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GAS AND ELECTRICITY MARKETS IN THE EUROPEAN UNION: ASSESSMENT OF THE INDEPENDENT TRANSMISSION OPERATOR MODEL

MERCADOS DE GÁS E ELETRICIDADE NA UNIÃO EUROPEIA: ANÁLISE DO MODELO DO OPERADOR INDEPENDENTE DE SISTEMAS DE TRANSMISSÃO

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ABSTRACT: This paper assesses the independent transmission operator model as designed in the Directives 2009/72/EC and 2009/73/EC, respectively Electricity and Gas Directives. The focus of the paper is to identify its main advantages and disadvantages from a regulatory perspective and also for a transmission system operator applying the model.

KEYWORDS: European Union. Network Industries. Gas and Electricity Markets. Liberalization Policies. Unbundling. Transmission System Operator.

RESUMO: O presente artigo analisa o modelo do operador independente de sistemas de transmissão de gás e eletricidade, previstos nas Diretivas 2009/72/EC e 2009/73/EC. O objetivo da análise é identificar as principais vantagens e desvantagens da adoção do modelo a partir da perspectiva de uma autoridade regulatória e também de um operador de sistema de transmissão aplicando o modelo.

PALAVRAS-CHAVE: União Europeia. Indústrias em Rede. Mercados de Gás e Eletricidade. Liberalização. Desverticalização. Operador de Sistemas de Transmissão.

INTRODUCTION

This paper sets out to examine the independent transmission operator model as designed in the Directives 2009/72/EC and 2009/73/EC, respectively Electricity and Gas Directives. Firstly, unbundling is assessed in the light of the original proposal made by the European Commission (ownership unbundling and independent system operator), as well as regarding the alternative proposal made by Germany and France (independent transmission operator or legal unbundling). Secondly, the independent transmission operator model is described. Thirdly, its main advantages and disadvantages are assessed from a regulatory perspective and also for a transmission system operator applying the model, i.e., a transmission system operator being part of a vertically integrated undertaking. Finally, the conclusion of the paper is drawn.

1 UNBUNDLING

Until the late 1970's the network-bound industries in Europe have been explored entirely by one entity, normally the State or state owned companies[1][2]. The privatization of these companies is normally accompanied by three measures: a) the separation of potentially competitive and noncompetitive activities – also called unbundling, b) the liberalization of the potentially competitive activities, and c) the operation of the network by an undertaking working under strong regulatory measures[3]. In the Electricity and Gas sectors, the upstream and downstream markets – production and supply – are potentially competitive, and the midstream markets – transmission and distribution – are natural monopolies.

Two different legal regimes can be clearly identified[4]. On one side, the legal regime of the potentially competitive activities is really close to free enterprise, and consists of four main rights: a) to enter the market, b) to have access to the network, c) to set prices freely and d) to decide about

1 MAJONE, Giandomenico. From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance. *Journal of Public Policy*, Cambridge, v. 17, n. 2 (May/Aug., 1997), p. 139-167.

2 BALDWIN, Robert; CAVE, Martin; LODGE, Martin. *Understanding Regulation*: theory, strategy, and practice. Oxford: Oxford University Press, 2012. p. 466.

3 ROTHWELL, Geoffrey S.; GÓMEZ, Tomás. *Electricity economics*: regulation and deregulation. Cambridge: MIT Press, 2003. p. 2.

4 GARCÍA-MORATO, L. L. C.; ORTIZ, Gaspar Ariño. *La competencia en sectores regulados*: regulación empresarial y mercado de empresas. Granada: Comares, 2003. p. 15.

investments[5]. The enforcement of these four rights should conduct the market to effective competition and eventually to allocative efficiency[6].

On the other side, due to its natural monopoly characteristics, the grid operation normally retains the predicate of public service, public utility, or service of public interest. In this case the principles of free enterprise are severely mitigated and the regulation shall establish all the conditions under which the grid must be operated, especially quality standards and prices (normally tariffs)[7].

