

Capacity Mechanisms and State Aid: Between PSOs, Market Liberalisation, and Security of Supply

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I. Introduction

Capacity mechanisms are not a new phenomenon. At European level, they have been the object of both regulation and State aid control at least since the early 2000s. Recently, however, concerns about security of supply have risen, bringing capacity mechanisms into the spotlight.

Europe is more and more dependent on foreign imports to meet its energy demand and this is made more serious by a lack of interconnectors. At national level, notwithstanding the existence of multiple and unbundled operators and the growing integration of electricity markets, Member States are concerned that the unprecedented transition that the electricity sector is experiencing can affect the capacity of electricity systems to meet demand at all times. The share of renewables in the energy mix has grown substantially in the last decade: today as much as 26 per cent of EU power is generated from renewable sources and 10 per cent of total electricity is produced by intermittent sources such as wind and solar.¹ Electricity markets have also failed to send the necessary investment signals and decision-making in investment generation is no longer centralised. As a consequence, Member States are resorting to capacity mechanisms to encourage investment in new power plants and/or ensure that power plants continue to operate.

Concerns arise, however, as to whether uncoordinated measures adopted at national level are the correct instrument to guarantee sufficient electricity supply or whether their use may cause a further fragmentation of the EU internal market while distorting competition and trade.

The Commission has already provided some initial guidance on how to limit the detrimental effects of

Key Points

- This paper provides an overview of the current regulatory environment for capacity mechanisms with a particular focus on State aid and the European Commission's ongoing sector inquiry.
- From a regulatory perspective, after a period with limited policy initiatives, the European Commission is paving the way to adopt new and far-reaching regulation in the electricity sector that will affect capacity mechanisms.
- From a State aid perspective, the European Commission has developed a stricter stance when assessing the compatibility of capacity mechanisms with EU State aid rules.
- Security of supply and generation adequacy will be an important item on the European Commission's agenda in the near future and the outcomes of the sector inquiry, once finalised, will feed into further enforcement and regulatory initiatives.

badly designed, fragmented and uncoordinated public interventions.² It also included, for the first time, compatibility criteria for generation adequacy in its 2014 Energy and Environmental State aid Guidelines (EEAG).³

Last year, the Commission revived its efforts to address the uncoordinated proliferation of capacity mechanisms both from a regulatory and a competition perspective. On 15 July 2015, the Commission launched a public consultation on a new energy market design and together with a questionnaire on risk preparedness in the area of security of electricity supply.⁴ The consultation sought the views of the stakeholders

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1 Commission Communication, 'Renewable Energy Progress Report', 15 June 2015, COM (2015) 293 final.

2 Commission Communication, 'Delivering the internal electricity market and making the most of public intervention', 5 November 2013, C(2013) 7243 final.

3 Commission Communication, 'Guidelines on State aid for environmental protection and energy 2014–2020', 28 June 2014, COM (2014), OJ C 200/01 (hereinafter "EEAG").

4 Commission Communication, 'Launching the public consultation process on a new energy market design', 15 July 2015, COM (2015) 340 final.

on the main implications of a redesign of the European electricity market. Just weeks before, on 29 April, the Competition Directorate of the Commission also opened a sector inquiry, the first one under State aid rules, ‘to gain a better understanding of the existence and functioning of capacity mechanisms’.⁵ The aim of this latter initiative was to gather information from Member States and all other interested stakeholders on the design and use of capacity mechanisms, on issues capacity mechanisms raise and on possible capacity mechanism features that may affect competition between capacity providers and distort cross-border trade (or, to the contrary, that may promote the internal energy market and ensure the respect of State aid rules).

Although many consider capacity mechanisms to be market instruments, when they are compensated with public resources they can indeed be qualified as State aid. Capacity mechanisms can also affect the market by distorting the price signals for the existence of certain generation capacity. More importantly, as aid may be granted by some but not all Member States, they can distort the internal market in energy by upsetting the level playing field between companies across Member States.

The purpose of this paper is to assess the existing regulatory environment for capacity mechanisms, review how they have been traditionally dealt with under *ex post* State aid control and, last but not least, take stock of the Interim Report⁶ the Commission published in the wake of the Sector Inquiry.

II. A closer look at capacity mechanisms in the EU

The definition of which measures should be identified as capacity mechanisms is still very much work in progress. The academic literature does not seem to offer a comprehensive definition and the studies produced so far⁷ provide an inventory of the various measures rather than an all-encompassing definition.

In a broad sense, capacity mechanisms are defined as measures adopted by public authorities to ensure that electricity supply can match demand in the medium

and long term. The Interim Report goes a bit further and tries to identify a few features to determine whether a measure can be qualified as a capacity mechanism. In particular, according to the Commission, a capacity mechanism is initiated by or with the involvement of governments; has the primary objective of contributing to security of supply; and provides remuneration to capacity providers in addition or instead to revenues they receive in the electricity market.⁸

The purpose of this section is, first, to identify the causes that prompt Member States to put in place capacity mechanisms and, second, to discuss the main types of capacity mechanisms and their characteristics.

A. The rationale behind capacity mechanisms

Increasing and widespread concerns in relation to generation adequacy have arisen in Europe as a result of the progressive liberalisation of electricity markets gradually taking place since the beginning of this millennium. The debate around capacity mechanisms generally revolves around three main sets of issues: the ability (or inability) of imperfect energy-only markets to deliver investment signals that are sufficient to secure adequate market-based investments over time; the increasing prevalence of renewable energy sources (RES); and Member States’ concerns regarding security of supply.

With the liberalisation of national energy markets, decision-making in investment generation is no longer centralised. Nowadays, the importance of power pools in wholesale markets, where market participants buy and sell electricity anonymously using the exchange as central counterparty, has increased across EU Member States. In these types of markets, prices are set on the basis of bidding processes whereby the short run marginal cost (SRMC) is determined according to the power plant generating the last unit of electricity, which is required to meet the level of demand at that moment.⁹ The SRMC of the price-setting unit fixes not only the revenues received by the owner of the marginal plant but also of all other operators of the merit curve, which have bid at a lower price.

Under this model of competitive wholesale electricity markets, it has been argued that there are occasions

5 Commission Decision initiating an inquiry on capacity mechanisms in the electricity sector pursuant to Article 20a of Council Regulation (EC) No 659/1999 of 22 March 1999, 29 April 2015, C(2015) 2814 final.

6 Commission Report, ‘Interim Report of the Sector Inquiry on Capacity Mechanisms’, <http://ec.europa.eu/competition/sectors/energy/capacity_mechanism_report_en.pdf> accessed 30 May 2016 (hereinafter ‘Interim Report’).

7 See, below, section 2.2.

8 Interim Report, p 29.

9 Commission, ‘DG Competition report on energy sector inquiry’, 10 January 2007, SEC (2006) 1724 final, para 369. See also Commission Communication, ‘Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors’, 10 January 2007, COM (2006) 851 final.

where markets do not provide the necessary price signals to stimulate new investments or maintain existing ones.¹⁰

First of all, imperfect existing wholesale markets, due to the still relatively inelastic level of demand (i.e. the level of demand does not change significantly in response to price changes), can result in situations where the wholesale market cannot clear and thus require regulatory intervention.¹¹

Second, regulatory interventions can also prevent prices from reaching high values during times of relative scarcity, thus creating a missing money problem. For example, this is the case in the introduction of price caps below the value of lost load (VOLL), which can respond to difficulties in estimating the VOLL, public policy concerns relating to the competitiveness of the national industry, potential abuses of market power (e.g. withholding capacity or strategic bidding); and also to political and social policies (i.e. affordable energy bills for households).¹² These types of interventions are particularly harmful for those electricity generators operating at the end of the merit curve and, therefore, only active for short periods of time, given that this is the moment when they can recoup their investment costs. They therefore result in a reduction of the incentives needed to keep electricity power plants active or build new generation facilities.

