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Reforming TSOs: Using the 'Third Package' Legislation to Promote Efficiency and Accelerate Regional Integration in EU Wholesale Power Markets

The EU is developing new legislation – the so-called “Third Package” – to foster competition in its electric power markets. These proposals could be improved by adding more focus on regional integration of wholesale power markets, allowing more leeway for arrangements that fit the diverse existing patterns of transmission ownership and control, and addressing upfront new regulatory concerns that arise when transmission is divested as an independent, for-profit business.

Boaz Moselle

I. Introduction

For over a decade the Europe Union (EU) has been working towards liberalizing its electric power and natural gas markets, long dominated by national incumbent monopolies. Previous rounds of EU-level legislation,¹ starting in the mid-1990s, have

required utilities to give open access to their transmission and distribution networks, with the aim of establishing a level playing field for owners of generation to compete in supplying energy at wholesale level, and for retailers to compete in selling energy to consumers. While the legislation focused initially on large

consumers, all consumers in the EU—including households—now have the right in principle to choose their supplier.

In practice, however, liberalization has met with many obstacles. While a few EU member states, such as the United Kingdom and the Scandinavian countries, have developed effective and mature competition at both wholesale and retail markets, the general picture shows very limited progress. Most markets remain national in scope and dominated by the incumbent utilities. This pessimistic appraisal was confirmed by an extensive inquiry carried out by the EU's competition authority, the European Commission's Directorate General for Competition (DG Competition), in 2005-07, the so-called "Energy Sector Inquiry."²

The Sector Inquiry's findings focused heavily on the issue of vertical integration between transmission businesses and their generation or retail supply affiliates.^{3,4} It argued that vertically integrated utilities have restricted their competitors' ability to access consumers on equal terms, both through operational means (e.g., in setting rules and prices for balancing power) and through systematic under-investment in transmission infrastructure. It singled out the problem of vertical integration as a fundamental cause of the continued high levels of market concentration, and the weak and uneven development of competition.

II. The "Third Package"

To address the problems identified by the Inquiry, the EU is now considering a third set of legislative proposals, which are expected to be finalized this year.⁵ At the core of this "Third Package" is a set of measures designed to ensure that the operation and development of transmission networks is made independent of incumbent

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interests. The initial drafts of the legislation aimed to achieve this through structural measures, with a requirement that vertically integrated utilities either divest their transmission assets ("ownership unbundling") or give control to an independent system operator (ISO) that would take charge of not only operations but also investment planning. Political opposition from key member states such as France and Germany has led to some watering down, and a consensus has now been achieved among the EU members that would allow each country to choose whether it imposes these structural

measures, or settles for a less radical approach that would rely on strict behavioral measures aimed at ensuring the independence of transmission so as to prevent discrimination in favor of affiliates.

The Third Package also contains additional measures aimed at furthering integration of national markets. This integration is an aim in itself (since a fundamental goal of the EU is the creation of EU-wide markets), but it is also widely viewed as providing a solution to high levels of concentration in national markets. Drawing in part on experience in telecoms, EU policymakers expect that former national utilities will develop into pan-European companies that act as entrants in each other's traditional "home territory" and so develop genuine competition. The measures include provisions for an EU-level regulatory agency, the Agency for Cooperation of Energy Regulators (ACER), albeit with rather limited powers, along with requirements on transmission system operators (TSOs) to cooperate at the regional and EU levels so as to harmonize operational procedures and coordinate investment planning.

The current draft of the Third Package remains subject to approval by the European Parliament, but is generally expected to be approved in its current form by the end of 2008. While the watering down of the requirements concerning divestiture makes the final

outcome less radical than initially proposed, the legislation will nonetheless lead to significant changes in the workings of EU energy markets. Within a few years one can expect to see significantly greater independence of transmission networks, through the application of the new legislation and also because of actions being undertaken in parallel by DG Competition, which is investigating a series of alleged breaches of competition law by major EU utilities. In two cases already, DG Competition has reached settlements that required the company to divest its transmission arm (E.ON in electricity and RWE in natural gas).⁶

III. Three Open Issues

There has been a very extensive debate concerning the merits or otherwise of the Third Package, focusing in particular on the issue of ownership unbundling. At the time of writing, however, that debate continued to be somewhat historical in nature. This article focuses instead on specific aspects of the proposals that are still open to debate, and should be of interest to electric utilities, regulators, and policymakers around the world as they consider the design of institutions for market regulation and investment planning in liberalized power markets.