Unbundling is a common tool for opening up network-bound industries for competition. Its main goal is to guarantee a neutral operation of the network, and effective competition in the upstream and downstream markets by avoiding inherent conflicts of interest[8][9][10] between the monopolistic activities and the competitive ones.

It aims at insulating the interests of the network operators from any other interest, in a way that the only incentive it has is to well manage the grid and to profit only from it, "maximizing transport revenues"[11] and "ensuring transparency and nondiscrimination towards all network users"[12].

Conflicts of interest arise naturally where the operator of the network has an economic interest in discriminating against competitors in the upstream or downstream markets.

If the operation of the grid is contaminated by interests of other activities, the grid operator has a natural incentive to discriminate against competitors in the upstream or downstream markets in order to maximize profits of the vertically integrated undertaking – VIU.

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5 ORTIZ, Gaspar Ariño. *Principios de Derecho Publico Económico*: modelo de Estado, gestión pública, regulacion económica. Granada: Comares, 2004, p. 598.

6 Ibid, p. 599.

7 Ibid, p. 603.

8 BERNAERTS, Inge. The third internal market package and its implications for electricity and gas infrastructure in the EU and beyond. In: VINOIS, Jean-Arnold. *EU Energy Law*. v. VIII, Deventer: Claeys & Casteels, 2014. p. 8.

9 TALUS, Kim. *EU Energy Law and Policy*: a critical account. Oxford: Oxford University Press, 2013. p. 77.

10 Electricity Directive, recital 9.

11 TALUS, op. cit., p. 78.

12 BERNAERTS, op. cit., p 8.

According to Talus[13], "a company will strive to maximize group revenue (the management also has this obligation to shareholders)". Because investments in the grid capacity "affect positively the level of competition in both the wholesale and the retail markets"[14], lack of investment in grid capacity is the most important discriminatory measure. But the profit maximization of the VIU could take place also through delays in connecting competitors to the grid, cross-subsidies from the network operation to the competitive activity, margin squeeze, capacity hoarding against competitors of a parent company, and also information flows from the network operator to the parent company operating in a competitive market[15].

When designing the Third Energy Package in order to complete the internal energy market[16], the European Commission considers the ownership unbundling "the most effective tool by which to promote investments in infrastructure in a non-discriminatory way, fair access to the network for new entrants and transparency in the market"[17]. It also proposes a second-best alternative model, the independent system operator. But the original proposal faces strong opposition, particularly from Germany and France[18], and the independent transmission operator model "is put forward by the European Council"[19] and eventually incorporated in the Directives.

Therefore, the Member States may decide to implement one or more of these models: full ownership unbundling (OU), the independent system operator model (ISO) or the independent transmission operator model (ITO).

2 INDEPENDENT TRANSMISSION OPERATOR MODEL

The ITO model allows the vertically integrated undertaking to keep the ownership of the network and, at the same time, to be active in the upstream and/or the downstream market. To avoid conflicts of interest,

13 TALUS, op. cit., p. 78.

14 NARDI, Paolo. *Transmission network unbundling and grid investments*: evidence from the UCTE countries. Utilities Policy 23, London, 2012, pp. 50-58.

15 JOHNSTON, Angus; BLOCK, Guy. EU *Energy Law*. Oxford: Oxford University Press, 2012, p. 21.

16 SCHUBERT, Samuel R.; POLLAKM Johannes; KREUTLER, Maren. *Energy policy of the European Union*. London: Palgrave, 2016, p. 20.

17 BERNAERTS, op. cit., p. 10.

18 TALUS, op. cit., p. 82.

19 Ibid, p. 82.

the Electricity and Gas Directives set up measures to guarantee the operation of the grid is not contaminated by other interests. This model requires detailed regulation and extensive regulatory control mechanisms are put in place. These mechanisms are aimed at ensuring the granting of technical, physical and economic independence to the grid operator. The main elements of the model are organisational measures and measures regarding the governance of the network operator, investments, connections to the grid and integration through regional cooperation.