Another variant on the lack of new investment in generation adequacy relies on the argument that short-term wholesale electricity prices are too volatile and, therefore, capital intensive investments in new capacity are not supported by the required long-term contractual agreements between generators and wholesale or retail supply intermediaries.¹³ Continuous regulatory reforms

and limited information between competitors with respect to new investment in generation capacity can also risk increasing uncertainty for investors.¹⁴

The economic literature also discusses that the reliability of electricity systems displays certain characteristics common to public goods and, therefore, can qualify as a market failure.¹⁵ The UK authorities put forward this argument when notifying their proposed capacity mechanisms to the European Commission.¹⁶

The introduction of 'RES' has also played an important role in the generation adequacy problem. The Renewable Energy Directive approved in 2009 served as a key driver for investments in renewable technologies in the EU. According to the Commission, in 2015, more than one quarter of EU's power was generated from RES and 10 per cent of the total EU electricity was sourced from variable renewable electricity mostly dependent on weather conditions.¹⁷

It is argued that the increasing weight of RES in the energy mix¹⁸ has exacerbated the missing money problem. Electricity generated by RES installations is characterised by low marginal costs, normally below other conventional power plants. This results in reduced operating hours for conventional power plants with a negative impact on their ability to recoup investment costs. On other hand, the paradox is that an additional market failure can arise because the conventional power plants suffering from low utilisation rates are necessary in some cases to provide back-up capacity due to the intermittent nature of RES installations. The Commission has acknowledged this problem in its July 2015 communication launching the public consultation on a new energy market design: '[t]oday markets are not

10 David Newbery, 'Missing Money and Missing Markets: Reliability, Capacity Auctions and Interconnectors' (2015) Cambridge Working Paper in Economics 1513 <www.eprg.group.cam.ac.uk/wp-content/uploads/2015/03/1508_updated-July-20151.pdf> accessed 31 May 2016. Paul L. Joskow 'Competitive Electricity Markets and Investment in New Generating Capacity' (2006) MIT <<http://economics.mit.edu/files/1190>> accessed 31 May 2016.

11 Commission, Staff Working Document accompanying the 'Interim Report of the Sector Inquiry on Capacity Mechanisms', 13 April 2016, SWD (2016), 119 final (hereinafter, 'SWD accompanying the Interim Report'), p 27.

12 According to Joskow, 'The revenue adequacy or "missing money" problem arises when the expected net revenues from sales of energy and ancillary services at market prices provide inadequate incentives for merchant investors in new generating capacity or equivalent demand-side resources to invest in sufficient new capacity to match administrative reliability criteria at the system and individual load serving entity levels.' (Paul L. Joskow, 'Symposium on Capacity Markets' (2013) 2 (2) IAEE <http://www.iaee.fr/files/file/ae/IAEE%20TOC/EEEP2013_2_editorial.pdf> accessed 31 May 2016).

¹³ 'If market prices are not high enough for generators to recover the investments needed to reach the desired level of generation adequacy this

means there is a "missing money" problem' (Commission, 'Consultation Paper on generation adequacy, capacity mechanisms and the internal market in electricity'), <https://ec.europa.eu/energy/sites/ener/files/documents/20130207_generation_adequacy_consultation_document.pdf> accessed 31 May 2016, p 2.

13 Newbery, 'Missing Money and Missing Markets: Reliability, Capacity Auctions and Interconnectors' (2015) Cambridge Working Paper in Economics 1513 <www.eprg.group.cam.ac.uk/wp-content/uploads/2015/03/1508_updated-July-20151.pdf> accessed 31 May 2016.

14 Paul L. Joskow, 'Capacity Payments in Imperfect Electricity Markets: Need and Design' (2007) 16 (3) Utilities Policy, 159–70 <<http://dx.doi.org/10.1016/j.jup.2007.10.003>> accessed 31 May 2016.

15 Laurens J. De Vries, 'Generation adequacy: Helping the market do its job' (2007) Utilities Policy 15, 20–35.

16 Commission Decision of 23 July 2014, SA.35980, United Kingdom—GB capacity mechanism, para 127.

17 Commission, Staff Working Document accompanying the 'Renewable energy progress report', 15 June 2015, SWD (2015) 117 final.

18 Wind and solar generation technologies have an installed capacity of 40 per cent in Denmark, 38 per cent in Germany, 28 per cent in Spain, and 25 per cent in Portugal. See, SWD accompanying the Interim Report, p 11.

sufficiently flexible, both on the supply and on the demand-side to accommodate the increased share of renewable energy in the market.¹⁹

All of this heightens Member States' concerns regarding security of supply. In many Member States, as much as 30 per cent of capacity generation will be switched off by 2020, while Europe is relying more and more on imports to meet its internal demand for energy. According to the Commission's in-depth study on European Energy Security, 18 Member States import more than 50 per cent of their energy. This makes the EU vulnerable and dependent on foreign country supply policies.²⁰ The situation is exacerbated by a lack of infrastructure connected at EU level. The Commission Report on the progress toward the Internal Energy Market gives an average interconnection level in Europe of only 8 per cent.²¹

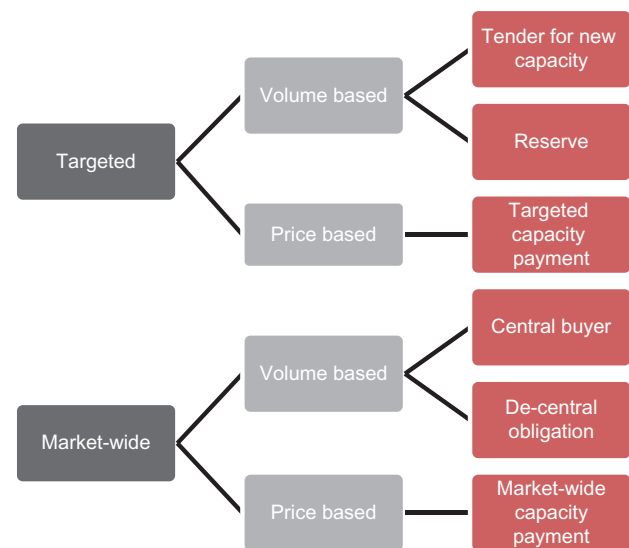
B. Types of capacity mechanisms

Member States have responded to the challenges identified above in different ways, depending on country-specific circumstances and the different physical and regulatory characteristics of their individual energy markets. This has resulted in the adoption of a wide variety of capacity mechanisms throughout Europe.

Existing studies of capacity mechanisms have identified up to six different categories of measures. For example, a study conducted for the Commission in June 2013 included a taxonomy of capacity mechanisms that distinguished between three different models: capacity payments, strategic reserves and capacity markets.²² In July 2013, the Agency for Cooperation of Energy regulators (ACER) published a report on capacity remuneration mechanisms and the internal energy market that provided a new taxonomy²³ distinguishing between volume- and price-based mechanisms. Volume-based mechanisms could in turn be grouped into two categories: market-wide and targeted mechanisms. On this basis, ACER identified five main types of capacity mechanisms: strategic reserves, capacity obligations, capacity auctions, reliability options and capacity payments.

