

EU Energy Policy and the Third Package

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Abstract:

Energy has been a central feature of the EU since its initial inception as the European Coal and Steel Community (ECSC) in the 1950s. A mainstay of successive policies has been to introduce 'singularity' in to the sphere of energy at different scales – for example, from a narrow central pooling of physical resources, as with the ECSC, to much broader attempts at introducing a liberalised single market place for gas and electricity, and proposals for a single gas buyer mechanism under the 2015 Energy Union framework. These moves were typically internal responses to external events, such as the Arab oil embargoes or geopolitical tension between Russia and eastern European countries. To achieve the goal of a single internal energy market policies have sought to remove or reduce the friction placed on cross-border trade, governance and regulation of energy by often contradictory and conflicting national policies of member states. This has taken the form of specific and targeted pieces of legislation aimed at technical harmonisation, as well as wide-reaching sets of policies to overhaul entire sectors and governance and regulatory practice across all member states. This working paper sets out the path along which EU energy policy has moved since the initial creation of the organisation in the 1950s, detailing the principle documents and legislation upon which the current and proposed policies were constructed.

Keywords: European Union; energy; governance; third energy package; internal market

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Period	Year	Policy	Priorities	Sector	Market conditions	Events	Year
1950s	1951	ECSC	Resource pooling	Generation; Supply; Markets	Economic rebuilding		
	1953	UPCTE	Electricity; Interconnections	Distribution; Supply; Markets	Economic rebuilding	Post-WW2	1950+
1960s						Arab oil embargo	1963
1970s	1973	Copenhagen summit	Supply; Policy harmonisation	Generation; Supply; Markets	Oil price spike; Supply disruptions	Arab oil embargo	1975
1980s	1983	SEA	Policy harmonisation; Interconnections; Markets	Environment	Low prices; Supply stability		
1990s	1998	EC Treaty 1st Electricity Directive		Markets; Regulation			
2000s	2001	RES Directive	Climate change; Generation; Supply	All	Price rises; Geopolitics		
	2001	Emissions Trading Scheme	Climate change	Generation			
	2003	2nd Electricity Directive	Harmonisation	Markets; Regulation			
	2005	Hampton Court	Climate change; Supply			Russia-Ukraine disruptions;	2006;
	2007	Third Energy Package	Supply; Markets; Retail; Climate Change			renewables	2009
2010s	2011	EU-2020 targets	Climate Change	Generation; Environment	Softening prices; Geopolitics	US shale;	
	2014	EU-2030 targets	Climate Change	Generation; Environment	Softening prices; Geopolitics	Fukushima; increased coal;	
	2015	Energy Union	Supply; Markets; Retail	Supply; Distribution; Retail; Markets	Softening prices; Geopolitics	ETS; renewables	2010+

1. A brief history of EU energy policy

1.1 The early years

In the initial years of the European project, energy was viewed through the narrow focus of security of supply and pooling of common resources. The treaty establishing the European Coal and Steel Community (ECSC) was signed in April 1951 and entered force in August 1952, with Belgium, Germany, France, Italy, Luxembourg and the Netherlands the signatories. The common markets set out by the Treaty opened in February 1953 for coal, iron ore and metal, followed by that for steel in May 1953. In 1957 the founding of the European Atomic Energy Agency (Euratom) also sought a common policy approach to nuclear power. The foundation of both these treaties was an attempt to foster a cooperative approach to the handling of the traditional backbone of energy supply in Europe, coal, the primary raw material for industry, steel, and the fuel of the future, nuclear power. But the determination of energy source remained at the member state decision making level, and the project of European integration was still developing. Although market integration was discussed, the focus of policy remained on security of supply.¹

National electricity grids in Europe became increasingly interconnected in the 1950s, with cross-border interconnections encouraged by the Organisation for European Economic Co-operation as part of post-war reconstruction. The Union for the Coordination of Production and Transmission of Electricity (UCPTE – which became ENTSOE in 2009) was created following its inaugural meeting in May 1951 with Austria, Belgium, France, Federal Republic of Germany, Italy, Luxembourg, the Netherlands and Switzerland the founder members. UCPTE's primary aim was to contribute to the development of economic activity by way of more effective energy usage resources – something that would be enabled through increased interconnection of national electricity networks.² After its establishment in Western Europe, the UCPTE fostered interconnections in the late 1950s and 1960s in electricity markets in southern and eastern Europe and the Balkans.

Later in the 1960s the focus hardened on supply security – although there remained an absence of a unified energy policy – during the 1967 and 1973 Arab oil embargos. Because of support for Israeli military engagements with Arab countries, an oil export embargo was placed on the US and selected perceived European allies such as the UK, West Germany, the Netherlands and Italy by Arab members of Opec. Other European countries were threatened

¹ McGowan, F (2008), 'Can the European Union's Market Liberalism Ensure Energy Security in a Time of "Economic Nationalism"', *Journal of Contemporary European Research*, 4 (2) p.93-94

² ENTSOE (2003), 'The 50 Year Success Story – Evolution of a European Interconnected Grid', p.11
https://www.entsoe.eu/fileadmin/user_upload/library/publications/ce/110422_UCPTE-UCTE_The50yearSuccessStory.pdf

with phased supply reductions, and those without disruption began to stockpile oil. France had called for a coordinated EU external policy response to the wars and the embargo, but the varying treatment shown to European countries by Opec reflects the absence of a common approach.³ At the subsequent Copenhagen Summit of heads of state or government in 1973 the importance of negotiating cooperative arrangements with oil-producing countries was recognised, and a study was proposed into common problems faced by oil-consuming countries.⁴

1.2. Formative years: the 1980s

It was not until the 1980s that a collective approach to energy policy was formalised, with the focus on the single market. The Single European Act (1985) set out the basis for increased integration and a move towards the single market, but energy was not included. Within the act environmental protection was included, but the primary focus remained the furthering of the internal market.⁵ Greater integration of national energy markets had been discussed by the Council of Ministers⁶, and in 1988 the idea of a functioning internal energy market was set down in Commission working paper. It recognised that an internal market required harmonisation of rules and technical norms, the opening up of public procurement of energy and the removal of fiscal barriers – primarily the individual manner in which member states tax energy⁷. The document also envisioned a ‘common carrier’ system for gas and electricity across member states, in which consumers could purchase energy from any supplier within the Community regardless of grid ownership.⁸

The paper put forward the idea that a single energy market would reduce energy costs for consumers, improve and rationalise energy production and transportation costs, increase investment and ensure security of supply.⁹ Electricity and gas had been left out of market liberalisation policies up until this point due to the physical nature of their networks (compared to the more fungible coal and oil), and the strong presence of monopolies on grid and pipelines – which were considered ‘natural monopolies’¹⁰ – and the associated politics internally and between member states. The working paper identified four sets of actions needed to achieve an

³ Smith, M E. (2004) *Europe’s Foreign and Security Policy: The Institutionalisation of Cooperation*, Cambridge University Press, p.113

⁴ Meetings of the Heads of State or Government (1973) http://aei.pitt.edu/1439/1/copenhagen_1973.pdf

⁵ Langsdorf, S (2011), ‘Energy Roadmap 2050 – A History of EU Energy Policy’, p.5 http://gef.eu/uploads/media/History_of_EU_energy_policy.pdf

⁶ Eikeland, P (2004), ‘The Long and Winding Road to the Internal Energy Market – consistencies and inconsistencies in EU policy’, FNI Report 8/2004 p.4

⁷ COM (88) 238 final, pp.14-17

⁸ Eikeland, P (2008), ‘EU Internal Energy Market Policy’, FNI Report 14/2008, p.12

⁹ COM (88) 238 final pp.5-6

¹⁰ Buchan D (2009) ‘Energy and climate change: Europe at a crossroads’, p.20

internal energy market: implementing and harmonising general rules and technical norms for the energy sector; the application by the Commission of Community Law; a satisfactory equilibrium between energy and environment policies; and the definition of appropriate means in areas related to energy policy (i.e. specific energy directives)¹¹. Following the working paper a package of proposals for energy directives needed to ensure free competition in electricity and gas markets was adopted by the Commission and referred to the Council of Ministers in 1989. But there was widespread opposition to the package – most notably to its proposal of a common carrier system – as they sought to liberalise market sectors that had traditionally enjoyed privileged and protected positions through both national and natural monopolies.¹²