According to the European Commission[20], effective unbundling and independence of the TSO regarding the operation of the grid is based on a) "a pillar of organizational measures and measures relating to the governance of transmission system operators"; b) "a pillar of measures relating to investment, connecting new production capacities to the network and market integration through regional cooperation"; and c) "'cooling-off' periods during which no management or other relevant activity giving access to the same information as could have been obtained in a managerial position is exercised in the vertically integrated undertaking".

These rules aim to provide a framework "to guarantee fair competition, sufficient investment, access for new market entrants and the integration of electricity markets"[21].

Firstly, the transmission system operator – TSO has to be organised as a legal entity equipped with all human, technical, physical and financial resources deemed necessary for carrying out the electricity transmission activity. There is a prohibition of using the VIU's internal services and the TSO also must have an independent corporate identity from the VIU. Contractual relations with VIU shall comply with market conditions and have to be approved by the regulatory authority. There are also measures related to the independence of the staff and the management of the TSO.

Secondly, the TSO must have both the decision-making procedure and the power to raise money on the capital market independents from the VIU. Investments have to be made following the ten-year network development plan, which is elaborated by the TSO after consulting all actual or potential system users and is examined by the regulatory authority, who

20 European Commission, Commission Decision of of 12.4.2013 pursuant to Article 3(1) of Regulation (EC) No 714/2009 and Article 10(6) of Directive 2009/72/EC – United Kingdom (Northern Ireland) – SONI / NIE. <https://ec.europa.eu/energy/sites/ener/files/documents/2010_01_21_the_unbundling_regime.pdf>. Access on the: 27th January 2017.

21 Ibid.

has the power to require amendments. These measures aim at ensuring independent investment decisions by the TSO.

Thirdly, the TSO must establish and publish transparent and efficient procedures for non-discriminatory connection of new power plants, which shall be approved by the regulatory authority and is aimed at guaranteeing its operational independence.

Fourthly, there is supervision in three stages. The first stage is a compliance programme – established by the TSO and approved by the regulatory authority – in order to prevent discriminatory conduct, which shall be monitored by a compliance officer, appointed by the Supervisory Board and approved by the regulatory authority. The second stage is the Supervisory Board, who is a neutral body and shall be mainly composed of members representing the VIU and members representing third party shareholders. Among other competences, the Supervisory Board shall be responsible for taking decisions which may have a significant impact on the value of the assets of the shareholders within the transmission system operator and also about the amount of dividends distributed to shareholders. The third stage is the control by the regulatory authority.

The normal tasks of the regulatory authority are reinforced in order to keep the TSO under especial and close oversight. In addition to its ordinary duties and powers, the regulatory authority has to approve all commercial and financial agreements between the VIU and the TSO on the condition that they comply with market conditions, as already mentioned. It is even allowed to monitor communications between the transmission system operator and the vertically integrated undertaking so as to ensure compliance of the transmission system operator with its obligations.

3 ADVANTAGES AND DISADVANTAGES

From a regulatory perspective, it is indisputable that the simplest and most effective model to ensure the neutral operation of the grid is the OU model[22][23], which represents a structural solution. Albeit having shortcomings

22 European Commission, Communication from the Commission to the European Council and the European Parliament — An energy policy for Europe SEC(2007) 12. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52007DC0001>. Access on: 27th January 2017.

23 BALDWIN, op. cit., p. 467.

("additional intransparencies and inefficient pricing"[24]), it is considered optimal[25] because it eliminates any incentive for discriminating against competitors[26]. As the undertaking can only profit from the grid, under the OU model its natural interest is to manage the grid at most efficiency, with benefits for all the users. Because of the simplicity of its structure reformulation, it requires only light oversight by the regulatory authority[27].

The OU model is usually contested by the private sector because of supposedly being too much intrusive and "has costs as well as benefits".[28] In the light of these facts, the ITO model, although considered a sub-optimal model[29], appears as an option, even as a "'golden mean' between ownership separation and vertical integration"[30].

The ITO model is an artificial way of ensuring the neutrality of the grid in a situation of inherent conflict of interest. This requires complex regulatory measures and constant oversight by the regulator.