In its Sector Inquiry, the Commission developed yet another taxonomy. In a non-paper prepared for a

working group with Member States organised on 30 June 2015,²⁴ the Commission identifies six basic types of capacity mechanism: tenders for new capacity, strategic reserves, targeted capacity payments, central buyer mechanisms, de-central obligation mechanisms and market-wide capacity payments. These are then grouped into two general categories: targeted mechanisms and market-wide mechanisms. Whereas targeted mechanisms only provide support to the additional capacity needed beyond what the market can bring forward, market-wide mechanisms provide support to all capacity required to ensure security of supply and includes both existing and new providers of capacity.



Source: based on the European Commission's SWD accompanying the Interim Report, page 37.

Both 'targeted' and 'market-wide' categories are further subcategorised into 'volume-based' and 'price-based' mechanisms. Volume-based mechanisms provide support for a certain volume of capacity, which the authorities determine at the outset. Price-based mechanisms, on the other hand, do not provide for any kind of restriction on the amount of capacity that can receive support but restrict the type or types of capacities, which are eligible for support.

19 Commission, Staff Working Document accompanying the document, 'Launching the public consultation process on a new energy market design', 15 July 2015, SWD (2015) 142 final, p 3.

20 Commission Communication, 'European Energy Security Strategy', 28 May 2014, COM (2014) 330 final.

21 Commission Communication, 'Progress towards completing the Internal Energy (Communication) Market', 13 October, COM (2014) 634 final.

22 Commission Study, 'Capacity Mechanisms in Individual Markets within the IEM', 28 May 2013, TE-2013-06 final.

23 Agency for the Cooperation of Energy Regulators, 'Capacity Remuneration Mechanisms and the Internal Market for Electricity' (Report) <http://www.acer.europa.eu/official_documents/acts_of_the_agency/publication/crms%20and%20the%20iem%20report%20130730.pdf> accessed 31 May 2016.

24 Capacity Mechanisms Working Group, 'High Level Comparison of Capacity Mechanism Models and Compatibility with State and Guidelines', 30 June 2015, <http://ec.europa.eu/competition/sectors/energy/capacity_mechanisms_working_group_10_en.pdf> accessed 31 May 2016.

The Interim Report has identified as many as 29 past, existing or planned capacity mechanisms across the 11 Member States subject to the Sector Inquiry.²⁵ The most frequent type of measure is the strategic reserve, which is to say generation capacity that is contracted and held in reserve, without entering the market, to be called upon by network operators in case it is needed. A subcategory of strategic reserves are interruptibility schemes, which the Commission found in six Member States. These normally involve industrial customers who can be asked by network operators to reduce their electricity consumption in a scarcity situation. The other volume-based targeted mechanism, tender for new capacity, is only used in three Member States and aims at financing the construction of further generation capacity of electricity, that can then be sold freely on the market. As for the price-based target mechanism, this has been identified in four Member States where a central body is charged with setting the price of capacity and then remunerating a subset of it meeting specific criteria. The market-wide mechanisms are far less used. The Interim Report only identifies two instances of central buyer mechanism, in which a central bidding process for the total capacity required is run so as to determine the price in a competitive fashion. A variant of this is the de-central obligation, where the bidding process is substituted by an obligation imposed on electricity suppliers and retailers to contract with capacity providers. In only one instance, the Commission has identified a market-wide capacity payment in which the price of capacity is set centrally and then paid to all capacity providers in the market.

This cursory excursion into the different typologies reveals that the task of collecting and systematising knowledge on these types of public interventions is still far from complete. From the first study in 2013 to the Interim Report, the different types of capacity mechanisms identified have doubled. Unless some form of regulatory blueprint is established at European level, we would expect that new types of capacity mechanisms would emerge as existing types of mechanisms are further refined and new hybrid forms are implemented.

III. The regulatory context in Europe

Generation adequacy and security of supply have been the object of regulation in Europe at least since the early 2000s.

A. The first regulatory framework

The First Energy Package started to introduce competition in the electricity generation market. At the time, policy makers did not seem to consider that security of supply would be a matter of significant concern for Member States. Thus, for the construction of generation capacity, they simply foresaw the possibility for Member States to choose between authorisation procedures and/or tendering procedures. Nearly all Member States opted for transparent authorisation procedures.

The 2003 Electricity Directive²⁶ recognising the choice previously made by the majority of Member States, adopted the authorisation procedure as the rule for the construction of new capacity. On the basis of Article 6, Member States should have in place authorisation procedures for the construction of new capacity,²⁷ which should rely on objective, transparent and non-discriminatory criteria.²⁸ The underlying assumption was that it is for electricity markets to deliver the right investment signals themselves so that operators can freely decide to operate and build new generating capacity.

At the same time, however, the Commission seemed to take into consideration the potential impact of market and regulatory failures and foresaw that Member States could ensure the possibility to contribute to security of supply through the launch of tendering or equivalent procedures.²⁹ Article 7 provided that these procedures should be based on published criteria and public authorities could only launch them if the authorisation procedures did not bring about the necessary generating capacity or the energy efficiency/demand-side management measures to ensure security of supply.

In order to ensure security of supply, Article 3(2) specified that Member States could impose on undertakings operating in the electricity sector public service obligations, which should be clearly defined, transparent, non-discriminatory, verifiable, and should guarantee equality of access for EU electricity companies to national consumers.³⁰ Moreover, a Member State was also enabled, for reasons of security of supply, to prioritise the dispatch of generating installations using indigenous primary energy fuel sources, to an extent not exceeding in any calendar year 15 per cent of the overall primary energy necessary to produce the electricity consumed in the Member State concerned.³¹

25 Interim Report, section 3.

26 European Parliament and Council Directive 2003/54/EC of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC—Statements made with regard to decommissioning and waste management activities [2003] OJ L 176/37 (hereinafter ‘Directive 2003/54’).

27 New capacity includes inter alia renewables and CHP.

28 See Directive 2003/54, Article 6 (2), for further criteria.

29 Ibid, Recital 22.

30 Ibid, Recitals 23 and 26.

31 Ibid, Article 11(4).

B. The security of supply directive

By the time the Security of Supply Directive³² came to be adopted, security of electricity supply had become a matter of concern. The Directive therefore set out a number of measures aimed at safeguarding security of electricity supply to ensure the proper functioning of the internal electricity market through ensuring an adequate level of generation capacity, an adequate balance between supply and demand and an appropriate level of interconnection between Member States.³³ Likewise, it establishes a framework within which Member States must define transparent, stable and non-discriminatory policies on security of electricity supply compatible with the requirements of a competitive internal market for electricity.³⁴

The recitals of the Directive contain a number of relevant principles, which inform the interpretation of the Directive. The recitals state that a competitive single EU electricity market requires transparent and non-discriminatory policies on security of electricity supply. With respect to the promotion and increasing role of renewables in electricity markets, the Directive considers that the existence of back-up capacity is necessary to maintain the reliability and security of the network. Furthermore, the Directive provides that measures aimed at ensuring appropriate levels of generation reserve capacity must be market-based and non-discriminatory and they could include contractual guarantees and arrangements, capacity options or capacity obligations, which could be supplemented by capacity payments. With regard to the investment signals, recital 12 stresses the importance of an unambiguous, appropriate and stable framework to facilitate security of electricity supply and investments in generation capacity and demand management techniques.

With respect to the substantive content of the Directive and in connection with the previous paragraph, Article 5(1) stresses the importance of the existence of wholesale market frameworks conducive to the transmission of suitable price signals for generation and consumption and thus calls for Member States to achieve this objective. However, on the basis of Article 5(2), the Directive also allows Member States to adopt

additional measures such as provisions facilitating new generation capacity and the entry of new companies into the generation market or tendering and equivalent procedures in accordance with Article 7(1) of the 2003 Electricity Directive. In this regard, and for the first time, the Security of Supply Directive explicitly makes these additional measures conditional on their compatibility with EU State aid rules.