1.3 The 1990s

Following the Council's opposition, in 1990 the Commission adopted directives on price transparency¹³ and transit rights for electricity grid operators¹⁴, which were regarded as the less contentious directives in the proposed package.¹⁵ The Commission continued to develop plans for a liberalised internal energy market in the 1990s, but no specific chapter on energy was included in the 1992 Maastricht Treaty, as its inclusion was vetoed by member states – notably those with large energy reserves – to ensure they retained autonomy over energy policy.¹⁶ Energy was directly referred to in the treaty as an activity of the European Community in terms of 'measures in the spheres of energy, civil protection and tourism' – the last of the twenty categories outlined in the treaty document¹⁷. But the wording was vague and it did not provide a regulatory or legislative foundation. Further reference to energy was made in the treaty in relation to 'trans-European networks', with the European Community contributing to the establishment and development of trans-European networks in the areas of transport, telecommunications and energy infrastructures¹⁸. Elsewhere in the treaty the primary reference to energy was in the context of Euratom. By the second half of the 1990s the internal market for energy became more substantially developed, when the European Parliament passed a directive on the rule for the internal electricity market in 1996¹⁹, which was followed by a

¹¹ COM (88) 238 Final p.13

¹² McGowan, F, (2011) 'The UK and EU Energy Policy: From Awkward Partner to Active Protagonist?' p.200, in Birchfield, V, and Duffield, J, (eds.) *Toward a Common European Union Energy Policy*, London: Palgrave (2011)

¹³ 90/377/EEC (29/6/1990)

¹⁴ 90/547/EEC (29/10/1990)

¹⁵ Eikeland, P, (2004) p.5

¹⁶ Langsdorf S, (2011) 'Energy Roadmap 2050 – A History of EU Energy Policy', p.5

¹⁷ Article 3(t) <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:11992M/TXT&from=EN>

¹⁸ Article 129b(1) <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:11992M/TXT&from=EN>

¹⁹ Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity

directive in 1998 on rules for the gas market²⁰. These were watered-down versions of proposals rejected by member states originally in 1990²¹, but nevertheless they substantially bolstered the moves towards an internal market place and attempted to remove 'legal monopolies' and obliged vertically integrated companies to grant third party access to networks.²² Article 15 of the Directive also introduced requirements for separation of operations for vertical integration companies.

Directive 96/92/EC (electricity): Chapter IV, Article 15:

1. Member States which designate as a single buyer a vertically integrated electricity undertaking or part of a vertically integrated electricity undertaking shall lay down provisions requiring the single buyer to operate separately from the generation and distribution activities of the integrated undertaking.
2. Member States shall ensure that there is no flow of information between the single buyer activities of vertically integrated electricity undertakings and their generation and distribution activities, except for the information necessary to conduct the single buyer responsibilities.²³

The directive also set out key rules on unbundling – the idea that a supply company cannot also own an entity that operates a network – and rules for transmission system operators (TSOs) and distribution system operators (DSOs). Member states were required to designate whether the TSO or DSO would determine 'non-discriminatory access' to networks. The access could be provided using negotiated third party access, regulated third party access or the Single Buyer model, although no rules were included in the directive detailing how TSOs should facilitate access of third-parties to networks.²⁴

Under the unbundling rules TSOs were required to be 'independent at least in management terms from other activities not relating to the transmission system', while the Directive also sought to increase network transparency, establish a wider remit and central role for TSOs and DSOs, and introduce rules relating to standardised provisions for the construction of new generation capacity. However, the Directive was not sufficient in breaking the dominance of big incumbent market actors as there was nothing within it that required countries to create a competitive field of companies in generation or retail, meaning the sectors remained highly

²⁰ Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas

²¹ Eikeland, P, (2004) p.6

²² DG Competition Report on Energy Sector Inquiry (2007) P.114
http://ec.europa.eu/competition/sectors/energy/inquiry/full_report_part2.pdf

²³ Directive 96/92/EC

²⁴ Thomas, S (2005) 'The European Union Gas and Electricity Directives' *PSIRU – University of Greenwich*, p.10
<http://www.psirU.org/sites/default/files/2005-10-E-EUDirective.pdf>

concentrated.²⁵ It was also noted subsequently that the range of management and transmission systems in Europe and a lack of cross-border capacity remained a hindrance to the development internal market. Furthermore, the Commission had to accept that member states could effectively restrict trade across national borders, as high market concentration in practice allowed a single national firm to ultimately retain full control over imports.²⁶

The Directive made an important distinction between a regulated part of the market – the network – and its competitive parts – generation and supply.²⁷ But ultimately it failed to facilitate the development of more competitive wholesale and retail markets, while the varying results in transposing the Directive by member states and opening of their electricity markets to competition actually led to market distortion.²⁸ DG Competition also highlighted the existence of negotiated third party access regimes, limited levels of unbundling obligations and the lack of an obligation to establish a national energy regulator as failings of the Directive.²⁹

A 2001 benchmarking report into the implementation of the electricity and gas Directives highlighted community-wide problems (as well as some specific to member states), although overall transposition by member states had been carried out to a satisfactory suitable level. In the electricity market the report identified the following problems: high network tariffs and lack of structural clarity; powerful market incumbents; illiquidity in wholesale and balancing markets; and insufficient unbundling.³⁰

Problems identified with internal gas market were: insufficient flexibility for third-parties to change gas source/customer base due to high tariffs; concentration of production and import within a small number of companies; non-market based balancing regimes; a lack of tariff structure clarity; and insufficient unbundling.³¹ The focus remained predominantly on the internal market, with some reference to security of supply. But ‘environment’ was only referred to three times in the articles of the electricity market directive, and four times in the gas directive. Scant reference was made to environmental concerns beyond broad-stroke phrasing of ‘environmental protection’ and ‘with due regard for the environment’.

²⁵ Thomas, S (2005) p.11

²⁶ Eikeland, P, (2008) ‘EU Internal Energy Market Policy’, FNI Report 14/2008, p.12

²⁷ DG Competition Report on Energy Sector Inquiry (2007) p.114

²⁸ Domanico, F, (2007) ‘Concentration in the European electricity industry: The internal market as solution?’ *Energy Policy* (35) p.5065

²⁹ DG Competition Report on Energy Sector Inquiry (2007) P.114

³⁰ SEC (2001)1957 ‘First benchmarking report on the implementation of the internal electricity and gas market’, P.2 http://ec.europa.eu/energy/sites/ener/files/documents/2001_report_benchmarking.pdf

³¹ SEC (2001)1957, P.3

1.4 The early-to-mid 2000s

At this stage environmental policy notably entered the stream of energy, with the adoption of Directive 2001/77/EC – the ‘Renewable Energy Directive’ – following progress made previously under the Kyoto protocol that was adopted in 1997. The Directive mandated a community target of a 21pc share for renewable energy consumption by 2010, and encouraged member states to incentivise renewable energy development through the use of support schemes.

Following the 2001 benchmarking report, in July 2003 the electricity Directive 96/92/EC (and its gas counterpart) was repealed and replaced by Directive 2003/54/EC on the common rules for the internal market in electricity – the ‘Second Electricity Directive’ – alongside regulation (EC) 1228/2003 on cross border electricity trading. The Directive set out common rules for the generation, transmission, distribution and supply of electricity, provisions on ownership/unbundling, and consumer protection, with the aim of improving and integrating competitive electricity markets in the EU. Rules set down in the directive included the organisation and functioning of the electricity sector, open access to the market, the rights of electricity consumers and competition requirements.³² An equivalent directive for gas (2003/55/EC) was also adopted. The directive was different from that in 1998 as it provided less freedom to member states, required quicker transposition (with a target of 2004), and addressed cross-border issues.³³

The Second Electricity Directive aimed at a more complete market opening, with all non-household electricity customers to become eligible by 1 July 2004, followed by the full opening of retail markets for all household customers by 1 July 2007. The Directive sought to remove the discrepancies in the level of market opening between Member States that had plagued the 1996 Directive. It also mandated the creation of a regulator independent from the industry (though not necessarily government), and pushed further still with unbundling. The Directive also replaced negotiated third party access to networks with regulated third party access, under which third parties can access the network in a non-discriminatory manner based on published tariffs.³⁴

The unbundling regime under the Second Electricity Directive had three basic features:

³² <https://www.energy-community.org/pls/portal/docs/36275.PDF>

³³ Meeus L, and Belmans R, ‘Electricity Market Integration in Europe’ (2008) p.1

³⁴ DG Competition Report on Energy Sector Inquiry (2007) p.115

1. **Legal unbundling** of the TSO and DSO from other activities not related to transmission and distribution
2. **Functional unbundling** of the TSO and DSO, in order to ensure its independence within the vertically integrated undertaking³⁵
3. **Accounting unbundling** that required separate accounts for TSO and DSO activities³⁶

In 2003 the EU also made further developments on the environmental dimension of energy policy with the adoption of the 'Emissions Trading Directive' 2003/87/EC, which came into force in 2005. The Directive placed a limit on overall emissions from over 11,000 high-emitting energy installations as of 2013 in industrial and energy sectors, and also the aviation industry. An estimated 45pc of total EU emissions were covered by the scheme. The Directive also allowed for the trade of emissions capacities between permit holders, under a 'cap and trade' mechanism.³⁷

