

## **Chapter I**

# **EU Energy Regulation (Policy) and the Role of the Transmission System in its Implementation**

# 1. Main Determinants of EU Energy Regulation (Policy)

Energy has always been important to human beings. Today, it is no less important, although certain changes have occurred in the course of historical development. People are no longer able to meet their energy needs by themselves and have become dependent upon energy suppliers. Moreover, at the present stage of civilisation, requirements as to the security of energy supply and energy quality have significantly increased (Mombaur 2008, p. 2). Thus, energy continues to be an important determinant of growth (Haider 2005, p. 105). The scientific importance of energy issues is all the greater given that energy presents regulatory and business challenges (Grassani 2007, p. 3) and that Europe is no longer as abundant in natural resources.

Already in the 1950s, the European energy sector was seen to be in need of a common policy and coordinated action. Measures were slowly introduced, both through legislation and programmes – the White Paper “An Energy Policy for European Union” (Cross 2007, pp. 227–234) being one example – culminating in the Third Liberalisation Package, whose terms are binding today. It is worth noting that nowadays energy policy enjoys a high formal status – it appears in various treaties, for instance article 4(2)(i) of the TFEU<sup>1</sup>, which

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<sup>1</sup> Treaty on the Functioning of the European Union (TFEU): Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community, signed at Lisbon, 13 December 2007, *OJ C 306 of 17.12. 2007*, consolidated versions of the Treaty on Europe-

identifies energy as one of the competencies that is shared between the EU and its Member States. A new title, XXI – “Energy”, has been introduced into Part Three of the TFEU (Elżanowski et al. 2010, pp. 128-130).

Besides the internal market, transport and trans-European networks, energy is currently one of several areas of shared competence between the EU and its Member States. According to the literature, common policies constitute the third pillar of the internal market, since their purpose is both to guarantee the provision of services in the general economic interest and to achieve other goals that remain at least indirectly linked to the establishment of the internal market (Jurkowska & Skoczny 2010, p. 4).

Currently, the key element upon which EU energy policy is focused is the implementation of the so-called Third Liberalisation Package, which comprises legislation on the natural gas and electricity subsectors<sup>2</sup>. This policy is based on a mechanism of far reaching regulation. It seems clear that, in the context of the structure of the energy market, only far reaching regulation will aid the “liberalisation” of this market (Walaszek-Pyziół, p. 2). Historically, individual EU states have created their own national monopolies based on the principle of electricity networks being a natural monopoly. These monopolies have included entities representing the entire energy value chain – from fuel extraction, through generation and sale, to transmission and distribution (Mo-

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an Union and the Treaty on the Functioning of the European Union, OJ C 83 of 30 March 2010.

<sup>2</sup> Third energy package: Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators; Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No. 1228/2003; Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC – published in OJ L 211 of 14 August 2009.

2. Goals of EU Energy Regulation (Policy) towidlak 2010, p. 210). To break these powerful monopolies will require equally strong regulation at the EU level<sup>3</sup>.

## 2. Goals of EU Energy Regulation (Policy)

The goals of EU energy regulation determine the legal status of TSOs. These goals therefore need to be discussed first of all in order to place the TSO in a broader context. They include three main aspects, i.e., energy security, the creation and operation of a competitive market, and environmental protection<sup>4</sup>, although it should be noted from the outset that the relationship between these goals is complex (Bulteel & Capros 2009, p. 2). Achieving them requires many different challenges to be met (D'haeseleer 2005, p. 28).

A key element of EU energy policy is the issue of security. It would appear that security of energy supply is problematic<sup>5</sup>.

The concept of security is not uniformly defined in the legislation. In art. 2 p. (b), Directive 2005/89/EC<sup>6</sup> speaks of “security of electricity supply”, which means the ability of an electricity system to supply final customers with electricity. On the other hand, art. 2 p. (c) defines “operational network security” as the continuous operation of the transmission and, where appropriate, the distribution network under foreseeable circumstances<sup>7</sup>.

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<sup>3</sup> Other solutions to this problem are indicated in the literature, too; see Littlechild (2009, pp. 1–7).

<sup>4</sup> For more about the goals of EU energy policy, see: Kosior & Mögelein (2006, p. 14).

<sup>5</sup> See, for instance, Keppler (2007, pp. 3–4).

<sup>6</sup> Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment, OJ L 33 of 4 February 2006, pp. 22–27.

<sup>7</sup> For more, see Mielczarski (2009, p. 6).

In the 2006 Green Paper<sup>8</sup>, various meanings of the term security are used. For instance, it refers to “network security”, “security and reliability”, and “secure availability”.