C. The 20/20/20 targets

With the adoption, in March 2007, of the 20/20/20 energy and climate change targets to be implemented by 2020,³⁵ the production of energy from renewable sources received a decisive impetus. As a result, a new Directive was adopted in 2009,³⁶ which created a common framework for the use of renewable energy in the EU so as to limit greenhouse gas emissions and promote cleaner transport. In parallel, the 2009 Electricity Directive³⁷ was also adopted. In relation to security of supply and investment in new capacity, this directive does not amend the provisions contained in the 2003 Electricity Directive. For instance, public service obligations concerning security of supply are still regulated in Article 3(2) of the Directive and the preferential dispatch for generating installations using indigenous primary energy fuel sources is replicated in Article 15(4).

Against this background, Member States adopted further measures to support investments in RES and achieve the new binding objectives. As a result, in addition to solve the missing money problem, capacity mechanisms became relevant as well to keep and invest in flexible installations so that they could provide the back-up function necessary to ensure the smooth deployment of RES.

D. The recent policy initiatives

The consultation paper released by the Commission in November 2012 on generation adequacy, capacity mechanisms and the internal market in electricity³⁸ was therefore published in a context where RES were experiencing a significant growth. It is also worth noting that

32 European Parliament and Council Directive 2005/89/EC of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment [2006] OJ L 33/32.

33 Ibid, Article 1.(1).

34 Ibid, Article 1.(2).

35 The European Council adopted energy and climate change objectives for 2020 which included the reduction of greenhouse gas emissions by 20 per cent in relation to the level of emissions in 1990, the increase of the share of renewable energy to 20 per cent and making a 20 per cent improvement in energy efficiency (see European Council Presidency Conclusions of 8/9 March 2007, 7724/1/07 REV 1).

36 European Parliament and Council Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC [2009] OJ L 140/16.

37 European Parliament and Council Directive 2005/72/EC of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC [2009] OJ L 211/55.

38 Commission, 'Consultation Paper on generation adequacy, capacity mechanisms and the internal market in electricity' (2012) <https://ec.europa.eu/energy/sites/ener/files/documents/20_130_207_generation_adequacy_consultation_document.pdf> accessed 31 May 2016.

this is the first of a number of soft law instruments and initiatives that the Commission have adopted over the last 7 years to deal with security of supply and, in particular, capacity mechanisms.

The Commission expressed its concerns that the increasing use of RES as part of Member States' energy mix can result in sudden swings, which require flexible capacity to deliver electricity and complement RES. However, the introduction of capacity mechanisms to deal with generation adequacy is another focus of concern given that '[i]ncompatible or poorly designed capacity mechanisms risk distorting trading, production and investment decisions in the internal market. They also risk discouraging innovative solutions, for example energy services providers who control demand based on wholesale market prices.'³⁹

In this regard, the Commission was also wary of capacity mechanisms as they could generate distortionary effects in neighbouring Member States, which could be forced to intervene on their own markets and implement measures to compensate for these effects. The Commission also pointed out that capacity mechanisms might involve State aid.

The 148 individual responses to the consultation showed that respondents were divided with respect to whether energy-only markets are able to deliver the investments required to ensure generation adequacy and security of supply.⁴⁰ Almost all responses to the consultation agreed on the impact generated by RES on the market. Interestingly, there was limited support for a European blueprint and many respondents noted that divergent local circumstances and specific problems are better addressed by tailored solutions. In addition, there was strong support for EU wide criteria governing capacity mechanisms extending also to the high-level criteria proposed in the consultation paper.

In 2012, the Commission published a new Communication on 'Making the internal energy market work'⁴¹ and dealt again with capacity mechanisms. In addition to the concerns already expressed, the Commission stressed that capacity mechanisms are likely to fall under the scope of EU State aid control rules and exhorted Member States to 'demonstrate the

need for such mechanisms over alternative approaches such as peak-shaving measures, increased imports through appropriate interconnections, and facilitating demand-side participation in the market for industrial as well as retail customers'⁴² and assess the impact of these initiatives on the internal energy market. As part of the Action Plan proposed by the Commission to ensure the success of the internal energy market, the communication suggested the development of criteria for assessing and ensuring the consistency of national capacity-related initiatives with the internal market.

The European Council of 22 May 2013, with the view of completing the internal energy market by 2014 and developing interconnections, requested the Commission to provide guidance on capacity mechanisms to ensure consistency of national initiatives relating to new generation with the internal electricity market.⁴³ To respond to this request, the Commission adopted a new communication 'Delivering the internal electricity market and making the most of public intervention' in November 2013.⁴⁴ In this document, the Commission acknowledged that public interventions may entail public service obligations imposed on transmission system operators (TSOs), generators or suppliers that must meet the requirements set out in Article 3(2) of Directive 2009/72/EC and that security of supply should be viewed as a public policy objective. The Communication indicates that a comprehensive assessment of the generation adequacy problem must be conducted before any public intervention. Capacity mechanisms should only be seen as a reasonable solution where alternative measures stemming from the demand response side, interconnection capacity and the elimination of regulatory failures do not remedy the generation adequacy concerns. The introduction of capacity mechanisms should also take into account other policy objectives such as the fossil fuel generation subsidies phasing out by 2020.⁴⁵

The Staff Working Document on Generation Adequacy in the internal electricity market⁴⁶ further elaborates on the guidance provided in the previous communication and summarises it in four bullet points.⁴⁷ The document includes a checklist intended to

39 Ibid, pp 9–10.

40 Commission, 'Responses to Consultation: Generation Adequacy, Capacity Mechanisms and the Internal Market in Electricity' (2013) <https://ec.europa.eu/energy/sites/ener/files/documents/20130207_generation_adequacy_responses_summary.pdf> accessed 31 May 2016.

41 Commission Communication, 'Making the internal energy market work', 19 November 2012, COM/2012/0663 final.

42 Ibid, p 15.

43 European Council Conclusions of 22 May 2013, EUCO 75/1/13 REV 1. Conclusions

44 Commission Communication, 'Delivering the internal electricity market and making the most of public intervention' 5 November 2013, C(2013) 7243 final.

45 Ibid, p14.

46 Commission, Staff Working Document accompanying the document 'Generation Adequacy in the internal electricity market—guidance on public Interventions', 5 November 2013, SWD(2013) 438 final.

47 Ibid, p 4.

help Member States to comply with EU law when assessing the need for public intervention to ensure generation adequacy and selecting the right appropriate intervention tool. This checklist, entitled ‘justification of intervention’ includes three different sections: (i) assessment of generation gap, (ii) causes of generation adequacy concerns, and (iii) options other than support for capacity. Likewise, the document includes a second checklist, entitled ‘choice of mechanism’, which assess the specific circumstances and choose the right capacity support mechanism.

IV. State aid control of capacity mechanisms

State aid control has dealt with national measures that are now labelled as capacity mechanisms for quite some time and under different angles.

In the first cases, the focus of the Commission’s analysis was on determining the existence of the aid, in particular under the conditions foreseen by now Article 106(2) TFEU for the compensation of public services, as clarified also by the ECJ in *Altmark*. Since 2010, the focus of the Commission’s analysis has interestingly shifted towards admitting the existence of an aid and thus rather focusing its analysis on the compatibility of the capacity payments under Article 107(3)(c) TFEU.

