argues that the current strategy of the application of regulation can be fine-tuned to reach a second-best optimum.

II. UNCERTAINTY FOR THE DEVELOPMENT OF MERCHANT LINES IN EUROPE

Rules on exemptions have been subject to changes twice since the beginning of liberalization (1st Directive in 1996 and 2nd Directive in 2003) and similar rules with a new allocation of regulatory powers are being prepared in the context of the third legislative package, which is currently under discussion at the European Parliament. As of today, two sorts of exemptions can be granted. First is the exemption of regulated third party access¹⁰, second is the exemption on the use of the collected congestion rent¹¹. These exemptions mainly concern direct-current interconnectors but alternating-current interconnector may also be considered¹². In theory, the exemption can only be granted if the conditions set out in Art 7(1) of the Regulation are fulfilled. These conditions will be discussed below. The national regulatory authorities of the Member States directly involved have jurisdictions over the grant of the exemption. The merchant investor will thus have to fill applications before each national regulatory authority. Exemptions are to be examined on a case-by-case basis and conditions can be attached, for instance on the duration of the exemption. The Member States or the national regulatory authorities in charge must thus cooperate and find common

grounds for the grant of the exemption. In case of sustained disagreement between them, the Commission does not hold a final decision power and the project cannot proceed. However, the Commission retains the right to propose amendments or a complete withdrawal of the exemption. In case the Member States do not comply, the disagreement must be settled through comitology. *Ex post*, EC competition law may always apply in case of abuse of a dominant position or unlawfull concerted practices between the joint owners (Talus and Wälde, 2006) but antitrust powers have so far never been used on a merchant line.

In the gas sector, the lack of consistency among decisions taken in different Member States (Van der Vijver, 2008) lead the Commission to publish an interpretatory note with a view to help both regulators to enforce the law and market players to anticipate it. This document shows the difficulties in streamlining a regulatory regime able to ensure both predictability and accuracy. The uncertainty created by the fast evolution of the sector-specific regulatory framework and antitrust enforcement is a paradigmatic feature of European energy markets (Cameron, 2007). The problem is arguably even stronger in the electricity sector where the lack of precedents contrasts with the dozen of decisions already taken in the gas sector. This regulatory uncertainty raises serious concerns in a sector where the predictability of regulation is crucial to stabilize market players' expectations and hence allow them to sink high fixed-cost investments for transmission. Indeed, the cost of financing for merchant lines in electricity is typically much higher than in gas, except for the big international pipelines such as Nabucco. We depict in this section the two sources of regulatory uncertainty faced by market players at the present time.

A. The methodology to examine applications for TPA exemptions

The first source of uncertainty for merchant investors comes from the the methodology to examine applications for TPA exemptions itself. In practice, the exemptions can only be granted under the conditions listed in Article 7(1) of the Regulation. These conditions read as follows:

- “(a) the merchant interconnector should enhance competition in electricity supply;
- (b) the level of the risk is such that the investment would not take place unless the exemption is granted;
- (c) the interconnector must be owned by a person legally separate from the TSOs;
- (d) charges must be levied on users of the interconnector;
- (e) since the start of the European electricity liberalisation, no part of the capital or operating costs of the interconnector has been recovered from any component of the network tariffs;
- (f) the exemption is not to the detriment of competition or the effective functioning of the internal electricity market or the efficient functioning of the regulated systems to which the interconnector is linked.”

¹⁰ Exemption of Art 20 and 23(2), (3) and (4) of the Directive.

¹¹ Art 6(6) of Regulation 1228/2003.

¹² Art 7(2) and (3) of Regulation 1228/2003.

Originally, Art 7(1) was conceived as a test, which meant that each and every criteria had to be fulfilled. The regulatory practice in the gas sector has shown that it has not always been the case and that a balancing exercise is conducted in practice (Van der Vijver, 2008). Such a balancing exercise leaves a lot of discretion to the authority in charge and can be justified only if the benefits from tailoring regulation to specific cases offsets the inherent costs of discretion. The benefits of tailoring broadly depend on the level of information at hand, not only on the specific case but also on the competition dynamics of the sector, especially as regards the fact that a necessary condition is that the merchant line must enhance competition in electric supply. It also depends on the own agenda of the regulator (Cohen and H  ritier, 2005). The detrimental effects of discretion on welfare are well known. They can broadly be sub-divided in three categories: regulation costs, rent-seeking and legal uncertainty (Christiansen and Kerber, 2006). The last problem, legal uncertainty, is augmented in the case of a decentralized regulatory framework. Ultimately, the right level of discretion is the one which minimizes both error costs of type I (false positive – allowing a merchant line detrimental to welfare) and type II (false negative – preventing a merchant line positive for welfare) as well as limits the costs of regulation described above.

The suitability and the clarity of the six conditions to be fulfilled for merchant investments in electricity do not appear able to allow for an efficient regulation of merchant lines in Europe. Conditions (c) to (e) do not raise specific problems of monitoring, except maybe for the standard of proof and they contribute to impose that the merchant investor takes the full commercial risk of its investment. In these respects, they appear to go in the right direction. However, criteria (a), (b) and (f) are much more problematic. First, criteria (a) and (f) tend to overlap. The fact that the merchant line should both enhance competition and not be detrimental to it leads to confusion. In gas, the parallel provisions lead national regulators to systematically favour criteria (f). This contradicts the spirit of the exemption test, very much embedded in condition (b), which was thought since inception to be a necessity test, namely that the exemption would be granted only if indispensable for the project to proceed (Van der Vijver, 2008). Turning to the applicability of condition (a), we cannot but notice that this criterion requires an excellent understanding of the competitive dynamics of electricity markets. This is a source of concerns for the future as the exemption process might consequently become very lengthy, and thus costly given the limited information at hand on competition dynamics in this sector. Overall, the competition effects will mainly depend on who is doing the merchant lines, under what conditions and with what opportunities to abuse its market power. It is far from clear who will be able to build a merchant line, especially as concerns the dominant generators. As a first approximation, this can essentially be done through