Some authors see reliable electricity supply as having four aspects<sup>9</sup>: security, flexibility, adequacy, and strategic energy policy. In this instance, security means the ability of existing generation and transmission capacities to meet actual energy demand in real time.

It would seem that the most precise and therefore most appropriate definition is the one used by the UCTE (Union for the Coordination of the Transmission of Electricity) – a branch organisation of European TSOs. The UCTE definitions take as their point of departure the notion of reliability, which is a general term that encapsulates all aspects of system capacity expressed in numeric values<sup>10</sup>.

Despite the importance of the energy security issue, no single definition has been developed in EU legislation. What is more, the notion of security is used in various contexts. This state of affairs is criticised in the literature. Given that there is a consensus as to the importance of security, the prevalent view is that it would be good to define this concept clearly and thus remove any ambiguity. Furthermore, given that Directive 2005/89/EC imposes specific obligations on Member States, it would be wise to define those obligations in precise terms. Likewise, not without significance would be the introduction of specific security parameters to make it possible to measure progress in this area objectively<sup>11</sup>. From the logical point of view, this is the minimum requirement.

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<sup>8</sup> Green Paper: A European Strategy for Sustainable, Competitive and Secure Energy, COM (2006) 105 final.

<sup>9</sup> For more, see Pérez-Arriaga (2007, p. 7).

<sup>10</sup> UCTE System Adequacy Forecast 2005–2015, [www.ucte.org](http://www.ucte.org); see also the discussion of these issues in Mielczarski (2009, p. 29) and Mielczarski (2007, pp. 3–4).

<sup>11</sup> A similar view is expressed by Mielczarski (2007, pp. 4–5).

## 2. Goals of EU Energy Regulation (Policy)

Unfortunately, the notion of security of electricity supply is at present poorly defined. It encompasses various regulations and actions with differing timescales. Their ultimate purpose, however, is to supply electricity that meets given technical parameters to final customers (Pérez-Arriaga 2007, p. 2).

It is worth adding that the problem of security of energy supply is not imaginary. Indeed, it is rather that we are suffering under the delusion that all is well with the transmission infrastructure in the European Union. Numerous blackouts provide evidence to the contrary<sup>12</sup>.

The second goal of EU energy policy is the creation of a single energy market. This market is certainly a variable category: it is more a process than a stable end-state. Taking into account the political, institutional and economic conditions in Europe, it is hard to say with any degree of certainty that the current pace of change will be maintained<sup>13</sup>. The purpose of the Third Liberalisation Package is to prevent stagnation in this regard (Glachant et al. 2006, p. 1).

The ongoing reform of the European energy sector is shaking the foundations of traditional energy markets in Member States by, among others, attempting to overcome the dominance of entrenched monopolies. Observable trends signal a transition from strictly controlled markets to freer ones, from exclusive rights to regulated competition, from national markets to international markets. A key problem for the EU is the different way in which Member States understand the internal energy market. To be sure, the market is far from operating perfectly, and the first and second generation energy directives were unable to complete the process of estab-

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<sup>12</sup> Ladoucette (2006, p. 5) lists the following: France 1999, London 2003, Denmark and Sweden 2003, Italy 2003, Greece 2004, Spain 2004, Germany 2004, Western Europe 2006.

<sup>13</sup> For more on the liberalisation of the EU energy market, see Nowak (2006, pp. 2–10).

lishing an agreed framework for this market (Zimmermann & Talus 2008, p. 12).

It is worth emphasising that the creation of a single energy market also has major implications for energy security in the various national systems. This is simply due to the fact that sufficiently robust cross-border interconnections make an additional response possible when problems arise in national systems. Given that, in the longer term, competition should reduce the price of services offered, and that by definition the single energy market will be conducive to green solutions, all measures aimed at creating a single transmission network must be treated as a priority. For such measures provide the fastest means of achieving tangible progress as regards the fundamental goals of EU energy policy.

There are three possible development scenarios for the European energy market (Zimmermann & Talus 2008, pp. 13–14 and 17). The model favoured by the European Commission envisages a single European energy market comprising interconnected regional markets with a high volume of trade between regions. As far as the needs of the European Union are concerned, this model would appear to be optimal. However, it would require far reaching political consensus as to the role of regulatory bodies and the structure and responsibilities of the TSO; and, what is most important (and at the same time most challenging), it would require political agreement to transfer many regulatory powers from the national to the EU level. It would seem that coordination mechanisms at the EU level might not be able to meet (in the institutional sense) the challenges associated with the model favoured by the European Commission.