A. Early phase: capacity mechanisms as Public Service Obligations

In the first State aid cases relating to capacity mechanisms, the Commission accepted the Member States’ claims that the reserves they were establishing were Public Service Obligation (PSO), whose compensation did not qualify as State aid. In both the Irish and the Slovenian cases,⁴⁸ the Commission initiated its assessment on the basis of the—at that time recent—*Altmark* judgement to determine the potential existence of State aid to the electricity generators within the meaning of Article 107(1) TFEU.

In the first case, the Irish authorities notified to the Commission a scheme to impose a PSO for new electricity generation capacity with the aim of ensuring security of supply. The Generation Adequacy Report prepared by the Irish TSO to justify the necessity of the scheme showed that the Irish market would face an

important capacity shortfall as of 2005. To address this situation, the Irish Commission for Energy Regulation (CER) decided to launch a bidding process aimed at introducing 531 MW of new capacity into the market. The generators entrusted with the construction of this new capacity would be subject to 10-year Capacity and Differences Agreements (CADA) whereby they would receive capacity payments based on their availability. A claw-back system was also established to avoid any overcompensation. The scheme was financed via a levy imposed on electricity consumers, on the basis of their subscribed connection power. The amount of the compensation to be paid as well as the proceeds of the levy would be approved and monitored by the CER.

In the Slovenian case, after having authorised State aid compensation in relation to the so-called stranded costs in favour of three electricity generators, the Commission decided to open an in-depth investigation into a scheme intended to grant preferential dispatching to qualified producers (i.e. producers of renewable energy, producers that used efficient combined heat and power (CHP) technology and the Trbovlje power plant, which used indigenous primary energy fuel sources to the extent that it did not exceed 15 per cent of the overall primary energy necessary to produce the electricity consumed in Slovenia). The Slovenian authorities justified the aid granted to the Trbovlje power plant on the basis of a PSO linked to security of supply, justified not so much by generation adequacy as by the need to preserve generation from indigenous sources.

In both cases, the Commission considered whether ensuring security of supply constituted a legitimate objective of general economic interest by reference to Article 3(2) of Directive 2003/54/EC. However, in the Slovenian case a reference to its Article 11(4) on indigenous generation was also added.⁴⁹

In the Irish case, the Commission then went on to assess in detail whether there were other means by which the national authorities could have attained the same legitimate objective with a less distortive impact on competition and trade between Member States, such as the control of growth in demand or the development of new interconnection capacity in an economically rational way. In particular, the Commission drew a distinction between ‘normal’ and ‘reserve’ capacity generation, the latter being ‘the additional capacity that would not be spontaneously provided by normal market forces but is considered necessary in order to meet

48 Commission Decision of 16 December 2003, N 475/2003, *Ireland—Public Service Obligation (PSO) Notification*, and Commission Decision of 24 May 2007, C 7/2005, *Slovenia—Slovenian Electricity Tariffs*.

49 Commission Decisions of 25 July 2001, N 34/99, *Austria—Compensation of Stranded Costs*, p 2; of 25 July 2001, NN 49/99, *Spain—Compensation of Stranded Costs*, p 7; of 30 October 2001, N 6/A/2001, *Ireland—PSO imposed on the Electricity Supply Board*, p 26.

peaks of demand.’ Only in these circumstances the Commission considered that ‘there may be a case for governments to provide further measures, in addition to market mechanisms, to ensure adequate capacity is available.’⁵⁰ Moreover, the need for the reserve capacity had to be clearly and quantitatively demonstrated, should not have exceeded reasonable standards of capacity reserve and should have taken into account mechanisms to manage demand and to enable the use of existing interconnectors to mitigate part of the capacity shortfall.

As in both cases the Commission held that the other *Altmark* conditions were also fulfilled, both measures were considered not to constitute State aid.

In a similar fashion, in 2010 the Commission authorised Spain to put in place, for a limited period, a public service obligation imposed on electricity generators, on the basis of Article 11(4) of the Second Electricity Market Directive.⁵¹ According to the Spanish authorities’ notification, any aid involved in the regulated price for ‘indigenous coal plant’ is public service compensation compatible with the internal market pursuant to Article 106(2) TFEU. As in the Slovenian case, the Commission limited itself to a manifest error check of the PSO introduced by Spain and did not analyse whether Spain had other means at its disposal to reach the same objective.

B. Second phase: capacity mechanisms as compatible aid under Art. 107(3) TFEU

As of 2010, the Commission’s State aid assessment of capacity mechanisms shifted from the PSO approach to one of compatibility under Article 107(3) of the Treaty.⁵² The first decision in which this shift is visible is the one on the Latvian tender for aid for new generation capacity.⁵³

1. The Latvian case for new generation capacity

In December 2009, the Latvian authorities notified to the Commission a State aid measure for the construction and operation of baseload capacity in the form of a solid fuel/LNG thermal power plant. The aid was to be

granted by way of a competitive-bidding process in the form of capacity payments between 30 June 2015 and 30 June 2025 and be conditional on the operation of the plant for at least 6,000 h a year. The payments could even be terminated if the beneficiary produced less than 4,000 h a year.

In contrast to previous cases, the Latvian authorities did not submit that the aid was a compensation for a PSO but rather pleaded for a no aid decision ‘because the funds are channelled from the consumers through the TSO to the beneficiary without passing through the State budget’. In other words, they advocated a sort of Preussen Elektra reasoning for their measure that the Commission dismissed on the basis of the TSO being owned 100 per cent by the State and all costs and conditions of the cost inclusion in the transmission tariffs and of the payments to the beneficiary being set up by the State. Interestingly, however, the Commission still felt the need to justify the finding of aid vis-à-vis the 2003 Irish case. In a footnote, it specified that the two cases differ as the latter was restricted to the support of peak capacity, while the Latvian support measure also covered normal capacity.⁵⁴

Even more interestingly, however, the Commission used the compatibility analysis to verify very similar criteria to those it had imposed in the 2003 Irish case and dropped in the later PSOs cases. In the absence of any criterion covering compatibility of generation adequacy in the Environmental Aid Guidelines (EAG)⁵⁵ in force at that time, the Commission analysed the aid directly under Article 107(3)(c) TFEU. In this context, it assessed first whether security of supply could be considered an objective of common interest by reference in this case to Recital 1 and Article 2(b) of the Security of Supply Directive.⁵⁶ It then looked at whether there were means other than State aid by which the national authorities could have attained the same legitimate objective. The Latvian authorities explained that the rising demand might not be met by future available supplies on account of two factors: the decommissioning of the Ignalina nuclear power plant in Lithuania at the end of 2009 and the renovation of the Narva oil-shale power plant probably as of 2016. In addition, the authorities

50 Commission Decision of 16 December 2003, N 475/2003, *Ireland—Public Service Obligation in Respect of New Electricity Generation Capacity for Security of Supply(PSO) Notification*, para 35.

51 Commission Decision of 12 May 2010, N178/2010, *Spain—Preferential Dispatch of Indigenous Coal Plants*.

52 The Commission moved away from the PSO analysis also when analysing interruptibility services in the electricity sector. In those cases, however, it did not assess compatibility as it found that no State aid was present as the schemes remunerated at market price ‘a service which is necessary to ensure the continuity of electricity supply on these islands’.

See, for example, Commission Decision of 26 May 2010, NN24/2010, *Italy—Compensation for the Provision of Instant Interruptibility Services in Sardinia and Sicily*.

