CLINGENDAEL
INTERNATIONAL
ENERGY
PROGRAMME

CIEP

A REGIONAL EU ENERGY POLICY?

JACQUES DE JONG AND KOEN GROOT

CIEP PAPER 2013 | 06

CLINGENDAEL
INTERNATIONAL
ENERGY
PROGRAMME

CIEP

CIEP is affiliated to the Netherlands Institute of International Relations 'Clingendael'. CIEP acts as an independent forum for governments, non-governmental organizations, the private sector, media, politicians and all others interested in changes and developments in the energy sector.

CIEP organizes lectures, seminars, conferences and roundtable discussions. In addition, CIEP members of staff lecture in a variety of courses and training programmes. CIEP's research, training and activities focus on two themes:

- European energy market developments and policy-making;
- Geopolitics of energy policy-making and energy markets

CIEP is endorsed by the Dutch Ministry of Economic Affairs, the Dutch Ministry of Foreign Affairs, the Dutch Ministry of Infrastructure and the Environment, BP Europe SE- BP Nederland, Delta N.V., GDF SUEZ Energie Nederland N.V., GDF SUEZ E&P Nederland B.V., Eneco, EBN B.V., Essent N.V., Esso Nederland B.V., GasTerra B.V., N.V. Nederlandse Gasunie, Heerema Marine Contractors Nederland B.V., ING Commercial Banking, Nederlandse Aardolie Maatschappij B.V., N.V. NUON Energy, TenneT TSO B.V., Oranje-Nassau Energie B.V., Havenbedrijf Rotterdam N.V., Shell Nederland B.V., TAQA Energy B.V.,Total E&P Nederland B.V., Koninklijke Vopak N.V. and Wintershall Nederland B.V..

CIEP Energy Papers are published on the CIEP website: www.clingendaelenergy.com/publications

TITLE
A Regional EU Energy Policy?

AUTHOR
Jacques de Jong and Koen Groot

NUMBER
2013 | 06

EDITOR
Deborah Sherwood

DESIGN
Studio Maartje de Sonnaville

PUBLISHED BY
Clingendael International Energy Programme (CIEP)

ADDRESS
Clingendael 7, 2597 VH The Hague, The Netherlands
P.O. Box 93080, 2509 AB The Hague, The Netherlands

TELEPHONE
+31 70 374 66 16

TELEFAX
+31 70 374 66 88

EMAIL
ciep@clingendaelenergy.com

WEBSITE
www.clingendaelenergy.com

A REGIONAL EU ENERGY POLICY?

JACQUES DE JONG AND KOEN GROOT

TABLE OF CONTENT

EXECUTIVE SUMMARY

The 2007 European Council conclusions set three basic objectives for European energy policy: competitiveness, sustainability and supply security. These objectives have since been translated into a variety of policy packages, the most prominent being the Climate package and the Third Market Package. The implementation of these packages has raised a number of mutually interrelated inconsistencies, as discussed in CIEP's project on a Smart EU Energy Policy[1]. Very often the ambition at the European level to coordinate policies is not matched by a similar drive at the level of implementation. Yet the fact that national policy-making remains dominant means that potential cross-border benefits are being missed.

The political commitment completing the single EU energy market by 2014/15 has launched a process which has sparked the development of target models, network codes and regional markets. Neighbouring national markets that have cross-border physical and commercial flows require specific arrangements that facilitate cross-border trade.

European energy policy, however, involves more than the single market. Ambitions to move towards a low-carbon energy economy have introduced new instruments that are impacting existing energy markets. The ETS, RES targets, energy efficiency policies and choices regarding fuel mixes all impact the EU's regional and national energy markets. This became especially apparent when national governments started to establish their own implementation policies.

A number of these policy challenges are becoming more concrete in the context of the NW-EU energy market. National road map policies, capacity remuneration mechanisms and market designs, regional approaches to new network investments, the role of cost-benefit analyses, RES-support policies and, finally, market monitoring and industrial strategies are discussed in this paper. Particular attention is given to the cross-border impacts of the German *Energiewende*.