1.5 The late 2000s

More progress towards market liberalisation was made in 2005 during the UK's EU Presidency. The government's stated energy priorities for the Presidency included the driving forward of open and competitive energy markets in Europe, the promotion of long-term security of supply, and the tackling climate change. The UK was in favour of promoting security of supply through stronger EU-third country relations, with the European Energy Community Treaty with southeastern European states, progress with EU-OPEC dialogue and EU-Russia energy dialogue.³⁸ In October 2005 at the Hampton Court Informal Heads of State or Government meeting on EU external policy UK Prime Minister Tony Blair called for an EU-wide energy security policy against the backdrop of increasing oil and gas prices, rising energy demand and import dependency, and climate change.³⁹ Political developments and deteriorating relations between Russia and Ukraine in 2004-2005 that culminated in Russia shutting off the gas supply to Ukraine on 1 January 2006 were also behind calls for a security strategy. Following the Hampton Court summit the Commission produced a green paper entitled: 'A European Strategy

³⁵ The Directive allowed possible exemptions from legal unbundling for DSOs with more than 100,000 customers until July 2007 and a full exemption for those below 100,000. A possible full exemption from functional unbundling for DSOs with fewer than 100,000 customers was also allowed.

³⁶ DG Energy and Transport (2004) on Directives 2003/54/EC and 2003/55/EC on the internal market in Electricity and natural gas, p.1

³⁷ European Commission (2013) http://ec.europa.eu/clima/publications/docs/factsheet_ets_en.pdf

³⁸ UK Secretary of State for Foreign and Commonwealth Affairs (2006) 'Prospects for the European Union in 2006 and retrospective of the UK's Presidency of the EU, 1 July to 31 December 2005', p.15

³⁹ Whitman R., Thomas, G. (2005) 'Two Cheers for the UK's EU Presidency' *Chatham House briefing paper*

for Sustainable, Competitive and Secure Energy' which identified six key energy policy priority areas to address the challenges facing the EU:

- Completion of the internal gas and electricity markets
- Energy solidarity between member states
- Tackling security and competitiveness energy of supply
- An integrated approach to tackling climate change
- Innovation and technology
- A coherent external energy policy⁴⁰

Significantly, the green paper expanded the definition of energy policy to include climate change and security of supply alongside the traditional policy objective of creating the internal energy market.⁴¹ Despite the advances made under the Second Electricity Directive, in 2005 the Commission launched an inquiry into the energy sector to identify distortions in competition in response to concerns raised by consumers and new market entrants regarding price rises. Energy Commissioner Andris Piebalgs said “the Commission is determined to see that Member States follow through on their commitment to create competitive energy markets”, which would require the full implementation of liberalisation Directives, the construction of new interconnectors and pro-active application of competition law.⁴² The inquiry findings were published in January 2007 and shortcomings in the gas and electricity markets that were identified included:

- Market concentration in national markets
- A lack of liquidity
- Too little integration between member states' markets
- An absence of transparency
- Inadequate levels of unbundling⁴³

⁴⁰ COM(2006) 105 Final, P.5-15 http://europa.eu/documents/comm/green_papers/pdf/com2006_105_en.pdf

⁴¹ Barysch, K, (2011) 'Green, safe, cheap – Where next for EU energy policy?' *Centre for European Reform*, P.3 http://www.cer.org.uk/pdf/rp_003.pdf

⁴² http://europa.eu/rapid/press-release_IP-05-716_en.htm?locale=en

⁴³ DG Competition Report on Energy Sector Inquiry (2007)

1.6 The Third Energy Package

As a result of the findings, the most recent evolution of energy policy came about in the form of the Third Energy Package in 2009, which consisted of five primary documents: two Directives and three regulations. The five main areas that the Third Package covered were:

- Unbundling energy suppliers (including generation) from network operators
- Strengthening the independence of regulators
- Establishment of ACER (Agency for the Cooperation of Energy Regulators)
- Increasing cross-border TSO cooperation (ENTSO-E)
- Increased transparency in retail markets⁴⁴

Both the previous directives regarding the common rules for the internal electricity and gas markets were replaced by updated versions – Directive 2009/72/EC for the internal electricity market and Directive 2009/73/EC for the internal gas market. The three Regulations introduced were regarding access to the natural gas transmission networks (EC/715/2009), conditions for access to the networks to allow cross-border electricity exchange (EC/714/2009), and the establishment of ACER (EC/713/2009). The primary aspects of the policy that were new within the package were related to unbundling of energy supply and network distribution, increased transparency of retail markets and more effective oversight by independent market watchdogs, the national regulatory authorities and better cross-border collaboration and investment between member states.⁴⁵

The unbundling as part of the Third Package was a step change from previous Directives. The new Directive, under Article 9, introduced a ‘structural separation’ between TSOs and generation, production and supply activities – the aim of which was to avoid conflicts of interest and provide transparency.⁴⁶ The package was adopted in July 2009 and it came into force on 3 March 2011. Importantly the Third Package sought independence for regulatory authorities from governments and industry actors, whereas the 2003 Second Package had arranged only voluntary harmonisation of rules and practices.⁴⁷ Member states had until March 2011 to transpose the directives and regulations into national law, but had until March 2012 to ensure the conditions set out under Article 9 on ‘Unbundling of transmission systems and transmission system operators’ were met. As of 2014 there were six general energy regulations and directives in force, with a total of 217 directives, implementing acts, and regulations covering

⁴⁴ European Commission <http://ec.europa.eu/energy/node/50>

⁴⁵ MEMO/11/125 (2011) http://europa.eu/rapid/press-release_MEMO-11-125_en.htm?locale=en

⁴⁶ SWD (2013) 177 Final p.2 http://ec.europa.eu/energy/sites/ener/files/documents/swd_2013_0177_en.pdf

⁴⁷ Eikeland, P, (2008), p.1

specific sectors: oil (7); gas (9); electricity (13); renewables (16); energy efficiency (57); networks (4); and nuclear (111).⁴⁸

The transposition deadline for the Third Package was originally 3 March 2011, but full and timely transposition was ‘a challenge for the vast number of the Member States’ – none of them had achieved full transposition by the deadline. By September of that year 38 proceedings were opened against 19 member states. Directive transposition was speeded up, and by 26 September 2014 Directives were fully transposed in all but two member states.⁴⁹ Proceedings were put in place against Romania and Ireland for failed transposition.⁵⁰ Romania adopted amendments to its electricity (and gas) laws on 17 September (although had yet to full transpose), while Ireland was referred to the Court of Justice by the Commission⁵¹ for failing to transpose internal market rules. Across the EU 96 out of 100 TSOs have been certified as compliant with unbundling with the model of full ownership unbundling the most popular (though 6 electricity TSOs use the ITO model).⁵² In September 2014 the Commission started to identify and resolve problems concerning incorrect transposition and/or bad application of the Third Package rules by member states, and undertook a ‘systematic non-conformity assessment’ of national measures in almost all 28 member states⁵³, and opened pilot cases (i.e. where in instances where violation of transposition or bad application of *acquis* has occurred) on several occasions against member states. Following a conclusion that national law was not in conformity with the Third Package, the Commission initiated nine ‘non-conformity’ Pilot Cases, with one resulting infringement procedures⁵⁴. The Commission has also done this on ad-hoc basis, for example against Spain in 2012-13.⁵⁵ As of May 2014 (*September 2014 also?*⁵⁶) there were nine Member States with cases where Directives were not fully transposed (Belgium, Czech Republic, Ireland, Luxembourg, Netherlands, Austria, Poland, Slovenia, and Finland) and there were eight pending infringement cases for non-conformity.⁵⁷

⁴⁸ http://ec.europa.eu/energy/sites/ener/files/documents/energy_legislation_by_policy_areas_0_0.pdf

⁴⁹ <http://italia2014.eu/media/2520/energy-informal-council-internal-energy-market-discussion-paper.pdf>

⁵⁰ SWD (2014) 315 Final, p.3 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0315&from=en>

⁵¹ European Commission (20 Feb 2014) http://europa.eu/rapid/press-release_IP-14-155_en.htm

⁵² COM/2014/0634 final, p.8 <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52014DC0634>

⁵³ P.4 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0315&from=en>

⁵⁴ SWD (2014) 315 Final p.4-5

⁵⁵ http://ec.europa.eu/eu/law_infringements/infringements_decisions_en.htm

⁵⁶ SWD (2014) 213 Final, p.6

⁵⁷ http://ec.europa.eu/internal_market/scoreboard/performance_by_governance_tool/priority_areas/index_en.htm