53 Commission Decision of 14 June 2010, N675/2009, *Latvia—Tender for Aid for New Electricity Generation Capacity*.

54 *Ibid.*, n 9

55 Commission Communication, ‘Community Guidelines on State Aid for Environmental Protection’, 1 April 2008, (2008) OJ C 82/1.

56 *Ibid.*

argued that interconnection capacity and investment in new capacity would not contribute to addressing the problem in this case.⁵⁷ The Commission concurred with these explanations.⁵⁸ It also found that the competitive selection process would minimise the aid and limit distortions of competition and thus approved the aid as compatible.

2. The 2014 EEAG

Building on the Latvian precedent and in parallel to the regulatory initiatives, the Commission decided to give guidance on generation adequacy in the EEAG. For the first time, they thus include compatibility requirements that apply to capacity mechanisms.⁵⁹ The adoption of these guidelines took place in the context of the State aid modernisation⁶⁰ and, accordingly, the conditions laid down in the EEAG are based on the common compatibility principles developed in that context.

In the EEAG, generation adequacy is defined as ‘a level of generated capacity which is deemed to be adequate to meet demand levels in the Member State in any given period, based on the use of a conventional statistical indicator used by organisations which the Union institutions recognise as performing an essential role in the creation of a single market in electricity, for example ENTSO-E’.⁶¹ And a generation adequacy measure is ‘a mechanism which has the aim of ensuring that certain generation adequacy levels are met at national level’.⁶²

The main purpose of the new compatibility criteria for generation adequacy measures is to reduce the impact of capacity mechanisms on competition and trade in the internal electricity market.

Aid for generation adequacy must meet an objective of common interest and be sufficiently evidence-based and tailor-made to secure the capacity shortfall previously identified by the Member State concerned in the generation adequacy assessment. This should also be consistent with the analysis carried out by the European Network of Transmission Operators (ENTSO-E).⁶³

Demonstrating the necessity of public intervention is a prerequisite for any capacity mechanism to be accepted under State aid rules.⁶⁴ Member States are required to demonstrate the reasons why they do not

expect the market to deliver adequate capacity in the absence of intervention.⁶⁵ In this context, the Commission will evaluate different elements such as the existence of regulatory or market failures, the impact of variable generation and the contribution of actual and future interconnectors as well as demand-side response (DSR). The objective that the Commission pursues is to avoid the introduction of capacity mechanisms when less distortive measures can at least contribute to address the generation adequacy concern. For example, well-functioning markets have the potential to reduce the need for intervention in the form of capacity mechanisms.

The Commission is wary of the distortive effects that capacity mechanisms can generate between capacity providers given that they may include only certain generation technologies or exclude non-generation activities such as DSR. In this sense, the EEAG intend to ensure that capacity mechanisms are open to as many capacity providers as possible, including existing and future generators, demand side, storage solutions or foreign capacity providers through interconnectors.⁶⁶

To address the concerns that capacity mechanisms may affect cross-border trade and distort investment signals in favour of countries with more ‘generous’ capacity mechanisms, the EEAG require national authorities to ensure that the beneficiaries do not obtain more than a reasonable rate of return. In this regard, the EEAG encourage Member States to use competitive-bidding processes on the basis of clear, transparent and non-discriminatory criteria, effectively targeting the defined objective, since this will normally lead to reasonable rates of return. In addition, in order to avoid any potential overcompensation, the EEAG require the adoption of mechanisms to avoid windfall profits and that the compensation for availability tends to zero when the capacity supplied is expected to cover the level of capacity demanded.⁶⁷

The EEAG also deal with other policy objectives, mainly the completion of the internal energy market and supporting the shift towards a resource-efficient and low-carbon economy. As a result, Member States must ensure that the introduction of capacity mechanisms do not affect incentives to invest in interconnection capacity, undermine market coupling or strengthen

57 Commission Decision of 14 June 2010, N675/2009, *Latvia—Tender for Aid for New Electricity Generation Capacity*, paras 4–8.

58 *Ibid.*, points 28–29.

59 EEAG, section 3.9.

60 Commission Communication, ‘EU State Aid Modernisation (SAM)’, 8 May 2012, COM(2012) 209.

61 EEAG, para 19, definition 34.

62 *Ibid.*, definition 36.

63 *Ibid.*, paras 219–220.

64 *Ibid.*, para 222.

65 *Ibid.*, para 223.

66 *Ibid.*, paras 226 and 232.

67 *Ibid.*, paras 228–231.

the dominant position of undertakings. Finally, Member States should give preference to low-carbon solutions in case of equivalent technical and economic parameters.⁶⁸

3. The first cases under the 2014 EEAG

The Commission applied the new EEAG criteria for the first time to the aid measure notified in June 2014 by the UK authorities to support capacity providers in the electricity market. The measure was part of the larger UK Electricity Market Reform and had been discussed at length in pre-notification contacts, so that the Commission approved it in record time on 23 July 2014.⁶⁹

The UK authorities did not question the existence of State aid within the meaning of Article 107 TFEU and did not claim the applicability of the *Altmark* conditions. As a result, the Commission could assess the compatibility of the aid scheme directly on the basis of section 3.9 of the EEAG. The Commission analysed the objective of common interest and necessity of the aid together.

The Commission found that, consistently with the ENTSO-E assessment,⁷⁰ the methodology adopted by the UK demonstrated that generation adequacy levels would reach critical levels as of 2018/2019.⁷¹ Therefore, the measure contributed to an objective of common interest: security of supply.

The existence of two market failures, namely that reliability is a public good and the missing money problem, prevented the market from bringing the capacity required to meet the reliability standard.⁷² The Commission accepted both justifications and concluded that the measure was necessary.

As for its appropriateness, the Commission considered that the measure was consistent with the internal energy market and EU energy policies, namely with the development of DSR and the increase of competition and interconnection capacity. Furthermore, the Commission found that the measure remunerated only the

service of pure availability of capacity,⁷³ and that it was open to new and existing generators, DRS operators and storage operators, considering different lead times.⁷⁴

The EEAG provide that the measure must also take into account the extent to which interconnection capacity could remedy any possible problem of generation adequacy.⁷⁵ In the case at hand, the Commission acknowledged that the exclusion of interconnection capacity to participate in the first auction was justified and that the commitment offered by the UK authorities to ensure the participation of interconnection capacity in the second auction in 2015 was a positive step.⁷⁶ With regard to the concerns expressed by an existing operator against a favourable treatment of new generators, the Commission concluded that the differential treatment was justified since new plants were likely to need to secure financing for capital expenditure and on the basis that 1-year capacity agreements have different benefits.⁷⁷

Given that the support mechanism would induce capacity providers to change their behaviour in order to meet the reliability standard, the Commission found the measure also to have an incentive effect.⁷⁸

The Commission confirmed that the support mechanism would be market-wide, technology-neutral and would allow all eligible capacity providers to compete in a transparent non-discriminatory auction, leading to reasonable rates of return. Furthermore, the existence of certain features would minimise the risk of windfall profits.⁷⁹ As a consequence, the measure also fulfilled the proportionality criteria.