The main advantage of the ITO model, regarding the regulatory authority's point of view, is that it takes a close look at almost every step taken by the ITO – what does not usually happen under the OU model –, reduces the information's asymmetries and guarantees the TSO is kept under strict control. It also pacifies discussions regarding 'expropriation' of assets, which is common under the OU model[31].

It must also be mentioned that, according to Höffler and Kranz[32], the ITO model can provide "better incentives for investments into the

24 BREMBERGER, Christoph; BREMBERGER, Francisca; RAMMERSTORFER, Margarethe. The Impact of Different Unbundling Scenarios on Wholesale Prices in Energy Markets. *Energy Journal*. Cleveland, v. 33, n. 3, p. 183-214, july 2012.

25 LOWE, Philip; PUCINSKAITE, Ingrida; WEBESTER, William; LINDBERG, Paul. *Effective unbundling of energy transmission networks*: lessons from the Energy Sector Inquiry. Competition Policy Newsletter, Number 1, Brussels, Spring, 2007.

26 TALUS, op. cit., p. 80.

27 BERNAERTS, op. cit., p. 10.

28 BALDWUIN, op. cit., p. 467.

29 LOWE, op. cit.

30 HÖFFLER, Felix; KRANZ, Sebastian. Legal unbundling can be a golden mean between vertical integration and ownership separation. *International Journal of Industrial Organization*, Cologne, Volume 29, Issue 5, p. 576-588, september 2011.

31 JANKAUSKAS, Vidmantas. *Implementation of different unbundling options in electricity and gas sectors of the CEE EU member states*. Energetika, Vilnius, n. 1, 2014, p. 44-53.

32 HÖFFLER, op. cit.

reduction of marginal costs and for the allocation of a given budget for capacity investments".

For a TSO applying the ITO model, the greatest advantages are being part of a VIU active in the upstream and/or downstream market, what allows it to benefit from the synergy between the undertakings, and also avoiding the high restructuring costs related to divestiture of assets[33].

Albeit the restrictions regarding the relation with the VIU, the TSO can also take advantage by outsourcing non-finalistic activities and benefit from economies of scale[34], with no interference in the operation of the grid.

The great disadvantage of the ITO model is that, because of the detailed regulation and the complexity of regulatory measures, it requires a "Hercules" regulator, strong[35] in structure and dynamic in day-to-day relations with the undertakings[36].

When assessing the ITO model in practice, the European Commission[37] concluded that

> [...] in general the autonomy requirements for ITOs under the Third Energy Package are applied and work in practice to ensure the autonomy of the ITO vis-à-vis its parent undertaking and other parts of the VIU. This is also supported by the NRAs and ITOs themselves in their written submissions to the inquiry, in which they confirm that they consider the ITO to be sufficiently independent from the VIU.

As excessive oversight is needed in order to ensure the neutrality of the grid, a fragile regulatory authority is not able to carry out the oversight activities described in the Directives and would be prone to have only a formal approach towards unbundling, which would empty

33 HÖFFLER, op. cit.

34 Ibid.

35 Ibid.

36 European Commission, Commission Staff Working Document, Report on the ITO Model, 13 October 2014, SWD(2014) 312 final, p. 4. <https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex3.pdf>. Access on the: 27th january 2017.

37 Ibid., p. 3.

its real meaning. According to Pollitt[38], in the ITO model "the residual problem of vertical integration remains, which may be difficult to police in less-developed EU countries".

The burden put on the regulatory authority is worsened by the tendency of the TSO to try to benefit the most from the synergy of the VIU, pushing it towards the limits, which sometimes are not that clear and have to be developed subsequently in the case law, requiring "a lot of fine-tuning"[39]. Therefore, under the ITO model, there is a permanent tension between TSO and regulatory authority.

The ITO model is burdensome also for the TSO, who has to do a lot of paperwork and wait for the regulatory authority's approval before making certain types of agreements, what can delay its businesses.

According to Bernaerts[40], "rules on how networks are to be operated are increasingly set at EU level, through network codes governing capacity allocation and capacity management, balancing, grid connection, system operation, etc." These rules ensure the transparency in the operation of the grid and turn more difficult discrimination against competitors of the VIU.