2. The Internal Energy Market

In 2011 the EU had ambitiously targeted 2014 for the completion of the internal energy market (IEM), but it remains a substantial way off completion. The target model is formed of a wide range of integration mechanisms, but broadly centred on the principles of: energy only regional markets (i.e. revenues are determined by the price of each unit of energy supplied); and market coupling (a means of linking zonal day-ahead spot markets into an EU-wide virtual market).⁵⁸ Market coupling is discussed further in section 4 below. The vision for the day-ahead markets is a European Price Coupling (EPC) mechanism that would simultaneously determine volumes and prices in all relevant zones, based on the marginal pricing principle and supply and demand.⁵⁹ The project on integration and coupling is mainly led by ENTSO-E – alongside ACER and CEER and the TSOs – which was given a legal mandate (directive EC/214/20060) under the Third Energy Package to lead the development of a pan-European electricity transmission network. In particular, ENTSO-E's role is to:

- Ensure the secure and reliable operation of the increasingly complex network;
- Facilitate cross-border network development and the integration of RES;
- Enhance the creation of the Internal Electricity Market (IEM)⁶¹

In 2006 CEER launched the European Regional Initiative (ERI) to speed up the integration and coupling of Europe's national electricity markets and the creation of the single market. ACER and national regulatory authorities produced the 'EU Energy Work Plan for 2011-2014' in electricity, which was formed of four roadmaps⁶² that focused on the implementation of the separate parts of the internal energy market across member states:

- Implementation of a single European price market coupling model
- Implementation of a cross-border continuous intraday trading system across Europe
- Implementation of a single European set of rules and a single European allocation platform for long and medium-term transmission rights
- Implementation of fully coordinated capacity calculation methodologies and particularly the flow-based allocation method in highly meshed networks

⁵⁸ Keay, M, (2013), 'The EU target model for electricity markets: fit for purpose?', *OIES*, p.2

⁵⁹ ACER http://www.acer.europa.eu/Electricity/Regional_initiatives/Cross_Regional_Roadmaps/Pages/1.-Market-Coupling.aspx

⁶⁰ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0015:0035:EN:PDF>

⁶¹ ENTSOE <https://www.entsoe.eu/about-entso-e/inside-entso-e/official-mandates/Pages/default.aspx>

⁶² http://www.acer.europa.eu/Electricity/Regional_initiatives/Cross_Regional_Roadmaps/Pages/Cross-Regional-Roadmaps.aspx

Seven regional electricity organisations were also established⁶³ as an interim step to the eventual creation of a single EU-wide market⁶⁴ and work plans were developed, focusing on the specific issues and requirements of each needed to meet the four roadmaps and complete the internal electricity market.⁶⁵ The integration of markets should result in more cross-border competition and therefore allow more actors into the market, which could increase supply security and liquidity. In theory, markets connected via interconnectors will respond according to the increased security and liquidity as a result of greater cross-border interconnection is a key tenet of the Commission's promotion of the internal energy market and is a driver behind future developments such as the UK-Norway interconnector, which supply and trading company RWE noted 'will improve market liquidity, competition and security of supply'.⁶⁶

2.1 The software: network codes

The completion of the internal market and its subsequent functioning is underpinned by the network codes, which provide operational rules as a basis for the development of the internal market. Network codes were introduced under of the Third Energy Package to ensure common technical and commercial rules governing access to energy networks that would allow the standardisation of trade between member states and remove any barriers⁶⁷. Network codes represented a more formal form of market integration policy as they were developed by ENTSO-E, an organisation that is collectively representative of member states. By comparison, the regional initiatives and roadmaps – mentioned in the previous section – were largely a bottom-up but indicative process. The ten network codes at the heart of market harmonisation are subdivided into three categories, depending on which part of the industry they apply to: three relate to grid connection, four to system operation, and three relate to markets. Under the ENTSO-E three year work plan there was an expected order and schedule for the development of the codes, but they have not progressed in that order.⁶⁸ The Capacity Allocation and Congestion Management (CACM), Forward Capacity Allocation (FCA) and Network Balancing (EB) codes were the first ones to be developed, but the Commission noted on October 2014

⁶³ Baltic, Central-East, Central-South, Central-West, France-UK-Ireland, Northern, and South-West

⁶⁴ CEER http://www.ceer.eu/portal/page/portal/EER_HOME/EER_ACTIVITIES/EER_INITIATIVES/ERI

⁶⁵ http://www.acer.europa.eu/Electricity/Regional_initiatives/Pages/Work-Programmes-2011-2014.aspx

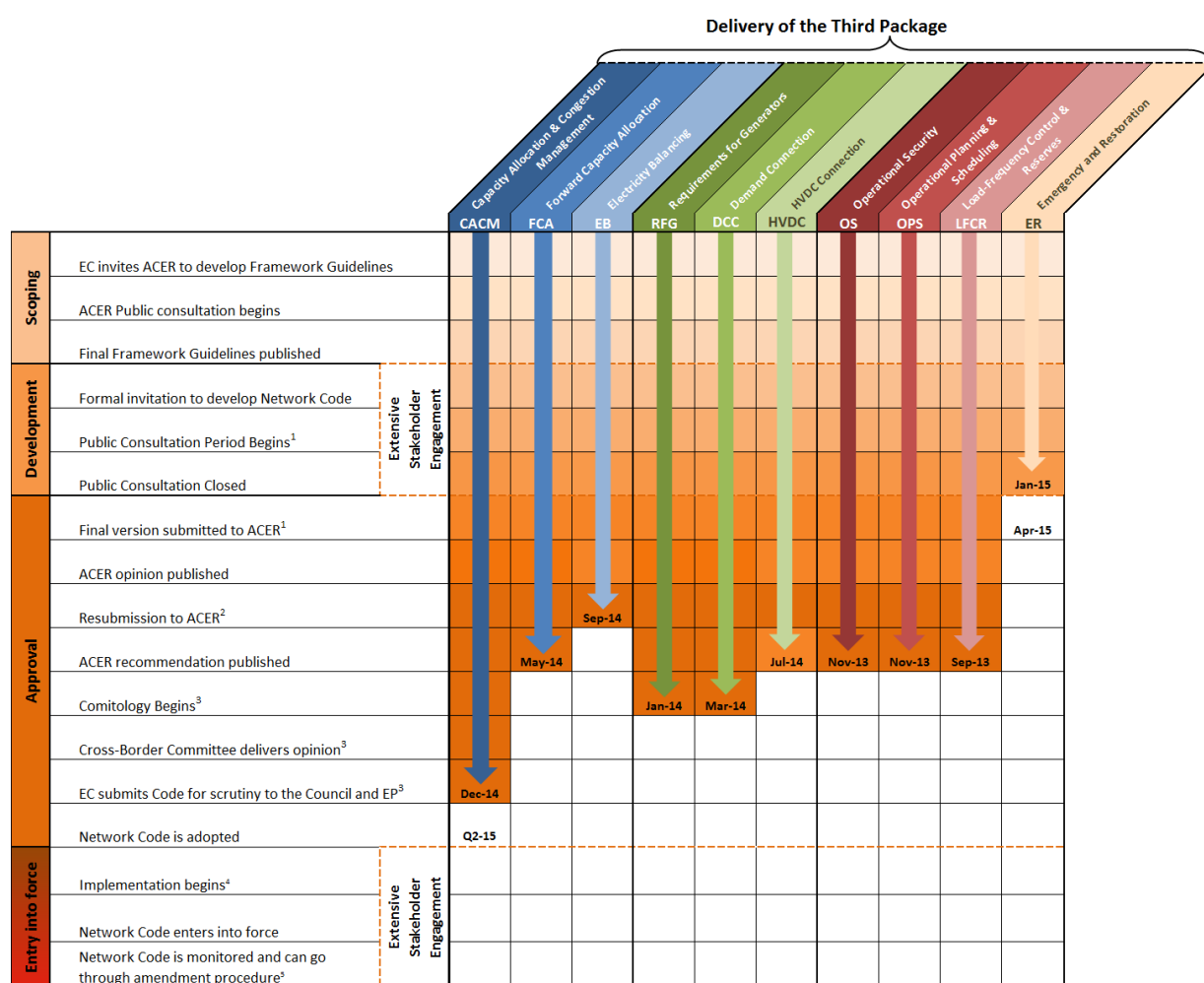
⁶⁶ RWE (2015) <https://www.ofgem.gov.uk/ofgem-publications/93628/rwe-wj914capandfloorsnrwerresponsev02finaljan15-pdf>

⁶⁷ Ofgem (2012) <https://www.ofgem.gov.uk/ofgem-publications/59309/eu-target-model-open-letter.pdf>

⁶⁸ https://www.entsoe.eu/Documents/Network%20codes%20documents/General%20NC%20documents/1404_introduction_to_network_codes_Website_version.pdf

that priority had been given to the CACM code⁶⁹ due to its importance in cross-border trade and the development of interconnectors.