1. **Regional integration.** Will the current proposals for integrating national markets into larger

regional wholesale power markets, which rely largely on voluntary cooperation, prove adequate to the task?

2. **The ISO/TSO model.** One interesting model for the EU is the system currently in place in Great Britain, where National Grid, which has no generation or supply interests, owns the transmission system in England and Wales but acts as system operator for all of Great Britain,

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including therefore the transmission systems in Scotland, which belong to two vertically integrated utilities. Should the Third Package facilitate such arrangements?

3. **Regulating “pure play” TSOs.** New issues arise in regulating pure play TSOs, who face a “conflict of interest” between their roles as transmission owner and as system operator. For example, it may be profitable to delay investing in system expansions, even if this causes congestion, because the congestion costs can be passed through to system users while the savings from delayed investment go to the

TSO’s bottom line. Does the Third Package adequately address these issues?

Below I address these three issues, and propose some changes to the current proposals that would help to address them. Non-EU readers should note that the proposals are unavoidably high-level because the process of implementing the Third Package involves an EU-level legal instrument (a Directive) that will require each member state to legislate at the national level so as to achieve results that are specified in the Directive (e.g., ownership unbundling), but that does not dictate the means of achieving that result. My proposals would be implemented through amendments to the current draft Directives.⁷

Problem 1: Incentives for Regional Integration

As the Sector Inquiry noted, Europe’s power markets have historically been almost exclusively national in scope. Prior to liberalization, cross-border trading was limited in scope, and occurred within a rigid framework of inter-utility agreements. Integrating these national markets into larger regional ones will therefore require extensive cooperation among TSOs both at the operational level and with regard to investment planning. At the operational level, TSOs must work to harmonize procedures (e.g., “gate closure,” balancing rules), rules for calculating capacities (linked in turn to harmonizing network codes), and

capacity allocation mechanisms. Coordinated investment planning is essential for the development of a network that will support a truly regional market.

Efforts to further regional integration of EU power markets predate the Third Package, with a patchwork of initiatives developed since around 2003 in different parts of Europe.⁸ However, these initiatives are all essentially voluntary at present and generally progress has been slow, albeit with a few exceptions (the Nordpool market that brings together the Scandinavian countries, and the more recent developments around the Benelux region, with the so-called “Trilateral Market Coupling” among Belgium, France, and the Netherlands). With regards to investment planning, by far the most advanced example of regional cooperation in Europe involves the Nordic region.

Proponents of the Third Package argue that it will foster regional integration by addressing the artificial barriers to cross-border trade erected by vertically integrated TSOs. However, progress in regional integration cannot be taken for granted even in a world where TSOs face no distortions arising from vertical integration. Participation in effective regional structures implies a ceding of control by a national TSO over major aspects of system operation and planning, and will not therefore be automatically appealing to the TSO, particularly

if it fears that the regional arrangements will be dominated by larger TSOs. There may also be political pressure on TSOs to maintain control, out of concern that dispatch should favor national interests (e.g., by “exporting congestion to the border”) or that the regional arrangements might endanger security of supply.

The Third Package therefore needs to include strong

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provisions to foster regional integration. However, the regional dimension of the Commission’s original proposal is very weak. It provides little leverage for national regulators or the Commission acting at the regional level, because it very largely relies on voluntary efforts by TSOs.

Experience to date illustrates the weakness of voluntary approaches to inter-TSO cooperation in Europe (as elsewhere). Even the arrangements around Nordpool, which is by far the most advanced regional market in Europe and in many respects clearly successful,

appear to suffer from the absence of legally binding arrangements. One critic, the Norwegian TSO Statnett, recently stated that “[w]e have been and remain concerned to see a more binding collaboration taking shape, as the current form of collaboration within Nordel [the voluntary association of Nordic TSOs that coordinates their regional activities] is not sufficiently robust. It is also extremely time-consuming.” Most recently, a statement issued by many of the largest utilities active in the region claimed that “[i]nvestment planning is presently made primarily from national perspectives despite the fact that investments in one country often have significant implications for the neighboring countries.”