customer foreclosure and abuse of market power on the spot in the destination market. A last argument concerns the ability of a merchant investor to prevent the development of a future regulated line (Knops and De Jong, 2007). It is however doubtful that the wording of Art 7(1) enables national competition authorities to minimize regulatory and error costs while ensuring a fair degree of predictability to market players. Criterion (f) is also problematic as the regulator might not have sufficient knowledge to assess the potential negative externalities on the network on both sides. Criterion (b) does not indicate how to assess the risk of that kind of project and even less how to use a sliding scale where the duration of the exemption would increase with the risk profile of the project. Knops and De Jong (2007) show the difficulties of such a task. In addition, no endogeneity of the exemption seems to be forecasted.

Overall, for each of these 3 criteria, it is not clear which relevant facts must be taken into account to assess each criteria and how to combine them. If a balancing must be involved, this would be a highly tentative exercise as is well known in EC Competition law. Indeed, under Art 81 EC which tackles anti-competitive concerted practices, the anti-competitive aspects of contracts must be balanced with their potential efficiencies, which give rise to infinite theoretical and procedural problems. This is why the recent literature tries now to devise simple rules with a view to balance enforceability and predictability rather than trying to find optimal rules (e.g. Evans and Padilla, 2005). We argue now that the lack of predictability deriving from the drafting of the rules is multiplied by the flows in the allocation of regulatory powers.

B. Flows in the allocation of regulatory powers

The vagueness of Art 7(1) and the lack of methodology to interpret it are the first source of regulatory uncertainty. However, the lack of precision in the methodology could be mitigated by the presence of a single enforcer. This is however far from the case as each national regulatory authority retains jurisdiction on its own national territory and cross-border infrastructure must be regulated by consensus between the regulators involved. For a cross-border infrastructure, the fact that companies must deal with as many regulators with their own agendas as there are countries involved increases substantially the regulatory burden on firms and thus the regulatory costs. The facts that the European Commission retains the right to require the regulators to amend their decisions within two months only partially limits the risk of inconsistencies as the European Commission has so far only very scarcely used that right and that right is not final. The two main sources of uncertainties with the current allocation of regulatory powers is the risk of inconsistent application of the rules laid down in Art 7(1) and the risk that the agendas of national regulators interfere with the objectives of the law.

The practice of exemptions in the gas sector has demonstrated these problems. First, national regulatory authorities have tended to be very lenient with the granting of exemption. In fact, all exemptions have been granted with very

long durations, except in *Gate* for which the exemption was limited from 25 to 20 years. Some commentators have been speaking about a 'regulatory competition' and its inherent risk of 'race to the bottom' which means that regulators would grant the TPA exemption with too lenient conditions to avoid having the project relocate in a competing country (Van der Vijver, 2008). Ofgem even states in *Dragon LNG* that it is trying to establish "the most favourable regulatory scheme". We will show in Section IV that the incentive scheme of regulators will be different in electricity but that they will also constitute a barrier to the development of merchant interconnectors.

Second, the level of precision of the methodology as well as the interpretation of criterion substantially diverged among countries. The drafting of the law and the conditions chosen opened the door to such outcome. The UK, having more experience, seems to follow the most structured analysis and publishes lengthy decisions. It also takes very wide relevant markets. Decisions released by national regulatory authorities also demonstrate a general lack of transparency as most criteria are not analyzed openly and no public document clearly spells out the approach undertaken.

However, if exemptions have all been granted, it does not mean that conditions have not been imposed. A toolbox of remedies can indeed be depicted which suggests that the necessary regulatory tools are in place. Among the most important, diverse national regulatory authorities such as Ofgem and AEEG have imposed an absence of TPA exemption on reverse flows, use-it-or-lose-it principles and regulatory monitoring at schedules dates. The Commission seems to follow that approach as evidenced in *Grain*.

To conclude, the regulation of TPA exemptions does not avoid the usual pitfalls of competition policy in deregulated European energy markets which lies in the lack of predictability of regulation and an 'announced' case-by-case approach which does not seem to deliver efficiency through tailored solutions. This is all the more detrimental to market players in view of the fast evolutions of both the sector-specific legal framework and the market environment in general. This is thus *in fine* detrimental to final consumers in a sector where the ability to commit in the long-term is crucial to ensure a socially beneficial level of investment. With regard to the structural under-investment in network capacity which the European Union is facing (DG Comp, 2007), the legal uncertainty currently perceived in the market place becomes a major issue. In gas, we have seen that the risk of type I error is stronger. However, we will argue in the next two sections that this is the risk of type II errors which will predominate in electricity.

III. THE EMERGING EUROPEAN COMMISSION STRATEGY FOR THE REGULATION OF MERCHANT LINES

The main uncertainty concerns the assessment of competition effect of a merchant line on electricity supply by

each national regulator. This uncertainty thus mainly concerns the beneficiary of a merchant line according to its market position. In this section, we expose what is the emerging European Commission strategy on that issue. We claim that it can be derived from historical facts and the Commission policy in the context of the third legislative package.

A- DG Comp strategy is clearly emerging from historical facts

The European Commission is well aware of the crucial importance of the development of cross-border interconnectors for competition and security of supply. As a result, the Commission is not suspicious over merchant lines *per se*, but over who the promoter of the line and then the owner of the priority right will be. A web of indices drawn from recent historical facts makes us think that the Commission will systemically favor and encourage merchant lines by new entrants and TSOs and will systematically reject applications by suppliers who hold a dominant position (typically more than 40% market shares). TSOs will be allowed to use open seasons as we saw in gas but a remaining uncertainty concerns the rights of dominant operators to participate in these open seasons. The three following points converge towards that regulatory position.