The CACM code sets out the method for allocating capacity in day-ahead and intra-day trading timescales and outlines the way in which capacity will be calculated between member states and the regional markets. This harmonisation of how markets operate will be the foundation upon which the internal energy market will be developed.⁷⁰ The code is expected to be adopted in the second quarter of 2015, having been submitted by the EC to the Council and Parliament for scrutiny in December 2014 and passed the comitology stage – the only one to have done so as of March 2015. The initial three-year plan agreed upon by ACER, ENTSO-E and the Commission in 2011 was timetabled for 8 of the network codes to have been at the comitology stage by first-quarter 2014.⁷¹



Network Code Progression – April 2015 (Source: ACER)⁷²

⁶⁹ SWD/2014/0634 Final <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52014DC0634>

⁷⁰ ENTSO-E <https://www.entsoe.eu/major-projects/network-code-development/capacity-allocation-and-congestion-management/Pages/default.aspx>

⁷¹ Ofgem (2012) <https://www.ofgem.gov.uk/ofgem-publications/59309/eu-target-model-open-letter.pdf>

⁷² https://www.entsoe.eu/PublishingImages/Network%20Codes%20images/NC_status_chart.png

The next codes with the furthest progression are the ones regarding requirements for generators (RFG) and demand connection (DCC), which reached comitology in January and March 2014. Of the remaining codes six are at the approval stage, of which five have had ACER recommendations published, and one is to be resubmitted. The remaining code – emergency and restoration (ER) – was submitted to ACER on 31 March 2015, with a period of consultation with industry stakeholders opened thereafter.⁷³ The next priorities with the network codes will be those on facilitating short-term trading and development ancillary services markets to allow new actors to participate.⁷⁴ In January 2015 ENTOS-E also completed the establishment of its centralised REMIT page which is regarded as central to improving wholesale market transparency and information.⁷⁵

2.2 The hardware: interconnections

In October 2013 the Commission adopted a list of priority pan-European infrastructure projects known as Projects of Common Interest (PCIs) under regulation C(2013) 6766⁷⁶. Despite their significance in energy supply security and increasing cross-border interconnection, the progress of the PCIs is currently limited. As of the Commission's October 2014 update on PCIs, only one project had been commissioned, while seven were under construction. Of the remainder 51 were at permitting stage, five were in a position where a Final Investment Decision (FID) was due to be awarded, 40 were undergoing feasibility studies or Front End Engineering Designs (FEED) and 28 were at a pre-FEED stage. The Commission expects 28 projects to be commissioned by 2017, followed by a further 77 in the 2017-2020 period and 33 post-2020, while four are without a final schedule.⁷⁷ Eligible projects are able to access financial assistance from a €5.85bn pot over the 2014-2020 period which is managed by the Innovation and Networks Executive Agency (INEA) on behalf of the Connecting Europe Facility (CEF).⁷⁸ In May 2015 the European Investment Bank (EIB) announced it had approved financing of €8bn for energy projects in Europe, including for infrastructure projects and transmission links in north and western Europe.⁷⁹

⁷³ ACER (2015) http://www.acer.europa.eu/Electricity/FG_and_network_codes/Pages/Call-for-comments-on-the-Network-Code-on-Emergency-and-Restoration.aspx

⁷⁴ COM/2014/0364 Final <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52014DC0634>

⁷⁵ Regulation (EU) No 1227/2011 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:326:0001:0016:en:PDF>

⁷⁶ C(2013) 6766 Final <http://ec.europa.eu/transparency/regdoc/rep/3/2013/EN/3-2013-6766-EN-F1-1.Pdf>

⁷⁷ SWD (2014) 314 Final p.10-12 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0314&from=en>

⁷⁸ http://inea.ec.europa.eu/en/cef/cef_energy/ten-e_projects/cef-e-projects-and-actions.htm

⁷⁹ <http://ec.europa.eu/energy/en/news/investment-plan-europe-backs-renewable-energy-and-strategic-infrastructure-projects>

Despite the funding and the crucial nature of the PCIs, the Commission has identified major issues in their development, including: permitting by national authorities; public acceptance; regulatory incompatibility between member states (cross-border projects), and lack of access to finance. Under Article 10 of the TEN-E regulation (Regulation 347/2013 on guidelines for trans-European energy infrastructure)⁸⁰ member states are required to have an accelerated permitting procedure for PCIs.^{81 82} But 11 of the 28 member states had not set up ‘one-stop-shops’ allowing streamlined permitting for PCIs as of the third-quarter of 2014, with the EU Pilot scheme requesting further information in those States. The Commission regards the delays in implementing PCIs as ‘unacceptable’, as Member States are not implementing what is required under the TEN-E regulations.⁸³ Under regulations the pre-application and permit granting procedures for PCIs should not exceed 3.5 years.⁸⁴ As part of the development of the PCIs, the Commission in May 2014 proposed an increase in European interconnection levels of equal to 15pc of the installed production capacity in each member state by 2030 from the previous aim of 10pc. At the time of the proposal the EU28 average was 8pc.⁸⁵

In an April 2015 communication the Commission reported on the progress of cross-border interconnection capacity up to the end of 2014. Fourteen of the twenty-eight member states still had interconnection capacity of 10pc or less. Among these were major economies such as the UK (6pc), Italy (7pc) and Spain (3pc), and countries such as Ireland (9pc) that are expected to be major exporters of wind-generated power in the future. Estonia, Latvia and Lithuania all had 4pc interconnection capacity, while Poland had only 3pc, highlighting the security of supply challenges these countries face. The 400km long 700MW NordBalt interconnector that is being laid between Sweden and Lithuania, while not a PCI, is regarded as a means of increasing energy security in the Baltic region and reducing dependency on Russia. According to the Lithuanian Ministry of Foreign Affairs on 30 April 2015 a Russian warship entered the country’s exclusive economic zone and ordered the cable-laying vessel to change direction. Three other similar incidents occurred in 2015 which the ministry regards as “attempts to interfere with the

⁸⁰ C(2013) 6766 Final <http://ec.europa.eu/transparency/regdoc/rep/3/2013/EN/3-2013-6766-EN-F1-1.Pdf> ; Regulation (EU) No 347/2013 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0347&from=EN>

⁸¹ SWD (2014) 213 Final, p.18 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0314&from=en>

⁸² Department of Energy and Climate Change (2014) ‘Manual of Procedures: The permitting process for Projects of Common Interest in the UK’ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/311184/uk_manual_procedures_ten_e_regulation.pdf

⁸³ COM/2014/0634 Final, p.9 <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52014DC0634>

⁸⁴ http://www.ecologic.eu/sites/files/event/2014/01_viksne.pdf

⁸⁵ COM (2014) 330 Final, p.10 <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0330&from=EN>

construction work of the cable”.⁸⁶ The first-stage of a cable between Lithuania and Poland is also expected to be finished in 2015, while by 2020 increased interconnection is planned between Estonia and Lithuania, as well as the synchronisation of the Estonia, Latvian and Lithuanian networks with those in continental Europe. In May it was announced that INEA would provide €125,000 for studies into the synchronisation project⁸⁷, as part of the wider Baltic Energy Market Interconnection plan which is one of the Commission’s PCIs.⁸⁸

Increased interconnections between member states are the ‘hardware’ upon which the policy and regulatory ‘software’ of the EU can be developed – alongside greater cross-border trading and network balancing – and they are central to the Third Package and also a potential future Energy Union. In January 2015 the Commission noted how wholesale electricity costs in the EU had fallen by a third in 2008-2012, therefore showing how the integration of the EU’s energy markets has delivered ‘tangible results’.⁸⁹ This price fall has also coincided with strong growth in electricity from renewable sources in Europe, which lowers wholesale prices due to it being the a near-zero marginal source of supply in Europe, ahead of gas-fired power generation. However the fall in wholesale prices also coincided with a drop in European electricity demand of 3pc between 2008 and 2012, which included a 5pc fall from 2008-2009.⁹⁰

The development of new interconnectors has been promoted by the Commission as they are central to the creation of a single market through enabling cross-border trading of electricity and the development of regional markets. This coupling of member states and their markets leads to ‘market coupling’ or the price coupling of regions (PCR). The physical connection of the markets in effect means they operate as one, with the principals of supply and demand affecting each in the same way across the interconnector effect. Market coupling is central to the development and functioning of the internal energy market and is becoming an increasing feature of wholesale markets.