The problems surrounding Nordpool are by no means unique—other mechanisms and institutions for developing regional markets in Europe confirm the inherent difficulty of relying on voluntary arrangements. For example development of the Inter-TSO Compensation (ITC) mechanism, a set of rules designed to compensate national TSOs for the costs incurred in hosting transit flows, has been painfully slow. Similarly, attempts by national energy regulators acting at regional level to promote integration (the “Regional Markets Initiative”), though laudable, have often made only slow progress because the regulators lack powers to force cooperation.⁹

The current draft of the Third Package Electricity Directive strengthens the regional dimension of the original package somewhat, with requirements that:

- All TSOs should have “one or more integrated system(s) at regional level covering several Member States for capacity allocation and for checking the security of the network.”¹⁰
- National regulators should give network operators and users “incentives, in both the short and the long term, to... foster market integration.”¹¹

However, overall these provisions remain weak. In particular they provide no obligation on TSOs to take part in self-standing institutional structures at the regional level, even if based purely on voluntary cooperation along the lines of Nordel. While regulators have an obligation—as noted above—to incentivize market integration, the nature of these incentives is vague. A further weakness is the absence of any meaningful provisions for regulatory oversight at the regional level.

The current proposals therefore do not provide the obligations and incentives on TSOs needed to overcome barriers to operational harmonization and market integration. Without changes to the proposals, it is unlikely that regional integration will proceed at an appropriate pace. In particular, regional planning would in practice continue to be done on a largely voluntary basis.¹² Experience in other

systems (Nordpool, parts of the U.S.) indicates that this is unlikely to lead to the necessary investments.¹³

Problem 2: The ISO/TSO Model

A second problem with the Third Package is that it would rule out arrangements currently in place in part of the EU, that appear to provide a reasonably satisfactory solution to the problem of vertical integration. In

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Great Britain a non-vertically integrated transmission company (National Grid) acts as TSO for the entire system, including acting as ISO for the Scottish system, which remains in the ownership of the vertically integrated Scottish utilities (Scottish & Southern, Scottish Power¹⁴). Of course, one cannot extrapolate blindly from British experience: Great Britain is a geographically isolated power system, with its own distinct history. Nonetheless, this “British model” might, with appropriate modifications, be an attractive future outcome for a number of Member States and regions. It has clear advantages, notably that:

- The regulator can compare costs across multiple transmission owners, leaving the potential for an element of “yardstick competition.”

- The ISO is a “real” company: commercially minded, for-profit. It also has enough of a balance sheet that it can be given aggressive incentives to perform.

Most importantly, this model may be the best and easiest way to achieve regional integration. Indeed it was introduced in Great Britain as the easiest way to integrate the previously separate Scottish market into a single British power market. It is easy to imagine its application in other parts of Europe. In Europe’s largest power market, Germany, there are currently four TSOs. As mentioned above, one of them will in the future be divested by its owner E.ON to settle a competition complaint, and under the terms of the proposed settlement its new owner must not have links to generation or supply. It would therefore be a natural candidate to become an ISO for the entire German transmission system, just like National Grid in Great Britain.

However, provisions in the current draft legislation appear to rule out the GB arrangement.¹⁵ The intention behind the drafting may be to make ownership unbundling more attractive, by removing the GB arrangement as a comfortable alternative. However the effect may be to remove an effective tool for regional integration, that is

consistent with “facts on the ground” in parts of Europe (Spain being another) where multiple companies own the transmission grid.