The Commission also confirmed that the measure would not result in undue distortions of competition and trade.⁸⁰ Even though the implementation of the measure could reduce interconnector revenues, the Commission considered that it would not undermine the business case for future interconnectors nor investment decisions of existing operators on average.⁸¹ Moreover, the design of the mechanism would allow new entrants to secure the financing required for this type of investments and would thus minimise the risk

68 Ibid, para 233.

69 Commission Decision of 23 July 2014, SA.35980, *United Kingdom—GB Capacity Mechanism*.

70 ENTSO, European Commission Consultation on Generation, Adequacy, Capacity Mechanisms and the Internal Market in Electricity, ENTSO-E Response Paper, February 2013 <https://www.entsoe.eu/fileadmin/user_upload/_library/position_papers/20130207_ENTSOE_Response_to_EC_Consultation_Gen_Adeq_FINAL.pdf> accessed 31 May 2016. Pursuant to para 34 of the 2014 EEAG: “generation adequacy” means a level of generated capacity which is deemed to be adequate to meet demand levels in the Member State in any given period, based on the use of a conventional statistical indicator used by organisations which the Union institutions recognise as performing an essential role in the creation of a single market in electricity, for example ENTSO-E’.

71 Commission Decision of 23 July 2014, SA.35980, *United Kingdom—GB Capacity Mechanism*, para 119.

72 Ibid, para 127.

73 Ibid, para 130.

74 Ibid, para 149.

75 EEAG, para 226.

76 Ibid, para 121. It is important to note that the interconnection capacity was already considered for the calculation of the capacity needed to procure for the first auction.

77 Ibid, para 139.

78 Ibid, paras 141–143.

79 Ibid, paras 144–147.

80 Ibid, para 148.

81 Ibid, paras 149–150.

of market dominance.⁸² In line with para 233(e) of the EEAG, the measure would also give preference to low-carbon generators in case of equivalent technical and economic parameters, given that participants would be exposed to carbon prices, including a carbon price floor.⁸³

The decision has been appealed before the General Court. The first appeal⁸⁴ seeks the annulment of the decision on the basis that the Commission unlawfully deprived the applicant of its right to participate in the investigation procedure by deciding not to open a formal investigation, notwithstanding that the capacity market gave rise to doubts as to its compatibility with the internal market, in particular in relation to long contract durations and the distinction between price takers and price makers. The second appeal⁸⁵ contains two different pleas, namely that the Commission failed to provide an adequate reasoning and that it violated Article 108(2) TFEU, the principles of non-discrimination, proportionality, and legitimate expectation and made a wrong assessment of the facts by failing to open the formal investigation procedure.

Given that the UK decision is the only final decision relating to capacity mechanisms adopted under the EEAG so far, it will be interesting to see whether the General Court will venture outside the applicants' procedural pleas⁸⁶ to look into more substantive aspects of the Commission's assessment of generation adequacy.

More recently, the Commission has applied the new EEAG in two in-depth investigation procedures on French capacity mechanisms, one having a country-wide scope⁸⁷ and the other limited to Brittany.⁸⁸

The first is a national market-based and quantity-based mechanism, including capacity obligations to be traded between electricity capacity providers and electricity suppliers, in order to ensure sufficient capacity in correspondence to winter demand peaks. According to the Commission's preliminary assessment, the measure qualifies as State aid⁸⁹ and might favour certain companies and hinder market entry.⁹⁰

The second measure aims to increase electricity generation capacity in Brittany, through a new gas-fired

power plant (CCGT) that will help the region overcome its connection problems. The entrustment tender has already been launched by the French authorities. The Commission considers the capacity mechanism as granting the entrusted companies a selective economic advantage, given that it does not satisfy the *Altmark* criteria and is not open to other potential capacity providers.⁹¹ In addition, the Commission suspects that the mechanism's design could exacerbate the adequacy problem in the long term, by creating a subsidy-dependent market.⁹²

Unlike in the case of the UK capacity mechanism, where the UK authorities did not dispute the existence of State aid, the French authorities, as in the Irish and Slovenian cases, have argued that the measures should not qualify as State aid and thus that the Commission should not assess their compatibility with the internal market. In line with recent precedents, the Commission seems to have dismissed these arguments and the ones relating to the existence of a public sector obligation and has expressed concerns relating to the compatibility of the measures with the EEAG.

V. The state aid sector inquiry into capacity mechanisms

A. Why a sector inquiry

Under the revised State Aid Procedural Regulation adopted by the Council in 2013,⁹³ the Commission has the power to conduct inquiries into sectors of the economy or into aid measures, when there is a reasonable suspicion of a recurrent problematic behaviour that materially distortion of competition in several Member States.

Under the previous Procedural Regulation, the Commission had no possibility of undertaking a single investigation of State aid encountered across Member States. It could only initiate as many investigations as the measures detected in each of the Member States. This was time- and resource-consuming and led to a patchwork assessment of the possible State aid issues in some Member States, while overlooking the same

82 Ibid, para 152.

83 Ibid, para 153, Article 24(2).

84 Case T-788/14, *MPF Holdings v Commission*.

85 Case T-793/14, *Tempus Energy and Tempus Energy Technology v Commission*.

86 Case C-269/90, *Technische Universität München v Hauptzollamt München-Mitte*.

87 Commission Decision of 13 November 2015, SA.39621, France—*French Country-wide Capacity Mechanism*.

88 Commission Decision of 13 November 2015, SA.40454, France—*Tender for Additional Capacity in Brittany*.

89 Commission Decision of 13 November 2015, SA.39621, France—*French Country-wide Capacity Mechanism*, para 143.

90 Ibid, para 146 et seq.

91 See Commission Decision of 13 November 2015, SA.40454, France—*Tender for Additional Capacity in Brittany*, para 66 et seq.

92 Ibid, para 82.

93 Council Regulation (EU) 734/2013 of 22 July 2013 amending Regulation (EC) No 659/1999 laying down detailed rules for the application of Article 93 of the EC Treaty (2013) OJ L 204/15.

conduct by others. To tackle these types of situations, the Commission proposed, similarly to what was already possible for antitrust, the introduction of a specific legal basis to allow the conduct of sector inquiries. In fact, this would allow the Commission to obtain direct information from market participants and thus form an *ex ante* holistic view of the sector concerned, and therefore to better focus its investigations.

The Commission made use of this instrument for the first time on 29 April 2015, with the opening of the Sector Inquiry into capacity mechanisms. The decision initiating the Inquiry briefly explains the Commission's concerns that the uncoordinated introduction of capacity payments risks 'being inefficient and materially distorting cross-border trade and competition between the various capacity providers'; 'distorting price formation in the internal electricity market'; 'may include only certain generation technologies or exclude non-generation activities such as demand side response'; and 'may also disregard the contribution that capacity providers outside national borders and improved interconnection with neighbouring markets can make to ensure security of electricity supply'.⁹⁴ Through the Sector Inquiry, the Commission seeks information from public authorities such as ministries, energy regulators, and competition authorities, and from market participants such as network operators, electricity generators, non-generation capacity providers, power exchanges, and traders, to gain a better understanding of the existence and functioning of capacity mechanisms, on the various types that exist or are planned. The Sector Inquiry covers eleven Member States so as to include a representative sample of the different models of capacity mechanisms across the EU.

The Commission received and reviewed responses from 124 organisations, including regulators, public bodies, network operators, and market participants active in the Member States covered by the Sector Inquiry. On this basis, on 13 April 2016, the Commission published an Interim Report and a Staff Working Document that provide its preliminary findings and tentative conclusions and ask all interested parties for comments. The final report will be finalised following the results of the public consultation.