⁸⁶ Lithuania Ministry of Foreign Affairs (2015) <https://www.urm.lt/default/en/news/foreign-ministry-of-lithuania-summoned-the-russian-ambassador-to-express-strong-protest>

⁸⁷ http://www.enerdata.net/enerdatauk/press-and-publication/energy-news-001/inea-will-finance-647m-energy-infrastructures-projects-europe_32641.html

⁸⁸ INEA (2014) ‘Trans-European Infrastructure Projects of Common Interest (Energy)’ P.131-143 http://inea.ec.europa.eu/download/publications/pci_ener_superfinal.pdf

⁸⁹ COM/2015/082 Final <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1430910780110&uri=CELEX:52015DC0082>

⁹⁰ Eurostat (2014) http://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity_production_and_supply_statistics

3. Market Coupling

3.1 The structure of the European electricity industry

The European electricity industry chain is separated into four parts: generation, transmission; distribution; and supply. In the past vertically integrated companies and national champions dominated the four sectors, but legislation on market liberalisation and unbundling (including the independence of TSOs) has markedly changed the structure, although unbundling is not yet fully complete. In recent years large changes in the generation sector resulting from EU policies (e.g. decarbonisation) and non-European factors (such as the arrival of cheap US coal and the displacement of gas in European power generation) have subsequently required changes in the other three sectors.

Wholesale electricity in Europe is traded through bilateral contracts (mainly over-the-counter trades, OTC) or through power exchanges. In 2013 OTC activity accounted for 65pc of trade volume (down from 75pc in 2009), with exchange trading accounting for 20pc (up from 15pc in 2009).⁹¹ OTC trading is typically used for baseload power supply, with a flat level of electricity supplied consistently across each of the 47 half-hourly trading settlement periods in a day. The transactions involve standard electricity contracts, which are anonymous and cleared by either brokers or power exchanges. The prices in these contracts can be obtained for a fee at the end of the trading window from price reporting agencies such as Argus Media, Platts and ICIS. Argus Media, for example, carries out price assessments for electricity contracts traded at European markets, as well as for commodities including natural gas, coal, and refined oil products. The market data for these assessments are obtained through a variety of industry sources such as brokers, producers, consumers and intermediaries, with data in the form of transactions, bids and offers, and spread values. The company also republishes third-party price data from energy exchanges, balancing and spot markets in its reports, and where applicable, anonymised lists of deals used to formulate the assessments, including price, basis, counterparty and volume information⁹². The price assessment is retrospective and carried out once the market closes – though some electricity contracts are assessed intra-day – and provides clarity in the market place as it is an aggregated assessment based on a number of sources. The assessments are used in analyses of trading, but some are also used as benchmarks in supply contracts.

⁹¹ Bloomberg (14 April 2014) <http://www.bloomberg.com/news/articles/2014-04-15/broker-share-of-european-power-trading-fell-to-record-in-2013>

⁹² Argus Media (2014) <http://www.argusmedia.com/~media/Files/PDFs/Meth/argus-euro-electricity.pdf?la=en>

On power exchanges trading is typically carried out through bids and offers that are gathered, and then used to create a market clearing price which reflects supply and demand. Exchange-based trading allows the facilitation of the trading of short-term products in response to demand peaks. Exchange activity is typically higher closer to the closing of the trading settlement period to allow a more accurate picture of demand; this in-turn means exchange-based trading can increase market information and clarity, as well as competition, and liquidity – in line with the internal energy market and third package. The number of the exchanges in Europe has increased as a result of market liberalisation policies, which has in-turn increased market liquidity and led to greater levels of market coupling, which is at the core of the internal energy market under the Third Package.⁹³

3.2 The mechanics of market coupling

Market coupling is based on the idea that a market or zone with a lower price of electricity will continue to sell electricity into a higher priced market or zone across via an interconnector until the prices between them equalise. Over time this prevents prices in one market spiking above another, with the EU average wholesale price lower as a result. The growth in market coupling has occurred alongside the development of cross-border interconnection, also a central element of the Third Package as discussed in section 3 above. When markets are coupled via one or more interconnectors their respective supply and demand curves run jointly, and purchase and sale bids are matched regardless of within which market they originated. Reflecting supply and demand fundamentals, power flows to areas with higher prices, and when there are no transmission constraints, the markets will converge entirely and the power exchange prices will be identical.⁹⁴ Market coupling is in effect the inverse of market splitting. With market splitting (developed in the Nordpool Spot area) one power exchange operates across several price zones, whereas market coupling links together separate markets in a region, although the effect is the same.⁹⁵

Trading in coupled markets is done with the use of implicit auctioning involving two or more power exchanges, and it is at the heart of the internal energy market and pan-European electricity project. Interconnector flows are based on market data from the coupled markets, so the auctioning of transmission capacity is included (implicitly) in the auctions of electrical energy in the market. By comparison in explicit auctions the transmission capacity on an interconnector is auctioned to the market separately and independently from the marketplaces where electrical

⁹³ Madlener, R., & Kaufmann, M. (2002) 'Power exchange spot market trading in Europe: theoretical considerations and empirical evidence' OSCOGEN, p.3 http://www.oscogen.ethz.ch/reports/oscogen_d5_1b_010702.pdf

⁹⁴ Belpex <http://www.belpex.be/wp-content/uploads/Basic-Market-Coupling-Concept.pdf>

⁹⁵ Moffat Associates (2007) p.6 http://www.moffat-associates.com/energy_services/forecasting_market_trends/energy_viewpoints/documents/12/market_coupling_key_to_eu_power_market_integration.pdf

energy is auctioned.⁹⁶ Before the development of the internal electricity market and promotion of cross-border electricity trade across interconnectors, cross-border exchange contracts were negotiated individually between the incumbent producers and suppliers, and were typically for long-term supply capacity only.⁹⁷

Cross-border price convergence is the standard measure used across all EU sectors to determine the degree and effectiveness of cross-border competition and trade flows (although it cannot be applied to retail prices).⁹⁸ The implicit auction method used in market coupling allows cross-border buyers and sellers to trade electricity without having to explicitly buy the transmission capacity required. Power exchanges take capacity that has been declared available by a TSO and automatically allocates it so that one country continues to export for as long as the selling price is below the bid price in the other country. This capacity allocation continues until the two markets converge or the capacity is fully utilised.⁹⁹ When markets are coupled the supply and purchase curves will move jointly according to the overall supply merit order of the two markets. And because the market sends the right signals to both consumers and generators, more accurate and clear information on the cost of increased use of electricity is provided to generators.¹⁰⁰ Before the liberalisation of markets capacity on many European interconnectors was underutilised as it had been reserved under long-term contracts by market incumbents. For example, in 2001 it was estimated that 40-60pc of capacity was reserved. At that time 8pc of European electricity trade was done so via interconnectors such as those running servicing France-Spain, Germany-Netherlands and Germany-Denmark were heavily congested¹⁰¹.

⁹⁶ NordPool Spot http://nordpoolspot.com/globalassets/download-center/pcr/how-does-it-work_explicit-and-implicit-capacity-auction.pdf

⁹⁷ Mottaviani, O, and Inderst, R, (2004) 'Cross Border Electricity Trading and Market Design: The England-France Interconnector', *London Business School*, p.4

⁹⁸ Buchan, D, (2013), 'Why Europe's energy and climate policies are coming apart', *OIES*, p.29

⁹⁹ Buchan, D, (2013), 'Why Europe's energy and climate policies are coming apart', *OIES*, p.31

¹⁰⁰ <http://www.marketcoupling.com/market-coupling/Benefits%20of%20market%20Coupling>

¹⁰¹ Mottaviani, O, and Inderst, R. (2004) p.4

Case study: northwest Europe

The Northwest European (NWE) region electricity markets¹⁰² were chosen in 2010 for the ENTSO-E pilot project for implementing pan-European day-ahead market coupling, and replaced the previous Coupling in Central Western Europe (CWE) zone in 2014, which had operated with the UK, Baltic and Nordic regions. The project reflected the early completion of requirements set out in the capacity allocation and congestion management (CACM) network code, and marked a major step forward as the NWE region accounts for 75pc of European power consumption. The coupling involves the simultaneous calculation of market prices, net positions and electricity exchanges between market areas using implicit auctions.¹⁰³ Price convergence coupling and market coupling takes place at two levels: between member states at the level of regional hubs, and then between these regions. Countries that fall within ENTSO-E's NWE region are amongst the highest for cross border electricity trading.