Exploring and assessing potential opportunities for coordinated energy policy implementation at the regional level seems to be necessary, since this type of

1 See 'A Smart EU Energy Policy', project by CIEP, FSR, FEEM and Wilton Park:http://www.clingendael.nl/publications/2010/20100412_CIEP_Misc.%20Publication_JJong_Smart%20EU%20Energy%20Policy.pdf.

cooperation is able to take due account of country-specific circumstances and characteristics. Unique national situations are not always considered when policies are translated into instrumentation and regulation at the EU level. Yet policy coordination at the regional level requires some form of governance structure, within the wider context of overall EU energy policymaking, hence the expression of 'Schengenising' European energy policy.

The Pentalateral Forum, with its focus on the NW-EU energy market, is elaborated in some detail in this paper. In addition, the Annex covers in a more global way other regional setups such as the CEER's regulatory Initiatives, the Nordic Cooperation, the Visegrad4/Danube region and the Mediterranean Energy Forum.

Such pragmatic, regional, bottom-up types of approaches are likely to bring new opportunities for practical and effective contributions to overall EU energy policymaking and implementation. Enhancing the competitive market while meeting the challenge of the low-carbon economy and ensuring relevant supply security and system adequacies should be based on some global guiding policy principles at the EU level. But the translation and implementation of these principles into practical policies and instruments does not necessitate the adoption of a 'one-size-fits-all' approach. As energy markets are already increasingly integrating on regional levels, with the relevant cross-border TSO cooperation and company mergers, purely national policy implementation no longer makes sense. The further revitalisation of the Penta-process, as agreed last June, is therefore welcomed, especially since the cross-border impacts of the German *Energiewende* require further urgent action between Germany and its neighbours.

INTRODUCTION

The European Council's commitment of completing the single gas and electricity markets by 2014/15 is being realised through a process of stepping stones that involves the creation of target models, network codes and, most importantly, a number of regional energy markets. From the days of the first implementations of energy market directives in the late 1990s, it has been quite clear that progress can only viably be made if the specific issues between bordering national markets are discussed at the regional level. Both cross-border physical and commercial flows have been occurring at this level for some time already, creating issues which require solutions and hence needing specific arrangements that facilitate cross-border trade. Precedents have been made, starting with the Nordic cooperation and its process of creating a Scandinavian power market (NordPool) in the mid-1990s. Political initiatives were also made at the levels of the Iberian Peninsula, with the Mibel project, and – with more success – in the UK with the BETTA-project, which merged the English and Welsh power markets with that of Scotland. These more or less successful political steps were followed at the beginning of the 21st century by the creation of the Pentalateral Forum, in which the governments of France, Germany and the Benelux countries decided to join hands and take steps toward creating a NW-European electricity market, later to be followed by a process involving gas as well.

These basically politically-oriented regional approaches were more or less institutionalised at the level of the EU when the EU energy regulators, via their cooperative council CEER, took the initiative to regionalise the Florence and Madrid Forums by creating seven Regional Initiatives for electricity and three for gas[2]. These initiatives became instrumental in laying effective groundwork for the broad implementation of the Third Energy Package with its Network Codes and supporting Framework Guidelines. Via these regional processes, regional energy markets developed further, for instance quite clearly at the level of the NW-EU region, even going beyond the original scope of the Pentalateral Forum.

2 It should be noted that this process was also inspired by the developments in the US electricity markets, where the Federal Energy Regulatory Commission (FERC) pushed for the creation of so called RTOs, a single Regional Transmission Organisation, servicing bordering states within the US. See also CIEP paper: 'The Regional Approach in Establishing the Internal EU Electricity Market' (De Jong, 2004: http://www.clingendaelenergy.com/publications/publication/the-regional-approach-in-establishing-the-internal-eu-electricity-market).

European energy policy, however, involves more than the single market. The ambitions to move in the direction of a low-carbon energy economy have introduced new instruments that are having an impact on energy markets. The ETS (the Emission Trading System for CO_2), the targets for RES (renewable energy sources) and their respective policies, energy efficiency policies, and the resulting policy and industry choices regarding the fuel mix are all impacting the EU's regional and national energy markets, sometimes even extending to the EU's neighbouring partners. This became all the more apparent when national governments started to establish their implementing policies in the context of the EU's 20-20-20 commitments, adding further challenges to the ambitions of achieving a low-carbon energy economy by 2050.