First, in the gas sector, exemptions have only concerned non-dominant players. The Italian regulator, EEG, even repeatedly stated that dominant firms will not in principle benefit from an exemption.

Second, for already existing and amortized interconnectors owned by dominant firms, the Commission and the European Court of Justice have been particularly harsh with dominant operators. They indeed systemically deemed long-term capacity reservations signed before liberalization to be abuse of a dominant position and required that 100% of capacities be freed up (UK-French submarine interconnector,¹³ Dutch-German interconnector,¹⁴ and Norway-Denmark and Denmark-Germany interconnectors following the merger *VEBA/VIAG*¹⁵). The antitrust tolerance towards risky infrastructure investment seems now impossible to justify for existing amortized infrastructure. Foreclosure effects of new long-term reservations on existing capacity, which will hardly ever be directly linked with new investment in that infrastructure, cannot be counter-balanced by arguments related to the need for investment (DG Comp, 2007). The same applies to current prolongation of historical contracts beyond their originally foreseen end date when this possibility was foreseen in the historic transport contract.

Third, the strategy of the EU Commission regarding long-term supply contracts is clearly emerging and departs from the pre and early post-liberalization period. It demonstrates the

¹³ UK/France Interconnector, informal settlement, IP/01/341 of 12.03.2001.

¹⁴ Case C-17/03 *Vereniging voor Energie, Milieu en Water, Amsterdam Power Exchange Spotmarket BV, Eneco NV v Directeur van de Dienst uitvoering en toezicht energie* [2005] ECR I-4983. See Commission Staff Working Paper on the decision C-17/03 of 7 June 2005 of the Court of Justice of the European Communities, SEC (2006) 547, 26 April 2006.

¹⁵ Case M.1673 *VEBA/VIAG*.

tightening of antitrust enforcement towards dominant firms while giving them some leeway when clear efficiencies are involved. After Distrigas and EoN Ruhrgas, EDF, GDF and Electrabel are currently under attack on this issue mainly because of the risks of market foreclosure. Prior to the first liberalization directive, enforcement of competition law did not occur on a regular basis and there were only few instances of long term contracts. Most of them concerned independent power producer supplying the national incumbent on an exclusive basis. Following the Single European Act, the directive on cross-border trade in electricity¹⁶ was enacted in 1990 and the Commission started to look at these long term supply contracts to limit their duration so that they would not hamper the future opening of markets to competition. The durations were in general limited to 15 years as in *Electricidade de Portugal/Pego*,¹⁷ *Isab Energy/Enel*,¹⁸ *Sarlux*,¹⁹ *Rosen*,²⁰ *REN/Turbogas*,²¹ *Scottish Nuclear*²² or *Api Energia*²³ and 25 years in *Transgas/Turbogas*²⁴. Since the early 2000's, and most surely since the last 3 years in decisions such as *EoN Ruhrgas* and *Distrigas*, a new methodology to analyze long-term supply contracts in the new market building context of energy markets has emerged. This methodology primarily relies on market shares thresholds (De Hauteclouque, 2008). The baseline is that if contracting parties' individual market shares do not exceed 30% and do not include clauses with market partitioning effects, the long term supply contract will be exempted from further scrutiny. Over 30% and especially over 40% which is the dominance threshold in EC Competition law, the European Commission will conduct a balancing of potential anti-competitive aspects with efficiency-enhancing aspects. In practice, the Commission will be strict on the following points: the duration must not be over 5 years (reduced to 2 years if the dominant firm supplies more than 80% of its customer global demand), 70% of its portfolio of customers must come back to the market every year and clauses amounting to a use restrictions are prohibited. As a result, the duration of contracts implemented by dominant companies is severely limited.

The discussions around the third legislative package and especially the 'third way' for network unbundling that some Member States have succeeded to impose should not soften that suspicion. Indeed, a group of Member States led by

France and Germany refused the proposition of the Commission to impose either full ownership unbundling of the grid or the outsourcing of the grid operation to an independent system operator and managed to include a 'third way' where the present provisions on legal and accounting unbundling are simply a little bit deepened. The difficulties around the enactment of the third legislative package show once again that the on-going opposition of several major Member States and the resulting gaps in the sector-specific regulatory framework continue to hinder the completion of a single European market for energy. In this context, the European Commission uses all its antitrust powers to constrain incumbents' behaviors as evidenced by the decision of E.ON to divest its transmission network to avoid further antitrust scrutiny²⁵. As a result and given the previous points, it is most likely that the intended outcome under condition (a) of Art 7(1) is to exclude dominant firms from the benefit of the exemption. The current strategy of the Commission in the context of the third package also tends to confirm this trend.

B. The Current Strategy of the EU Commission in the context of the Third Package confirms this trend

Two items constitute the main pillars of the strategy of the European Commission for the development of cross-border networks in the EU electricity market. The first is the policy regarding unbundling. The second is the creation of the Agency for the Cooperation of Energy Regulators (ACER thereafter). Unbundling not only aims to ensure a non-discriminatory access to the network, it also aims at providing the right incentives for the TSO to invest. The Commission thinks that the TSO must be freed of any influence from the vertically integrated dominant company and that the network will be developed optimally if that condition is fulfilled. In case of the most risky projects, they will be able to get an exemption as in *Britned*.