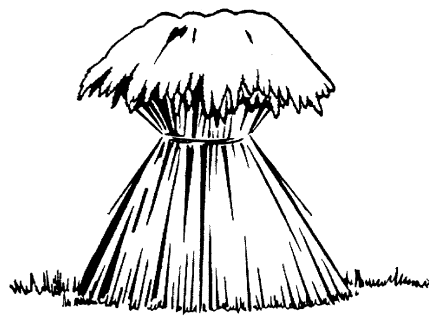
Problem 3: Oversight of “Unbundled” TSOs

The Third Package is heavily focused on addressing problems of discrimination by vertically integrated TSOs, at the operational and investment levels. However, there are other issues around TSO behavior that are of potential concern and that may become more acute as a result of unbundling. This is not to say that unbundling should not happen, just that it is important to be ready to address the consequences, including any negative ones.

These largely focus on potential conflicts of interest within the TSO.¹⁶ The TSO has twin roles as system operator (SO) and transmission owner (TO), and in many circumstances it is possible for the TSO to increase its profits by shifting costs between SO and TO. For example, the SO may allow for inefficiently high levels of transmission constraints, interruptions, and so on, so as to reduce its capital expenditure. Or it may plan maintenance activities to minimize its operational costs, while disregarding total system (i.e., redispatching) costs, if it can increase its profits by doing so.

Problems of this kind have already arisen in EU states that have created

“unbundled” investor-owned TSOs.¹⁷ They have been discussed extensively in Spain, where the TSO Red Eléctrica de España (REE) has sometimes been accused of operating the system to the detriment of system users, so as to maximize profits. A comprehensive review of the Spanish electric power market and regulatory



framework in 2005 noted that:¹⁸

... frequently this organizational model [i.e., the for-profit unbundled TSO] can give rise to conflicts of interest between the system operator activity and the transport activity... [for example], the system operator can carry out maintenance on its network at a time that is more economical from the point of the transporter, but not for the overall system; or it can discriminate in its planning in favor of its own assets and against other transporters' assets [in situations where there are multiple owners of transmission assets]; or it may inappropriately give preference to taking power transmission lines out of service so as to carry out work on an associated optical fibre network.

In principle, such problems can be addressed through a combination of rules and appropriately designed incentives. For example, in Great Britain the regulator has implemented incentive schemes that reward the TSO for keeping down the costs of managing transmission constraints: in the first three years of operation those costs fell by over £100 million.¹⁹ It also approved a rule change that requires the TSO to pay compensation to generators who are disconnected from the network because of a transmission outage, with the aim of “plac[ing] an incentive on NGC to invest more in the transmission system to avoid faults and carry out necessary maintenance and rectify faults more quickly.”²⁰

An approach based on rules and incentives can certainly be effective, provided that—as in Great Britain—there is an independent, well-resourced, and sophisticated regulator, and a transparent system of regulation and code governance.²¹ However the level of maturity of regulators and regulatory systems varies significantly across the EU. At present it is simply unrealistic to think that all the EU's Member States can implement solutions that require strong, independent, and sophisticated regulation. To the contrary, in large parts of Europe market players cannot be confident for some years to come that the regulator will be able to resolve these problems without additional support or intervention.

IV. Solutions

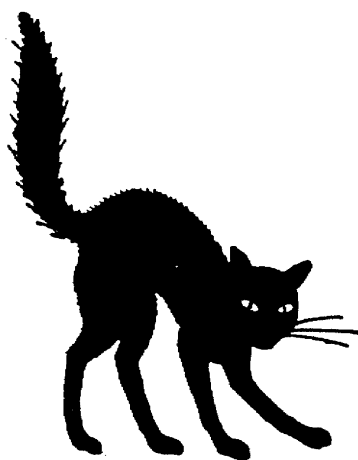
The three problems described above can be addressed through changes to the existing draft legislation, aimed at securing a regulatory framework that:

- Provides TSOs with effective incentives to actively pursue regional integration, through the establishment of regional transmission operators whose scope would grow over time (beginning with short-term operational issues and gradually extending to cover longer-term issues, notably regional investment planning);
- Allows for multiple ownership of transmission networks, under a single system operator at the national or (preferably) regional level;
- Creates the necessary regulations and incentives, harmonized and with regulatory oversight at the regional level, to adequately address the conflict-of-interest problems within an integrated transmission owner and system operator.