B. The Interim Report

In the Interim Report, the Commission acknowledges that there may be still a case for the introduction of

capacity mechanisms. In particular, the Commission is of the view that Member States can implement capacity mechanisms (i.e. both targeted based and market-wide mechanisms) only once they have adopted measures to improve the functioning of the markets as far as they possibly can and they have addressed the underlying causes behind the generation adequacy problem. However, as these measures may not suffice to provide the right price signals to ensure generation adequacy given the existence of residual market and regulatory failures, capacity payments may be justified.⁹⁵

The Interim Report shows that adequacy problems have been rare in the last 5 years but public bodies indicate that the risk is likely to increase in the future due to the closure of existing plants and the inability of the upcoming generation mix to address peak demand.⁹⁶

The main issue that the Commission has identified regards the absence of a common methodology to assess the adequacy situation and to define reliability standards against which the adequacy assessment can be conducted. Moreover, the Commission has concluded that there is little evidence to show a close link between the level of capacity procured and the level of reliability desired on the basis of the reliability standard used. This also complicates the assessment of the role of interconnectors to fill in the capacity need.

In relation to the design features of capacity mechanisms, the three main design choices that Member States make relate mainly to eligibility, allocation, and product design.

As regards eligibility criteria, Member States consider different variables such as the range of generation technologies, the participation of demand response and storage providers, the conclusion of existing or new technology and the location of the capacity. Even though new capacity mechanisms tend to be open to an increasing number of capacity providers, the vast majority of capacity mechanisms is open to a restricted number of participants by means of implicit (e.g. size requirements, lead time, technical performance, or de-rating) or explicit exclusion mechanisms, which might result in overcompensation due to the lack of competitive pressure and the eventual need to develop additional capacity mechanisms to compensate capacity providers, which were originally excluded from the original capacity mechanism (snowball effects).⁹⁷ In relation to the cross-border participation, the inquiry reveals that there is a small but increasing number of

⁹⁴ Commission Decision initiating an inquiry on capacity mechanisms in the electricity sector pursuant to Article 20a of Council Regulation (EC) No 659/1999 of 22 March 1999, 29 April 2015, C(2015) 2814 final, point 4

⁹⁵ Interim Report, p 9 and SWD accompanying the Interim Report, p 36.

⁹⁶ SWD accompanying the Interim Report, p 53.

⁹⁷ Ibid, p 78.

capacity mechanisms that allow the participation of capacity providers from other Member States, even though this number is relatively small. For example, in the Commission decision on the UK Capacity Market,⁹⁸ the UK authorities committed to opening the participation to interconnectors as of 2015 and this indeed happened in the 2015 capacity auction where they participated as price takers.⁹⁹

The Report identifies two different approaches to allocation of capacity remuneration equally spread across EU Member States, namely administrative and competitive allocation processes. The Interim Report is critical of administrative allocation processes, used in price-based mechanisms, since it normally does not reveal the true value of capacity. As a result, administrative allocation processes are unlikely to be cost-effective and are also unlikely to send the proper signals for market entry and market exit. The design of the allocation process in a capacity mechanism can also negatively affect competition in the electricity market. For instance, the inquiry found that de-centralised mechanisms are not suitable for concentrated markets since they can act as a barrier to market entry.

With regard to product design, the Interim Report finds that Member States introduce rules to determine the obligations of capacity providers in return for receiving the capacity remuneration and penalties that the authorities will impose in the event of non-compliance with the obligation. The inquiry criticises the use of limited obligations and penalties for non-compliance given that capacity providers may have insufficient incentives to be reliable. The Interim Report refers to the existence of a tension between effective penalty regimes and undesirable distortions of the market functioning, calling Member States to ensure that price signals are not substituted by capacity mechanisms.¹⁰⁰

The Commission draws four main preliminary conclusions in the Interim Report.

First, that it is necessary to establish a common methodology to assess generation adequacy, including cross-border capacity, since this is a paramount step towards the identification of a particular capacity mechanism that may be compatible with State aid rules.¹⁰¹

Second, the Report is critical of price-based capacity mechanisms compared to volume-based capacity mechanisms due to the higher risk of either

overcompensation stemming from price-based capacity mechanisms or insufficient volume being procured to meet the desired level of reliability.

Third, from the remaining models of capacity mechanisms, which are volume based and are more likely to lead to efficient outcomes (i.e. tender for new capacity, strategic reserve, central buyer mechanism, and de-central obligation mechanism), the Interim Report distinguishes between short-term and long-term responses to potential capacity problems. The Commission considers that strategic reserves and tenders for new capacity can be used to tackle transitional capacity problems but are not capable of resolving underlying problems, and they can even worsen the situation if they are not introduced together with a clear plan to remedy the causes. On the other hand, the report considers that de-central obligation mechanisms and central buyer mechanisms are adequate to address longer-term and general generation adequacy problems. These types of capacity mechanisms also tend to increase competition for capacity remuneration by allowing the participation of different capacity providers from both the supply and the demand sides and attracting new capacity.¹⁰²

Fourth, whatever the public authority's final choice, the Interim Report encourages Member States to introduce carefully designed capacity mechanisms that do not undermine the functioning of the electricity market. In this regard, capacity mechanisms must be established according to transparent and open rules of participation.

VI. Conclusions

This long excursus into the typology and rationale for capacity mechanisms, their regulatory treatment, and State aid assessment, as well as the first results from the dedicated Sector Inquiry, provides an excellent illustration of the current complexity of the internal energy market in Europe. While liberalisation was meant to create energy-only markets that would put an end to the need for public interventions, its actual development has proven matters to be much more byzantine.

From an *ex ante* regulatory perspective, the rules that deal with generation adequacy and security of supply are by now 10 years old. The recent policy initiatives, although numerous, have had little if no influence in

98 Commission Decision of 23 July 2014, SA.35980, United Kingdom—GB Capacity Mechanism.

99 See <<https://www.gov.uk/government/collections/electricity-market-reform-capacity-market>> accessed 31 May 2016.

100 Interim Report, p 16.

101 Interim Report, p 17, SWD accompanying the Interim Report, p 124.

102 Interim Report, p 17, SWD accompanying the Interim Report, p 125.

shaping the markets. The consultations on the electricity market design¹⁰³ and on risk preparedness in the area of security of electricity supply¹⁰⁴ are a very welcome development and the hope is that they will tackle some of the underlying causes of capacity mechanisms.

Ex post State aid control has, so far, been more effective as an energy policy instrument. In this area, the focus of the Commission's assessment has clearly shifted over time from accepting generation adequacy as a PSO (and thus subject to only a cursory examination of whether the Member State had committed a manifest error in its identification) to a fully fledged compatibility analysis under Article 107(3)(c) TFEU. More recently, the EEAG provided a much-needed list of requirements as to the justifications and design of capacity mechanisms that are both binding and applicable across the whole internal energy market.

The Sector Inquiry will now provide additional information on the actual functioning of capacity mechanisms. This will feed into both the EEAG revision as well as the regulatory proposals. From an enforcement perspective, based on the findings of the final report, the Commission could also be inclined to investigate those capacity mechanisms, which it considers more distortive of competition and cross-border electricity trade in order to assess their compliance with the EEAG.

The overall hope is that clarity will be shed on either a European blueprint for generation adequacy or at least common *ex ante* as well as *ex post* criteria to ensure that security of supply is dealt with and attained at EU level, thus making the internal energy market stronger and more interconnected.

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103 Commission Communication, 'Launching the public consultation process on a new energy market design', 15 July 2015, COM (2015) 340 final.

104 Consultation on risk preparedness in the area of security of electricity supply. <[https://ec.europa.eu/energy/sites/ener/files/documents/DG%](https://ec.europa.eu/energy/sites/ener/files/documents/DG%20ENER_ConsultationPaperSoElectricity14July.pdf)

[20ENER_ConsultationPaperSoElectricity14July.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/DG%20ENER_ConsultationPaperSoElectricity14July.pdf)> accessed on 31 May 2016.