To facilitate a consensual approach to the regulation of interconnection, merchant one in particular, the ACER is to create an institutionalized forum where decisions will be more easily taken. Combined with what we saw in *Britned*, namely an exemption concerning the use of the congestion rent (Van der Vijver, 2008), we believe that the Commission seeks an increased development of the network through improved TSOs and not really through producers' interconnector. In fact, the European Commission does not have anything against non-dominant operators creating a merchant line. But such projects are so capital-intensive that, in most cases, a small player or a new entrant will not be able to carry out that project. In the Commission's view, the development of the network will thus be based on independent TSOs, under TPA or not, and with or without open seasons. A remaining uncertainty does remain on the point of the right of incumbents to participate in open season.

The Commission is thus seeking to implement a first best where TSOs will carry the full responsibility of the

¹⁶ Directive 90/547/EEC on the transit of electricity through transmission grids [1990] OJ L147/37.

¹⁷ *Electricidade de Portugal/Pego Project*, Notice pursuant to Art 19(3) of Regulation 17/62 [1993] OJ C265/3 and 23rd Report on Competition Policy at 222.

¹⁸ *Isab Energy*, Notice pursuant to Art 19(3) of Regulation 17/62 [1996] OJ C 138/3.

¹⁹ Competition Report 1996 at 134.

²⁰ Competition Report 1996 at 134.

²¹ *REN/Turbogas*, Notice pursuant to Art 19(3) of Regulation 17/62 [1996] OJ C 118/7.

²² See Section IV for more on this case.

²³ Competition Report 1996 at 134.

²⁴ See 26th Report on Competition Policy, at 135. The 25 years duration was justified by an improvement of security of supply due to the development of alternative sources of gas supply.

²⁵ See O.J. 2008, C 146/09 and MEMO/08/396 of 12.06.2006.

development of the network under the supervision of a unified regulator. We show in the next section why this strategy is misguided and so leads to only to a third best optimum. Section V then will propose a simple improvement of EU energy regulation on TPA exemption to restore the second best optimum where dominant generator is authorized to build and own merchant line.

IV. THE EUROPEAN COMMISSION STRATEGY ONLY AS A THIRD BEST OPTIMUM

This section shows that not only the European Commission's strategy for developing interconnection is suboptimal but also that this strategy does not reach what we think is the second best where dominant generators should also be authorized to build merchant transmission lines, under some conditions, of course.

Despite the imperfect unbundling approved by the third package, the current strategy of the European Commission relies only on the TSOs upgrading interconnection capacities even with merchant investments. Moreover this strategy still gives an important place to national regulators in the process of designing the characteristics of merchant lines. And the creation of a European regulator may change few things about the place of national regulators in the process.

The first two sub-sections show that regulators and TSOs are likely to hamper the development of merchant lines in some conditions. Sub-section A presents why TSOs with imperfect unbundling have incentives not to study nor build merchant interconnection. Sub-section B gives reasons why regulators can also hamper the development of merchant interconnection. Sub-section C shows not only that some generators have more incentives to develop interconnection but also how they can then overcome the difficulties of interconnection development and increase interconnection capacity in Europe.

A. TSOs hampering merchant interconnection

The main reason for opening transmission investment to profit-motivated merchant investors is that this may go some way to addressing the perceived problem of under-investment in transmission in Europe. Ownership unbundling is not mandatory and regulation imposed on TSOs is relatively weak in Europe. Therefore, vertically integrated utilities, owning both generation and transmission assets remain. And they had relatively poor incentives to interconnect their systems. Stronger interconnection will give some gains from trade, but increases competition in their respective generation markets and may reduce profits. If vertical separation of transmission from generation is not feasible, an alternative approach to this problem is to allow third parties to invest in transmission assets (Brunekreeft and Newbery, 2005).

But we have seen in the previous section that European commission will still rely on the TSOs to develop merchant interconnection in spite of the conflict of interest with their mother generation companies. To compensate the potential conflict of interest that the TSOs subsidiaries of generation

companies may face, a stricter regulation of TSOs will be implemented²⁶. However, merchant transmission line is private business. Therefore, regulation will poorly give incentive for TSOs to build merchant lines. Building an interconnection can be seen as a kind of game with the two TSOs hence interconnected as two players. Each TSO has a veto right to refuse or prevent the building of interconnection. Until now, the interconnections whether regulated or not have always been built jointly by the two TSOs hence interconnected. We can assume that in the future interconnection in particular merchant one will still be built inside such a partnership.

However, legally unbundled TSOs may not have the incentives to develop merchant interconnection yet, even in the case the generation mother company cannot directly intervene in the decision process of the transmission company. The objective of the mother company may still interact with the objective of the subsidiary transmission company. For instance, a TSO whose mother generation company has high generation cost may be reluctant to increase transmission capacity as it may permit cheaper generation to come and compete against the incumbent (Brunekreeft and Newbery, 2005).

A legally unbundled TSO can exert his veto right on the building of merchant interconnection in different ways. He can delay the study to justify building interconnection. He can argue with the other TSO about the sensitivity of the study for interconnection regarding assumptions. He can deliberately rely on the local oppositions to the building of interconnection to prevent effective construction.

Even a fully unbundled TSO may not have the incentive to invest. But this time, it is not linked to the type of unbundling but to the agenda to the regulator.

B. Regulators hampering merchant interconnection

The third directive will initiate the creation of a European regulatory agency for electricity and gas, the ACER, Agency for Cooperation of the Energy Regulators. However, this agency is thought to have only limited power as it may only apply a sunshine regulation²⁷. National regulators then keep their prerogatives. But national regulators have their own agendas that may remain stuck to national interests without a real willingness to expand and regionalise the electricity market (Glachant and Lévêque, 2005). They may then have no incentive to see interconnection capacity increase, as it runs counter their current agenda. Regulation at national level can hamper merchant transmission investment for two reasons.