A. Financial incentives for regional integration

As noted above, it cannot be assumed that all TSOs will be enthusiastic participants in regional integration. Some TSOs may have incentives to prevent or delay measures aimed at promoting integration. I therefore propose that the current proposals be strengthened by specifying that regulators should give TSOs incentives to participate in regional

transmission organizations (RTOs). The legislation should specify at high level the scope of an RTO, to include initially such functions as dispatching, capacity allocation, and short-term security, and extending over time to cover longer-term functions, including the production of binding regional transmission plans.



The incentives would be financial in nature, and they would need to be of appropriate magnitude to ensure that TSOs participate quickly and fully. The U.S. provides a useful precedent, since the success of RTOs follows in part from the decision by the Federal Energy Regulatory Commission to allow significant financial rewards for joining an RTO.

Given the purpose of these incentives, it would clearly be appropriate for them to be harmonized at the regional level. I therefore propose that these incentive schemes should be designed in a collaborative process among all regulators within a region, and be subject to

approval by the Agency for the Cooperation of Energy Regulators (ACER, described briefly in Section I). Provisions for regional cooperation between regulators should be strengthened so as to give an appropriate interface at regional level between market players and regulatory authorities.

The legislation should also include a strong element of oversight of TSOs' regional planning. Regulators should be given as strong powers as possible to require regional coordination of planning, and to allow for the transfer of revenues between TSOs where necessary to avoid the creation of "winners and losers" from investments that would have significant benefits for a region as a whole. Regulatory "push" will be of particular importance for state-owned TSOs that may be less influenced by financial incentives, and need to receive a clear political signal to focus on regional integration.

Work should begin as soon as possible to create these regional institutions. Even in embryonic form they can usefully contribute to regional integration, through accelerating progress on issues such as the harmonization of congestion management and capacity calculation procedures.

B. Allowing multiple transmission owners

It is a simple matter to ensure that the final drafting of the Directive allows for the continued

presence of multiple transmission owners within a single Member State. As noted above, such a change would have significant advantages in adapting the legislation to match “facts on the ground” and avoid unnecessary and unintended changes to well-functioning systems such as the current British arrangement.

C. Stronger regulatory supervision of TSOs

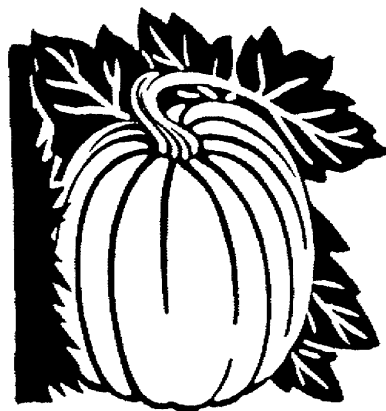
As discussed above, independent TSOs will require regulatory supervision to avoid new issues arising from conflicts of interest, and in many cases it is unrealistic to expect national regulators to effectively address these concerns. Moreover, a purely national approach to the design of incentives for TSOs risks creating a patchwork of different national schemes, with cross-border differences that could create barriers to regional integration.

I therefore propose that the draft legislation be enhanced to put duties on national regulators to supervise TSOs, and that these provisions be harmonized at the regional level, to avoid inconsistencies that might become a barrier to regional integration. Moreover, such provisions will only be useful if effectively implemented and enforced by the national regulator. At present there is a real risk of poor implementation and/or weak enforcement, since in some Member States the regulator suffers from lack of

independence, under-resourcing, inexperience, and other problems. Effective supervision by regulators acting at regional level within ACER would also address the problem of weak national regulators.

The draft legislation should therefore be altered so that:

- Regulators have an explicit objective to “control for any con-



flicts of interest arising from its ownership of transmission assets that may distort a TSO’s operation of the transmission system.”

- They are also required to set up incentive schemes that remove distortions arising from that conflict of interest, in particular (but not only) by ensuring the TSO has some exposure to congestion management costs.