Following the success of the NWE market coupling, in May 2014 full price coupling for day-ahead market was extended to and completed between the NWE region and the Southwest European (SWE) region. Involving TSOs and power exchanges from 17 countries, the coupling means that electricity can be exchanged and traded between the countries under a common day-ahead power price calculation.¹⁰⁴

In 2014 cross-border electricity traded as share of domestic generation reached 13.2pc in July 2014 (the highest in the data set extending back to 2011) from around 12.5pc at the start of the year, and under 10pc in January 2011. It grew at a faster rate than the increase in electricity consumption and traded volume of power in 2014, suggesting increased liquidity, interdependency and integration of electricity markets in the EU.¹⁰⁵ Market liquidity – measured as the ratio of traded volume of day-ahead contracts and the electricity consumption – is viewed as a performance indicator for the wholesale market and is used as a measure to monitor and determine the effectiveness and levels of competition in it.¹⁰⁶ In the second quarter of 2014 EU electricity market liquidity was 48.8pc in the second quarter of 2014 – broadly similar to the same period the previous year, but remained higher than in previous years.¹⁰⁷

¹⁰² Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Great Britain, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, and Sweden.

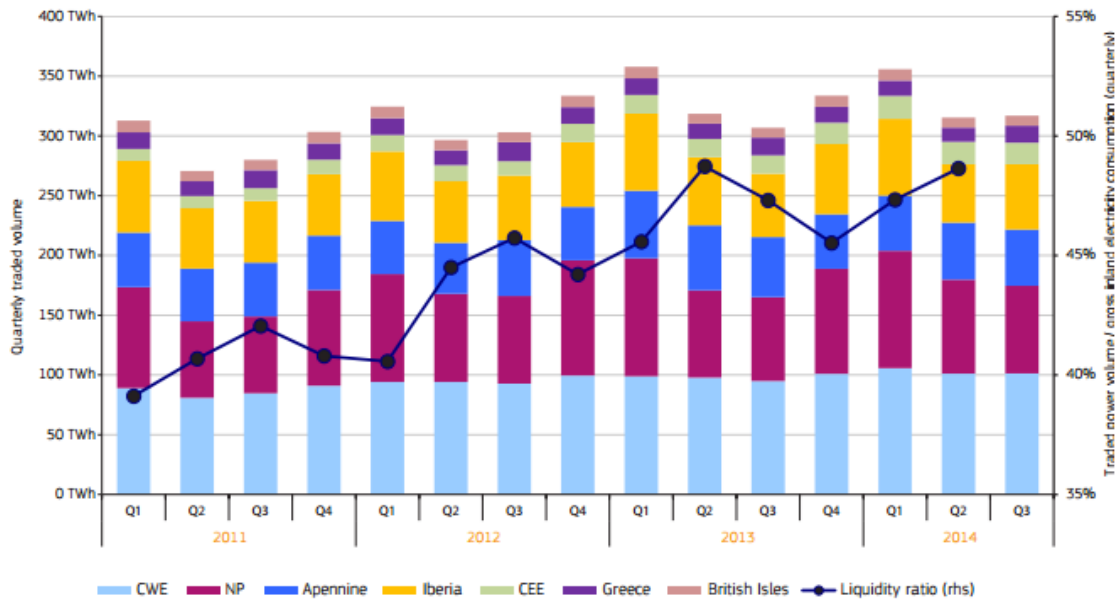
¹⁰³ ENTSOE (2010) <https://www.entsoe.eu/news-events/announcements/announcements-archive/Pages/News/Go-live-of-NWE-Project-a-Major-Step-towards-an-Integrated-European-Electricity-Market.aspx>

¹⁰⁴ ENTSOE (13 May 2014) <https://www.entsoe.eu/news-events/announcements/announcements-archive/Pages/News/SWE-NWE-Market-Coupling-Go-Live.aspx>

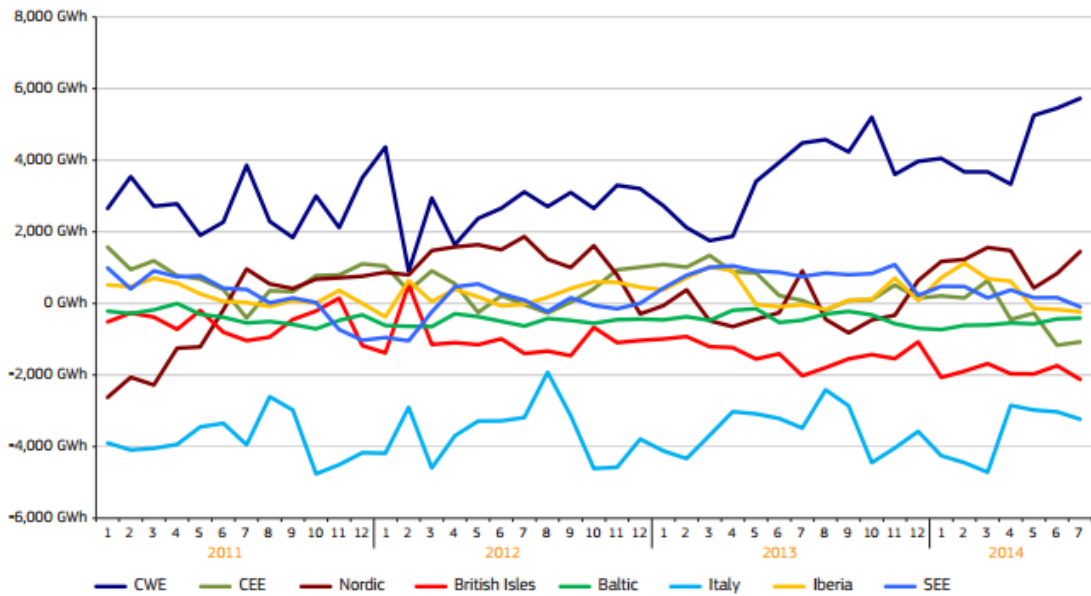
¹⁰⁵ European Commission (2015) p.28 http://ec.europa.eu/energy/sites/ener/files/documents/quarterly-electricity_q3_2014_final.pdf

¹⁰⁶ <https://www.ofgem.gov.uk/electricity/wholesale-market/liquidity>

¹⁰⁷ European Commission (2015) p.6



EU quarterly traded volumes and liquidity on major wholesale electricity markets (Source: European Commission¹⁰⁸)



EU cross border monthly physical flows by region (Source: European Commission¹⁰⁹)

¹⁰⁸ European Commission (2015) p.7

¹⁰⁹ European Commission (2015) p.29

3.3 Increased renewable energy and market coupling

Increasing amounts of electricity from renewable energy sources has affected market coupling and prices due to the volatility of supply. In 2008-2009 prices across major EU day-ahead exchanges¹¹⁰ dropped by a third, due primarily to the recession. Although in 2010 prices across regions climbed slightly, from 2011 onwards prices fell back due to the increasing penetration of renewables, combined with the availability of cheap coal on international markets (which in turn led to a fall in gas-fired power generation).¹¹¹ But currently different levels of renewable generation in each country (depending on the nature of the support mechanism) can lead to divergence between prices power exchanges. The increased penetration of renewables in 2012-2013 substantially reduced the level of price convergence between markets in Europe due to variegated levels of renewables deployment. For example Germany has exported high levels of electricity to the Netherlands and Poland.¹¹² During periods of high renewable generation German wholesale prices have turned negative. Over the same period in Germany, high levels of cheap, coal-fired power generation compared to its neighbours (for example the Netherlands, which has higher gas-fired generation) led to price divergence, while German prices diverged from France and Belgium where two nuclear plants were removed from operation for a year from June 2012.¹¹³

As markets become increasingly integrated as part of market coupling policies alongside the construction of new interconnectors between countries, the problems detailed above should in theory be reduced. Prices between markets will converge with sufficient interconnector capacity, but currently the fixed nature of a countries' power generation sector and demand profile can mean wide price differentials. According power exchange EpeX Spot, which operates markets in the NWE coupled zone (formerly the CWE) in northwest Europe, market coupling has enabled the development of renewables through limiting potential price impacts of market movements, as day-to-day or seasonal variations renewable output can be counterbalanced between coupled markets and zones.¹¹⁴ Arguably, the current disparity between power prices and the impact that high levels of renewables is having highlights the need for greater interconnection between member states.