First, a new interconnector will as a rule decrease prices on the importing side, but increase prices on the exporting side. The losing side may then be tempted to block, to delay or not to incentivize the construction of the line although the line might be globally welfare enhancing (De Vries and Hakvoort,

²⁶ <http://www.euractiv.com/en/energy/compromise-sight-energy-liberalisation/article-172415>

²⁷ See what Giulio Napolitano and Mario Savino, University of Tuscia have written the 26th November 2007 on the EU Energy Blog <http://www.energypolicyblog.com/?p=91>

2002). This may be amplified by the Regulation 1228/2003 being not very clear. It is not straightforward whether competition used as a criterion of the Regulation should be measure at the level of a country or of a broader scope at the regional or European level when a merchant line is tested. A national regulator has then discretion to choose the level he will use to evaluate merchant lines. A priori, he will choose the smallest area, that is to say national or infra-national, to amplify artificially potential competition problems.

The second reason is that national regulators can be reluctant to the building of a merchant line in parallel to existing regulated transmission roads. This is because such a merchant line will decrease the congestion rent perceived by the TSO from the regulated road. And this congestion rent is very precious to the regulator. It allows him to decrease obviously the access tariff and to exert ostentatiously its regulatory power. Lack of interconnection capacity may not be a problem for a regulator as no investment means no unpopular raise of the regulated tariff and increase in congestion rent (De Jong *et al.* 2007). NorNed that links the Netherlands with Norway is an example of such a situation. It was initially thought to have a 1200 MW capacity, which was the optimal capacity for the social point of view. However, the regulators (respectively DTe and NVE) and the TSOs (respectively Tennet and Statnett) chose a 600 MW capacity for the project to be commercially feasible but socially suboptimal (Bugten, 2004; Brunekreeft, 2005b).

Finally, the TSOs whether they are fully unbundled or not may have little incentive to increase interconnection capacity, even with exemption. With the current dash for generation investment, some generators may have more incentive to develop interconnection on a merchant basis. The implicit strategy of the European commission will not allow to benefit from this opportunity to boost simultaneously transmission investment and competition.

V. PROPOSALS FOR CHANGE IN THE EUROPEAN COMMISSION STRATEGY TO REACH A SECOND BEST OPTIMUM

We show in this section that the current suspicion against merchant lines by dominant generators is not legitimate as the efficiency for the individual market players meets the interest of the society much more than the European Commission tends to usually think. We then show that a specific regulation must be imposed to reap the benefits of merchant lines by these dominant players.

A. Incentives for generators to commit in merchant lines

Facing a structural under-investment in network capacity, we argue that the European Commission should stop aiming at a third best solution and uses the window of opening created by the current changes in cost conditions in energy markets. Two types of opportunities can motivate some generators to take long term commitment on transmission capacity in Europe, either through participation in open-seasons to access a merchant line or through direct building of a merchant line.

First there may be classical opportunities of arbitrage between countries with different mix of generation technologies. The rebirth of nuclear in some countries only will give advantages for utilities while the cost for fossil fuels are still rising and renewable energies will not suffice to cover the need of power. By chronological orders, Finland, France, the United Kingdom and Italy have announced their willingness to allow construction of new nuclear power plants. Utilities with the nuclear advantage may then want to export it in other countries where they are implanted to compete against local incumbents that are more dependent on fossil fuels and renewables. Besides, since the national decisions of relaunching the atomic energy are not simultaneous, there may be even inter-temporal arbitrages between countries favourable to the nuclear power.

Some generators may be willing to commit in a merchant line for a second reason. They may want to secure partly or thoroughly capital-intensive investments with long term contracts. We have seen in section III that for the moment, the European Commission generally does not want incumbents to secure their investments with long term contracts in their own countries. But it seems that the European Commission would be more accommodating with long term contracts when the counterparties are in another country (De Hauteclocque, 2008). This strategy of contracting abroad however encounters a major obstacle. Such a long term contract of supply needs a long term access right to interconnection. Without long term access right to interconnection, the resulting uncertainty would be detrimental to capital-intensive generation investments. But the access rights to the interconnections in Europe are only available with a maximal duration of one year. This duration is of course incompatible with a long term contract of supply that can last until five years. Even if the TSOs proposed long term access rights, it is not sure that they would be allowed taking into account the decision in C-17/03 of the 7th June 2005 of the Court of Justice of the European Communities on long term access rights on the interconnections, even if the CFEC is probably more lenient than the EU Commission on that issue. Therefore, the only way for generators to have long term access to the interconnections is either to win an open season on a merchant line or to build its own merchant line.

A generator building a merchant line should then be considered by the European Commission, all the more that it would increase the European social welfare compared to a situation where the European Commission would prevent it.

B. Benefits from allowing generators to build merchant lines

If the generators are authorized to build merchant lines in Europe, a second best optimum can be reached. Indeed, some transmission investments that increase the social surplus may then be made while they may not in the current European regulatory framework. This sub-section shows why these investments increase social welfare and how these investments make the social welfare increased.

Merchant transmission investments realized by generators

can increase social welfare for two reasons. First the European Commission should not analyze the anti-competitive effects of long term access rights to a merchant line (either directly owned by a generator or acquired in an open season) as a long term contract of supply. The capacity of merchant transmission lines is generally similar to the capacity of a power plant. So it is small compared to the size of the national markets in Europe. Foreclosure on merchant lines will then have a small effect on the overall competition and so on the social welfare (Brunekreeft, 2005a).

The second reason why merchant lines built by generators would be welfare increasing is that generators may have more information than TSOs on opportunities of arbitrage between national markets. TSOs are stuck to their national or regional boundaries while generators are increasingly present in a high number of national markets through mergers and acquisitions. They can then have a better knowledge of the evolution of the market conditions than the TSOs.