• As with the incentives for regional integration, ACER should have oversight over these incentives, with a duty to assess their adequacy and consistency. There should be appropriate regional structures within ACER to ensure that regulators are able to exercise this oversight effectively. ■

Endnotes:

1. Directives 96/92/EC (electricity, 1996), 98/30/EC (gas, 1998), 2003/54/EC (electricity, 2003), and 2003/55/EC (gas, 2003).
2. The Web site of DG Competition provides the final report and other information on this inquiry. See <http://ec.europa.eu/comm/competition/sectors/energy/inquiry/index.html>.
3. Note that in Europe, discussions about “vertical integration” focus almost exclusively on integration between networks (transmission and distribution) on the other hand, and potentially competitive business (generation and retail) on the other hand. There has been little discussion concerning the desirability of requiring separation of generation from retail.
4. For a summary of the findings, see Inquiry Pursuant to Article 17 of Regulation (EC) No 1/2003 into the European Gas and Electricity Sectors (Final Report), COM(2006) 851 final, Brussels, Oct. 1, 2007, at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0851:FIN:EN:PDF>. I focus here on the findings concerning electricity markets. The Inquiry’s conclusions concerning natural gas markets were generally similar.
5. See the Commission Web site at http://ec.europa.eu/energy/electricity/package_2007/index_en.htm for initial drafts of the legislation, as well as additional documentation and links.
6. See DG Comp MEMO/08/396 (Dec. 6, 2008) for the E.ON case, and MEMO/08/355 (31/05/2008) for the RWE case.
7. Some aspects of the Third Package involve a different legal instrument (“Regulations”), which has immediate effect without requiring national legislation. However the core elements of the Package are in the proposed new Directives.
8. National regulators have collaborated to promote a “regional markets initiative” aimed at fostering regional integration. For extensive documentation see <http://www>.

energy-regulators.eu/portal/page/portal/eer_home/eer_initiatives and links therein.

9. See http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_INITIATIVES/ERI.

10. Draft Art. 5a(2). See also draft Art. 12b(2).

11. Draft Art. 22b(f).

12. Even if the legislation puts certain obligations on the TSOs with regards to investment (draft Art. 12g), these provisions are untested and may be difficult to put into practice, particularly at cross-border level.

13. For a factual description of transmission planning arrangements in Nordpool, the U.S. and other markets, see The Brattle Group, *International Review of Transmission Planning*, Oct. 2007, a report for the Australian Energy Market Commission, available at <http://www.aemc.gov.au/pdfs/reviews/National%20Transmission%20Planner/brattle.pdf>.

14. Scottish Power is a subsidiary of Spanish utility Iberdrola.

15. The proposed Art. 8(1)(a) would rule out the GB arrangement because it requires that "each undertaking which owns a transmission system acts as a transmission system operator". Art. 8(5), whereby the obligation on each transmission owner to act as a TSO "is deemed to be fulfilled in a situation where several undertakings which own transmission systems have created a joint venture which acts as a transmission system operator in several Member States for the transmission systems concerned," provides no protection because the GB arrangement does not cover "several Member States" (nor is it a joint venture).

16. For more detail on these issues see *Regulating Unbundled TSOs: Rules, Incentives or an ISO?* The Brattle Group, Nov. 2007 (distributed by Eurelectric, 2008) and available at http://www.brattle.com/_documents/uploadlibrary/upload688.pdf, and *Comparing*

Electricity Transmission Arrangements, Lévêque, Glachant *et al.*, June 2008.

17. Some EU states have opted for state-owned unbundled TSOs (e.g., TenneT in the Netherlands).

18. My translation from p.422 of "Libro Blanco sobre la reforma del marco regulatorio de la generación eléctrica en España", José Ignacio Pérez Arriaga, June 30, 2005.

19. See NGC Incentive Schemes from April 2000, Transmission Services Uplift and Reactive Power Uplift, A Decision Document, Offer (Feb. 25, 2000).

20. Ofgem decision letter March 19, 2004, available at <http://www.nationalgrid.com/NR/rdonlyres/14ACD9FA-F3EB-437E-B07C-024056ED79F8/2112/CAP048D.pdf>.

21. See Brattle (2007), *supra* note 13, and (for example) the rules and processes laid out at <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/>.



I thereby propose that the draft legislation be enhanced.