¹¹⁰ EPEX (Germany); NordPool Spot; OMIE (Iberian); EPEX (France); GME (Italy)

¹¹¹ ACER/CEER (2014) p.108

http://www.europarl.europa.eu/meetdocs/2014_2019/documents/itre/dv/acer_market_monitoring_report_2014/acer_market_monitoring_report_2014_en.pdf

¹¹² ACER/CCER (2014) p.108-111

¹¹³ ACER/CEER (2014) p.111

http://www.europarl.europa.eu/meetdocs/2014_2019/documents/itre/dv/acer_market_monitoring_report_2014/acer_market_monitoring_report_2014_en.pdf

¹¹⁴ EPEX Spot <https://www.epexspot.com/en/renewables/day Ahead market coupling>

But the market coupling could be distorted by the increasing and varying use of capacity mechanisms in Europe. As older thermal generation assets are taken offline for both regulatory and economic reasons and (intermittent) renewables capacity grows, capacity markets have are set to be used by some national governments to ensure sufficient capacity remains. But the fact this it is currently being done on a national and not EU level could undermine the formation of consistent and uniform energy prices that underlay the integrated marketplace and market coupling.¹¹⁵

3.4 Country case study: UK interconnectors

In the UK, interconnectors with other European markets use both implicit and explicit auctions, depending on what is being traded. The 1GW BritNed interconnector with the Netherlands uses explicit auctions on its own trading platform, which allows market participants to purchase capacity and electricity separately for intraday trading and multiple-day units of up to a year. Implicit auctions are used for day-ahead trading, which are facilitated by the APX energy exchange, with any unsold and unused explicit auction capacity made available for implicit auctions run by APX.¹¹⁶ On the 2GW IFA interconnector with France explicit auctions are offered for longer term products (extending from weekend periods through to a calendar year¹¹⁷), while daily and intraday trades are done with the implicit auction method.¹¹⁸ The 500MW EWIC interconnector with Ireland also uses explicit auctions for delivery on the day-ahead and up out as far as one year ahead of delivery, and implicit auctions for intra-day trading.¹¹⁹ The 500MW Moyle interconnector from Scotland to Northern Ireland has a series of monthly and annual capacity auctions, reflecting the more illiquid and smaller nature of the Irish electricity market. Auctions for one year import and export capacity are held in December or January of each year, with any unsold capacity subsequently made available on in monthly auctions.¹²⁰ Further interconnectors between the UK and the Continent are planned or under development.

¹¹⁵ Baker, P, and Gottstein, M, (2013) 'Capacity Markets and European Market Coupling – Can they Co-Exist?' *Regulatory Assistance Paper (RAP) discussion paper*, p.2

¹¹⁶ BritNed <http://www.britned.com/Participants%20portal>

¹¹⁷ RTE (2013) http://clients.rte-france.com/htm/an/offre/telecharge/IFA_Acces_Rules_v9.pdf

¹¹⁸ National Grid (2013) <https://www.ofgem.gov.uk/ofgem-publications/83545/england-franceinterconnectorifachargingmethodology.pdf>

¹¹⁹ EirGrid <http://www.eirgrid.com/media/EWICTradingBrochure.pdf>

¹²⁰ SONI http://www.ceer.eu/portal/page/portal/EER_HOME/EER_ACTIVITIES/EER_INITIATIVES/ERI/France-UK-Ireland/Meetings1/SG_meetings/1st_France-UK-Ireland_SG/DD/ERGEG%20Congestion%20Management%20-%20SONI.pdf

Project	Capacity	Connection	Start-up
ElecLink	1GW	France	tbc
Fab Link	1.4GW	France	2020
Greenlink	500MW	Ireland	tbc
IceLink	1GW	Iceland	tbc
IFA2	1GW	France	2019
Nemo	1GW	Belgium	2019
NSN	1.6GW	Norway	2019
Viking	1-1.4GW	Denmark	2020

Proposed UK Interconnectors (Source: Ofgem, Policy Exchange)

The UK's Department of Energy and Climate Change (DECC) announced in December 2014 that interconnectors would be able to participate in the second 2015 four-year ahead capacity auction, for supply in winter 2019/20.¹²¹ But a subsequent Parliamentary energy and climate change select committee session on the implementation of electricity market reforms heard that because interconnectors are transmission capacity and not generation capacity, they do not pay charges for system transmission or use of the balancing system, nor do they pay the carbon price floor, meaning there is inequity between them and generation capacity.¹²² A report from the UK's Policy Exchange think-tank recommended the government should include foreign generators in future capacity auctions rather than interconnectors as it would increase competition and liquidity (and therefore security of supply) in the auction. Under the proposal, generators outside the capacity mechanism would bid into the auction, and acquire rights to interconnector capacity but would be liable to pay non-delivery penalties.¹²³ The UK TSO National Grid has previously argued that increased interconnections between the UK and continental Europe will lead to lower electricity prices. Each 1GW of additional interconnection capacity could lower costs by 1-2pc, equivalent to savings of up to £3mn per day in wholesale costs by 2020. As UK power prices are consistently higher than those in other European countries, it is likely to remain a net importer of electricity despite increased interconnection capacity.¹²⁴ The Moyle interconnector that exports to Northern Ireland is estimated to have lowered wholesale costs in the Irish Single Electricity Market (SEM) by £100mn per year in

¹²¹ Decc (2014) <https://www.gov.uk/government/news/interconnectors-to-participate-in-the-capacity-market-from-2015>

¹²² Vaughan, S, Director of Strategy and Regulation, Eon <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/energy-and-climate-change-committee/implementation-of-electricity-market-reform/oral/16339.html>

¹²³ Policy Exchange (2014) p.13 <http://www.policyexchange.org.uk/images/publications/getting%20interconnected.pdf>

¹²⁴ National Grid (2014) file:///C:/Users/jd509.ISAD/Downloads/NG%20Interconnector%20Positioning%20statement_v4.pdf

2008-2012.¹²⁵ The ElecLink and FAB projects fall under the Commission's priority corridor known as the 'North Seas Offshore Grid' (NSOG) project. The NSOG includes numerous projects of common interest (PCSI) – most of which are at an early study phase – in the North Sea and Irish Sea that will increase interconnections between the UK, Belgium, France, Ireland and Norway. Other interconnections in the region have also been proposed under the 'North-South electricity interconnections in Western Europe' (NSI West Electricity) project.¹²⁶

4. The next stage: Energy Union

In February the European Commission published a framework strategy for the creation of a new package of energy policies, the European Energy Union. Building on the themes and policies of the Third Energy Package, the strategy set out the Commission's vision on how the Energy Union will deliver 'secure, sustainable, competitive and affordable energy' for all EU citizens. The package builds on from the Commission's Energy Security Strategy communication of May 2014, which detailed areas of energy policy and practice that it considered require actions in the short and longer-term to respond to energy security challenges. These included building a well-functioning and fully integrated internal market, diversifying external supplies and increasing the coordination of national energy policies.¹²⁷ Although the internal energy market continues to develop, the Commission noted in April 2015 how the current fragmented nature of Europe energy markets remains an issue. High levels of fuel import dependency, outdated infrastructure, low investment, a poorly functioning retail market and high final energy prices could, the Commission argues, be addressed by the EU overcoming the fragmented nature of national markets.¹²⁸ As such, the Union proposes five distinct yet overlapping policy dimensions:

- Energy security, solidarity and trust
- A fully integrated European energy market
- Energy efficiency contributing to demand moderation
- Decarbonising the economy
- Research, Innovation and Competitiveness¹²⁹

¹²⁵ Larkin, P, CEO, Mutual Energy <http://www.niassembly.gov.uk/assembly-business/official-report/committee-minutes-of-evidence/session-2012-2013/january-2013/mutual-energy-moyle-interconnector/>

¹²⁶ COM(2015) 82 Final Annex 1 http://ec.europa.eu/priorities/energy-union/docs/interconnectors-annex_en.pdf

¹²⁷ COM(2014) 330 final <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0330&from=EN>

¹²⁸ COM(2015) 82 Final <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1430910780110&uri=CELEX:52015DC0082>

¹²⁹ COM(2015) 80 Final p.4 http://ec.europa.eu/priorities/energy-union/docs/energyunion_en.pdf

The framework package also contained a fifteen point action plan detailing specific aims of the Energy Union across the policy dimensions. While wide-reaching, the action points vary in their scope from broad aims such as the diversification of gas supply, regional electricity market integration and a better performing retail market, to more targeted ones such as renewable electricity generation and energy savings targets. Some of the proposals of the Energy Union – notably regarding gas– would be ground breaking, but overall much of what is proposed in the framework package continues or builds upon from the Third Package. For example, in arguing why the Energy Union is needed, the Commission refers to the difficulties of 28 national regulatory frameworks and the need for an integrated energy market to create more competition and lower retail prices – something also at the core of the Third Package.¹³⁰ As part of the move for a fully integrated European energy market the Energy Union package also has at its core greater linkage of markets and member states through interconnections alongside the implementing and upgrading of legislation related to how the market will function (including the network codes). Although many legislative and market functioning initiatives of the Third Package are yet to be completed – something the Energy Union package framework recognises and would seek to do – the new package would see the Commission propose an ambitious legislative redesign of electricity market, with greater links between the wholesale and retail sides of energy.¹³¹

¹³⁰ COM(2015) 80 Final p.2

¹³¹ COM(2015) 80 Final p.10