The welfare-increasing effect of merchant lines built by generators can be translated in three ways. First Gans and King (2003, 2004) showed that an exempted network investment is realized sooner than a regulated one. This is because in an uncertain environment it is hard for a regulator to commit to the long term on the remuneration of risky investments. The network operator anticipates this lack of commitment from the regulator and delays its investment until it is less risky. There is no risk of regulatory hold-up with an exemption. By cancelling this delay, an exemption then increases the social welfare.

Merchant lines built by generators have a second effect that makes the social surplus increased. We have already seen that the TSOs do not eventually have a lot of incentives to build merchant lines in the current regulatory framework whereas some generators can be more proactive in building merchant transmission interconnections and even upgrade the network up to the socially-efficient capacity (Sauma and Oren, 2007).

Merchant lines built by generators have a last effect which can increase the social surplus. We have previously shown that generators can use merchant lines to transit a long term contract of supply outside their native area. With such long term contracts they can secure and build more capital-intensive generation technologies (Roques *et al.*, 2006). With contractual arrangements and so less risk, the generation investors have better incentives to choose the optimal generation mix. While without long term contracts, the investors are incentivized to choose less risky investments even if they are more expensive. In addition, these long term contracts channelled through a merchant line would not contradict the current efforts of the Commission towards limiting customer foreclosure so long as the exporter is not dominant in the destination market as well. In case, the long term supply contracts would be with the producer's own local distribution subsidiary, EC Competition law would not apply as it does not apply to intra-firm dealings. As a result, allowing merchant lines for the dominant generators able to invest in

large scale investment technologies is a way to mitigate the potentially perverse effects of the current EC policy on long-term supply contracts and customer foreclosure that may otherwise deter such needed base load investments. As in the field of innovation where policy tries to fine tune the interface of antitrust and IP law (Katz and Shelanski, 2006), we advocate here an increase in the integration of competition tools and an aggregate analysis of its effects to better leverage its own action. At last, we must note that merchant lines promoted by dominant firms retains the usual positive effects of any new increase in network capacities, especially on security of supply, competition for the development of the network and its efficiency-enhancing aspects, and ultimately on the political goal of a deeper integration of the European single market.

C. The fine tuning of regulation and regulatory power allocation

As shown in previous sections, we think that efficiency for individual market players and efficiency for society rejoin much more than competition authorities tend to think in the case of merchant lines developed by dominant producers. However, we do not argue in favor of a complete *laissez-faire* with no *ex ante* regulation or antitrust enforcement whatsoever. To the contrary, we think that regulation must be tailored to this specific case and that the required tools for this specific regulation are already in place.

The key conditions for allowing dominant firms to sponsor merchant lines are to impose systematic use-it-or-lose-it (UIOLI) principles and no exemptions on the reverse flows. Indeed, a first objective must be to enforce an effective UIOLI regulation which would mitigate the potential retention of transmission capacity in case the generator owner of that line has always not the cheapest one in his native areas. The key regulatory target must be here to ensure transparency, which means in this context ensuring both a reliable and timely access to information for potential users on the available capacity at different time horizons and use efficient means to fight abuses of dominance. Enforcement is as important as the monitoring of transparency. In the context of an open season, we propose to rely on the current market share threshold used in antitrust analysis to ensure predictability. As a result, a capacity cap of 80% on the dominant firm could be implemented. As in VPP, the regulators could impose different durations (e.g. up to 3 years) for the remaining 20% so as to accommodate the smaller players' needs. A UIOLI principle would still be imposed on the dominant operator after an open season. To analyze the very remote possibilities of customer foreclosure, the regulatory authorities in charge of the exemption should consider that the exemption will never be granted if the market shares of the supplier amount to more than 30% in the destination market. We mitigate that way the risk of abuse of market power for a firm vertically integrated across borders.

The second condition is to refuse TPA exemptions on

reverse flows. The objective here is to force the dominant operator to bear the full commercial risk and optimize the benefit for the society in case price differentials reverse. This is also an efficient way to mitigate potential abuse of market power. In case of an association of collectively dominant producers in the same home market, this principle must also be enforced as opportunities for collusion are higher (Joskow-Tirole, 2000). Last, if the joint owners of the capacity are generators dominant on both sides, the UIOLI principle will be the key condition to implement.

A last pitfall remains concerning the Regulation. Indeed, the application of the sixth criterion of the EU Regulation 1228/2003 is necessary since they prevent transmission investment with negative externalities. Indeed, transmission investment can potentially generate negative externalities and then be detrimental to the whole power system (Bushnell and Stoft, 1996). However, the application of this criterion is tricky as TSOs are the only ones to have expertise to measure negative effects of any transmission investments. Since this measure consists for the TSOs in evaluating competitors in transmission building, they may have obviously a conflict of interest (see the case of the merchant line Murraylink in Australia treated by Littlechild in 2003). The regulator and more precisely the ACER will then have to be careful about this sixth criterion, and asks for a complementary independent evaluation of these negative effects at the European level as a whole.