Although "providing different degrees of structural separation from production and supply activities", it seems that the European Commission and some commentators see the three models (OU, ISO and ITO) as "being effective in removing any conflict of interests between producers, suppliers and transmission system operators"[41].

They may be correct, but there is no doubt that the ITO model is the most burdensome one[42].

38 POLLITT, Michael. The arguments for and against ownership unbundling of energy transmission networks. *Energy Policy*, n. 36, Cambridge, 2008, p. 704-713.

39 JANKAUSKAS, op. cit.

40 BERNAERTS, op. cit., p. 36.

41 European Commission, Commission Staff Working Paper, Interpretative Note on Directive 2009/72/EC Concerning Common Rules for the Internal Market in Electricity and Directive 2009/73/EC Concerning Common Rules for the Internal Market in Natural Gas, 22 January 2010, p. 4. <https://ec.europa.eu/energy/sites/ener/files/documents/swd_2013_0177_en.pdf>. Access on the: 27th january 2017.

42 JONES, Christopher. *EU Energy Law*: the Internal Energy Market. v. I, Deventer: Claeys & Casteels, 2016. p. 106.

4 CONCLUSION

Jones[43] sees the ITO model as a test, "a last chance for industry to prove that the network can be effectively operated independently whilst remaining under the ownership of a supply company". If the ITO model fails, 'the Commission is under an obligation to put forward a reform of the rules adopted under the Third Energy Package".

The European Commission had the opportunity to assess the ITO model in practice after its implementation and concluded that it "has improved the effective separation of transmission and generation/ supply activities"[44].

Surely this conclusion can be attributed to the set of rules governing the management of the transmission networks in Europe. According to Bernaerts, the Third Energy Package creates

> [...] a system of independently managed transmission networks, operated on the basis of a transparent, consistent and effective regulatory framework across the EU, under the supervision of the NRAs acting closely together. Thus the transmission grids can fully play their role as backbone of the EU internal energy market, allowing gas and electricity to flow without impediments across borders, in the most cost efficient way, to the benefit of producers, suppliers, traders and — last but not least — consumers[45].

Regarding the neutral management of the network, especial attention must be given to the ten-year network development plan. The European Commission[46] points out that the majority of network users has "been consulted on TYNDP by the NRA or the TSO itself, which illustrates that the respective provisions in the Directive regarding consultation on the TYNDP usually work in practice". And it concludes that "there appears to be no difference between the levels of investment made by TSOs under the ITO or the OU model in countries where both models exist". Furthermore, the European Commission concluded that

43 JONES, op. cit., p. 108.

44 European Commission, Commission Staff Working Document, Report on the ITO Model, 13 October 2014, SWD(2014) 312 final, p. 6. <https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex3.pdf>. Access on the: 27th January 2017.

45 BERNAERTS, op. cit., p. 36.

46 European Commission, Commission Staff Working Document, Report on the ITO Model, op. cit., p. 6.

> [...] an investment climate now exists that makes sure those lines are being built that are needed most. The Third package has reduced both the incentive and the ability for operators to revert to discriminatory behaviour or withhold the construction of important infrastructure[47].

One question left is the risk of information leakage among the parent companies, a danger that remains even under strong control. But it seems that eventual leakages would not undermine the ITO model's effectiveness. Indeed, the risks of discriminatory behavior under the ITO model are efficiently counterbalanced by measures requiring the transparent management and operation of the network.

Finally, it must be remembered that occasional misbehaviors under the ITO model can be corrected through the enforcement of the competition law. Talus points out that the European Commission used this strategy "to force private companies to sell their network assets and achieve ownership unbundling"[48].

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47 European Commission, Communication, Progress towards completing the Internal Energy Market, 13 October 2014, SWD(2014) 310 final, SWD(2014) 311 final, SWD(2014) 312 final, SWD(2014) 313 final, SWD(2014) 314 final, SWD(2014) 315 final. <https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_annex6.pdf>. Access on the: 27th january 2017.

48 TALUS, op. cit., p. 87.

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