Integration of the European market could reduce the existing level of concentration of national markets. However, a fundamental prerequisite would be the elimination of discrimination and an anti-monopoly policy. This would depend on the existence of cross-border interconnections, the

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separation of networks from generation and trade, and the prevention of discrimination in network access. It is currently believed that the only (best) way to eliminate discrimination is precisely through ownership unbundling, in other words, through separating the ownership of activities in the energy sector (Boltz 2007, p. 2).

Energy market liberalisation forces us to ask the question whether competition is always possible, particularly if we consider the experiences of the UK, where energy supply far outstripped demand. Paradoxically, if we perceive the problem through the European lens, it would seem that competitive solutions should be maintained (Adetoro 2009, p. 189).

It is essential to highlight the role of market liberalisation in providing a significant development impulse. If liberalisation is carried out correctly, it should lead to a fall in energy prices and make it easier to compensate for technical shortcomings. This is due to the synergies and economies of scale that liberalisation would bring.

The combination of supply security, sustainable development, and competitiveness poses a question that is hardly new: how to reconcile the goal of long-term security with the goal of competitiveness (Hancher 2007, p. 88).

These goals may be difficult to reconcile. For example, increasing coal consumption would undoubtedly lead to an increase in security of supply, but it would not be compatible with environmental goals. Increasing energy generation from renewables would undoubtedly be a step towards achieving environmental goals, but it would have negative consequences both for security of supply and for competition (Keppler 2007, p. 6). The EU Emissions Trading System itself presents a huge risk for the generation subsector due to the unpredictable prices of carbon certificates (Gabriel 2006, p. 40).

Some authors believe that the goals of EU energy policy are not incompatible. They assume that a competitive envi-

ronment for the European energy market is a basic requirement if energy security is to be strengthened. Competition forces undertakings to pursue an active economic policy and to continually search for new development possibilities outside traditional areas of supply. Competition also leads to the diversification of infrastructure and new investment. Therefore, security of supply to a large extent depends on the existence of effective, pro-competitive market structures (Ungerer 2007, pp. 2–6).

The above examples unequivocally show that the interrelationships between the fundamental goals is a complex issue – there exists between them both positive and negative feedback. It seems, however, that a key aspect is the creation of a single European network, although genuine separation of the TSO is a *sine qua non*. In other words, the EU must necessarily overcome three of the current shortcomings, i.e., the structural deficit resulting from the systemic conflict of interest of TSOs operating within the framework of vertically-integrated undertakings, the regulatory deficit which relates mainly to TSOs, and the energy market's liquidity deficit which is caused by the first two deficits.

### **3. Importance of the Electricity Transmission Network**

The tasks of transmission networks are defined in the literature and in legislation. Despite the fact that transmission networks constitute a natural monopoly, it is believed that they can significantly contribute to competition, even though the entities that manage networks do not compete with each other. They can achieve this goal through their neutrality, in other words, by ensuring non-discriminatory access to the transmission network. However, this requires that several conditions are fulfilled, such as effective unbundling in the

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case of vertically integrated undertakings as well as the existence of an adequate structure for cross-border interconnections combined with the appropriate coordination and harmonisation of activities between operators (Mombaur 2008, p. 5).

TSOs play an important role in sustainable development. Key elements of new infrastructure are essential to integrating renewable sources of energy within the network. This will bolster consumption of renewable energy and reduce the problem of underinvestment in generation. An efficient energy infrastructure is key to an efficient energy market. It is the basis for increasing cross-border trade, which leads to effective competition and prevents certain entities from abusing their market position. A well-integrated energy infrastructure reduces the risk of insufficient supply, which in turn improves security of supply and increases energy solidarity among Member States (Dobbeni 2007, p. 22).

Competitive market behaviour depends on the strength of the transmission system and on the transmission capacity of interconnections between regions and countries. These interconnections facilitate the cross-border transmission of electricity and are a prerequisite for the adequate operation of the internal energy market. By contrast, network congestion leads to market fragmentation and thus reduces the size of the market proper, increasing its concentration and weakening market forces. Undoubtedly, the gradual establishment of an internal market has significantly increased cross-border trade in electricity. As a result, despite the fact that many countries have their own national network and nearly adequate transmission capacity, market participants often encounter congestion on cross-border lines, which restricts the possibility of fulfilling existing import and export potential on particular markets. Currently, networks are operating close to the maximum level of their technical capabilities, which obviously increases the risk of temporary interrup-