To enforce these rules, the European Union should recognize the strength and weaknesses of the current allocation of its regulatory powers. It must indeed be emphasized that the potential difficulties of getting exemptions by two or more national regulators, with potentially different agendas, cannot be bypassed in the current context. ACER might improve the situation at the margin but the setting up of a true energy regulator seems remote. However, the current strength of the EU regulatory regime is the unified power of the European Commission to enforce the EC Treaty rules on competition, especially Art 81 EC, Art 82 EC and the Merger Regulation in our case. We also notice the important, though embryonic, development in EC competition law which is the on-going efforts to develop a “US style” sort of private enforcement as opposed to the public enforcement traditionally used in Europe (Georgiev, 2007). Indeed, private enforcement of antitrust rules by third parties is the dominant model in US antitrust. Under that enforcement regime, third parties attack themselves a concerted practice like a contract or an alleged abuse of a dominant position before the court or competition authorities. To the contrary in Europe, this is the competition authority which initiates the proceeding. The US model has obvious advantages as third parties often hold better information than competition authorities about market specificity and it also saves some of the scarce resources of competition authorities as it limits the needs for market monitoring. This is even truer in energy where the impacts of anti-competitive practices on competitive dynamics in a context of market building are much

of a black box (De Hauteclocque, 2008).

An efficient regulatory framework for merchant lines should be based on two pillars which would better take into account the respective strength of the different entities in charge of the regulation of European energy markets. The first pillar should be the *ex ante* monitoring of transparency requirements by the national regulators. The creation of ACER will facilitate the setting up of common standards and processes to better monitor the data provided by the dominant operator of a merchant line. The second pillar would be based on the antitrust powers of the European Commission to fight abuses of a dominant position on the basis of the ‘essential facility’ doctrine. Infringement of EC competition law would probably be qualified as a refusal to deal or excessive prices. To date, national competition authorities do not have jurisdiction on cross-border issues and their deterrence effect is also not as strong as the one of the Commission. The EC can indeed impose fines up to 10% of a company’s total revenues. Besides, its position has been much reinforced in the European regulatory landscape since the upheld of its decision by the ECJ in the *Microsoft* case. The disappointing results of the discussions on the third legislative package indeed tend to show that large-scale improvements of competition may for a while mostly be expected through EC antitrust enforcement and the bargaining power which the Commission leverages from the EC Treaty. In addition, the ‘essential facility’ doctrine is well enshrined in European law as has been shown in the recent *Deutsch Telekom* case.²⁸ Contrary to the US where, following the *Trinko* case, antitrust authorities have seen their power to enforce third party access much limited to the profit of *ex ante* regulatory authorities, we can bypass the gaps of the European regulatory framework by relying on the European Commission antitrust powers. Allocating transparency monitoring to national regulators and ACER would also provide more reliable proofs to ground an infringement of EC competition law in case of a proceeding.

Of course, all problems are not ruled out as the application of EC Competition law to energy interconnectors remains a new area with its grey zones (Talus and Wälde, 2006). The definition of the relevant market for instance might be problematic. However, following the definition of the relevant market in past case law, it seems that a merchant line should have to be considered as an independent market by itself (see the approach taken by the Commission for the UK-French submarine interconnector for instance). This would facilitate the assessment of dominance or collective dominance. Usually, the definition of the relevant market tends to be affected by differences in the regulatory framework²⁹. To the extent that regulated and unregulated lines are not subject to the same regulatory framework, this tends to reinforce the fact that merchant lines would be assessed as a separate market. A related problem would be the choice of the Commission to

²⁸ Case T-271/03, *Deutsch Telekom v Commission*, 10 April 2008, not yet published.

²⁹ Case T-87/05, *EDP v. Commission*, 21 September 2005, not yet published.

proceed under Art 81 EC, Art 82 EC or the Merger Regulation in case of full-function joint-venture. The different case law, procedural standards and the uneven state of modernization of the different provisions on competition could appear to be a problem for legal certainty even if the modernization of Art 82 EC is very much going forward (EAGC Report, 2005; DG Comp, 2005; Lowe, 2005).

The strict imposition of UIOLI and no TPA exemption on reverse flows, coupled with a smart allocation of regulatory powers taking account of the legal constraints of national and European law, is to our mind the best way to go forward with the development of the network. This would have the advantage to limit the potential risk of type II errors and would limit regulation costs. Indeed, conditions (a) and (f) of Art 7(1) could in theory be removed, limiting the level of discretion which national regulatory authorities currently enjoy. This would increase both predictability and accuracy of regulation.

VI. CONCLUSION

A new model for the regulation of merchant lines in Europe should take into account the opportunities brought up by the changes in both the energy mix and the evolution of competition tools. Departing from a radical suspicion against former incumbents and an unrealistic search of the first best, the European Union should now clearly allow merchant lines by dominant generators and implement an enforcement regime based on a clear demarcation between transparency monitoring by national regulators with the help of ACER and antitrust enforcement by the European Commission. The second best that we propose would decrease the magnitude of error costs by national regulatory authority and by limiting the discretion of national regulators would limit regulation costs. Having a more integrated approach of competition policy to leverage the complementarities between the future ACER and the antitrust power of the European Commission is to our mind the best way to bring a new impetus to infrastructure investment in Europe.

REFERENCES

- [1] Bugten T., 2004. Investment Planning in practice: NorNed. European Transmission Investment Conference, Copenhagen, Denmark, 18-19 octobre
- [2] Bushnell, J., Stoft, S., 1996. Electric grid investment under a contract network regime. *Journal of Regulatory Economics*, 10(1), Juillet, 61-79
- [3] Brunekreeft G., 2004. Market-based investment in electricity transmission networks: controllable flow. *Utilities Policy*, 12 (4), 269-281
- [4] Brunekreeft G., 2005a. Regulatory issues in merchant transmission investment. *Utilities Policy*, 13 (1), 175-186
- [5] Brunekreeft G., 2005b. New developments in the Electricity Markets in Germany and the Netherlands. *Electricity Policy Forum Spring Research Seminar*. Cambridge. 6th may.
- [6] Brunekreeft G., Neuhoff K., Newbery D., 2005. Electricity Transmission: An overview of the current debate. *Utilities Policy*, 13(2), 73-93
- [7] Brunekreeft G., Newbery D., 2006. Should merchant transmission investment be subject to a must-offer provision? *Journal of Regulatory Economics*, 30 (6), 233-260
- [8] Cameron, 2007. *Competition in Energy Markets*. Law and Regulation in the European Union (OUP, 2nd ed., 2007).
- [9] Carruth, A., Dickerson A, Henley A., 2000. What do We Know About Investment Under Uncertainty? *Journal of Economic Surveys*, 14 (2), April, 119-154
- [10] Christiansen and Kerber, 2006. Competition Policy with Optimally Differentiated Rules Instead of 'Per Se Rules vs Rule of Reason. *Journal of Competition Law and Economics* 2(2)
- [11] Coen and H eritier, 2005. *Redefining Regulatory Regimes: Utilities in Europe*. Cheltenham, UK: Edward Elgar.
- [12] Costello K., 2001. Interregional Coordination versus RTO Mergers: A Cost-Benefit Perspective. *The Electricity Journal*, 14(2), 13-24
- [13] De Hauteclocque A., 2008. Legal Uncertainty and Competition Policy in Deregulated Network Industries: The Case of Long-term Vertical Contracts in the EU Electricity Markets. Working paper LARSEN
- [14] De Jong H., Knops H., Hakvoort R., 2006. Merchant Transmission Investment in Europe. Opportunities for private initiatives in a regulated market segment. 9th European IAEE Conference. Florence
- [15] De Vries and Hakvoort, 2002. An Economic Assessment of Congestion Management Methods for Electricity Transmission Networks. *Journal of Network Industries* 3(4): 425-466
- [16] DG Competition (DGComp), 2005. Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses. December
- [17] DG Competition (DGComp), 2007. DG Competition report on energy sector inquiry, SEC(2006)1724, 10th January, available on http://ec.europa.eu/comm/competition/sectors/energy/inquiry/full_report_part_1.pdfEAGCP, 2005. An Economic Approach to Article 82. Report. July
- [18] Evans, D.S., Padilla, A.J. 2005. Excessive Prices: Using Economics to Define Administrable Legal Rules. *Journal of Competition Law and Economics*, 1(1), 97-122.
- [19] Gans J.S., King S.P., 2003. Access holidays for network infrastructure investment. *Agenda*, 10 (2), 163-178
- [20] Gans J.S., King S.P., 2004. Access Holidays and the Timing of Infrastructure Investment. *Economic Record*, 80 (248), mars, 89-100
- [21] Hogan W., 1992. Contract networks for electric power transmission. *Journal of Regulatory Economics*, 4(3), 211-242
- [22] Hogan W., 2002. Financial Transmission Incentives: Applications Beyond Hedging. May, www.ksg.harvard.edu
- [23] Joskow P., 2006a. Incentive regulation in theory and practice: electricity distribution and transmission network, janvier, disponible sur http://econ-www.mit.edu/faculty/?prof_id=pjoskow&type=paper
- [24] Joskow P., 2006b. Patterns of transmission investment. in L ev eque F. (ed.), *Competitive Electricity Markets and Sustainability*. Edward Elgar, 131-186
- [25] Joskow P., Tirole J., 2000. Transmission Rights and Market Power on Electric Power Networks. *RAND Journal of Economics* 31: 450-487
- [26] Joskow P., Tirole J., 2005. Merchant Transmission Investment. *Journal of Industrial Economics* 53(2), 233-264
- [27] Knops, De Jong, 2007. Merchant Interconnectors in the European Electricity System, Working Paper.
- [28] K uhne G., 2006. Long-term Gas Contracts in Germany: an Assessment of the German Competition Authority. *Energy Law Report*
- [29] Littlechild S., 2003. Transmission regulation, merchant investment and experience in the Australian National Electricity Market. CMI working paper, available on www.electrictypolicy.org.uk/pubs/misc/littlechildtransmission.pdf
- [30] Littlechild S., 2004. Regulated and merchant interconnectors in Australia: SNI and Murraylink revisited. CMI working paper, available on www.econ.cam.ac.uk/eprg/pubs/index.html?year=2004
- [31] Lowe, 2004. DG Competition's Review of the Policy on Abuse of Dominance, in Hawk (ed.), *International Antitrust and Policy: Annual Proceedings of the Fordham Corporate Law Institute 2003*, (Juris Publishing, New York), 163.
- [32] P erez-Arriaga I. J., Rubio F. J., Puerta J. F., Arceluz J., Marin J., 1995. Marginal Pricing of Transmission Services: an analysis of cost recovery. *IEEE Trans. on Power Systems*. 10(1), 546-553
- [33] Pollitt M., 2007. The arguments for and against ownership unbundling of energy transmission networks. August. Working paper EPRG.
- [34] Roques F., Newbery D., Nuttall W., 2006. Fuel mix diversification incentives in liberalised electricity markets: a Mean-Variance Portfolio Theory Approach. March. Working paper EPRG

- [35] Sauma E., Oren S., 2007. Do Generation Firms in Restructured Electricity Markets Have Incentives to Support Socially-Efficient Transmission Investments?, Available on www.pserc.org
- [36] Katz and Shelanski. Mergers and Innovation, Antitrust Law Journal, Winter 2006.
- [37] Talus and Wälde, 2006. Electricity Interconnectors: a Serious Challenge for EC Competition Law. Competition and Regulation in Network Industries 1(3)
- [38] Van der Vijver T., 2008. Exemptions to third party access for new infrastructures in the European Community gas sector - the exception that defies the rule?, European Competition Law Review
- [39] Vandezande L., Meeus L., Belmans R., 2007. Estlink: A First of Many Merchant Transmission Investments in Europe? Transmission & Distribution Europe 2007, Prague, Czech Republic, 6-8th March