Recent national policy decisions in some countries and continuing uncertainty in others have already led to various degrees of market reactions and impacts on investment decisions in neighbouring countries. This illustrates that policy spaces at national levels are overlapping more and more, leading to questions of how best to reap the benefits of further policy coordination and avoid the costs of policy competition. The transition to a low-carbon energy economy requires more variable renewable energy sources in the power system, bringing an intensified need for back-up capacity and new investment in the grids and increasing impacts on system operation. In addition, the changing role of gas as a flexible fuel that can serve as a backup energy source (and even be stored) will encourage more interaction between the gas and electricity markets and their designs.

A more integrated market, however, with its developing investments in cross-border transmission capacity and regulatory designs that promote efficient use and allocation, also implies that national fuel mix policies will increasingly have cross-national implications. Electricity and gas price levels, (physical) security of supply levels and potentially also carbon price levels, are influenced by neighbouring countries' policy decisions. Moreover, large energy companies base their decisions about investment in generation capacity on their European-wide portfolio, in which comparative and absolute advantages play a role.

Policy issues of cross-border market integration and energy infrastructures are therefore becoming more and more regional in nature. Within the NW-EU context, for instance, this has brought about the initiative for cooperating on grid design and development in the North Seas, the NSCOGI (North Seas Countries' Offshore Grid Initiative), where national governments and TSOs are discussing the various approaches for an integrated off-shore grid to support their off-shore wind

developments. Within the context of the Mediterranean Energy Forum, the projects for the large-scale deployments of solar power and export potentials to the North provided grounds for setting up both a regulatory forum (Medreg) and a joint venture of the respective TSOs (Medgrid).

Several Member States have already started to develop their post-2020 energy policies at national levels in view of their joint 2050 ambition, although their basic policy drivers may differ. As a rule of thumb, however, it would be easier for them to cooperate if these drivers and ambitions were consistent. It seems that policymakers in the Northwest European market agree on a host of general principles, such as an integrated energy system, the need to approach short-term actions with a long-term perspective, the determination of the fuel mix by market forces, and so on. That said, the hierarchies assigned nationally to the driving forces of energy transition differ (for example, climate concerns, the cost of supply security, and even ethical considerations). In all countries concerned, encouraging domestic industrial opportunities and employment are short listed in the top three. But regional (rural) development and local pollution are important as well. Most of these drivers have the potential, however, to be in conflict with the paradigm of the internal EU market, as they suggest requiring, for instance, siting RES production facilities within national borders. It is clear that some of the post-2020 energy strategies do not sufficiently take cross-border implications and coordination into account.

Until recently this may all have been relevant only 'on paper'. However, the 2011 Fukushima disaster turned into a practical example of how uncoordinated national decisions can lead to serious cross-border problems. The German decision to implement without delay some nuclear phase-outs resulted in some additional security of supply stress in the whole of the Northwest European network and added to wholesale price movements in neighbouring countries. Likewise, uncoordinated capacity build-up of variable RES energy, such as wind power, could also lead to undue cross-border effects. Coordination could be valuable, because wind is planned to account for a large share of the RES ambitions in Northwest Europe.

Another notable feature of the EU internal energy market is the uneven influence of neighbouring countries' policymaking on the policy space of large and small(er) Member States. Large Member States will always find their own energy economy to be the proper context for their policies, paying little attention to what other (and smaller) neighbouring Member States do. For smaller Member States, on the other hand, the energy policies of larger neighbouring countries are extremely relevant, particularly because these larger energy markets are sometimes more open. The

asymmetric impact of the introduction of de-carbonisation policies requires more consideration because they can enhance policy competition and increase (public) costs of complying with European policy. Based on national experiences, it is clear that the availability of storage capacity and a network that can deal with intermittency are important. These balancing services are also provided by neighbouring countries. Norway is an important storage facility for the Northwest European market via interconnectors. At the same time, new traditional production capacity now being developed by the larger European electricity companies can also serve to back up the intermittent sources elsewhere. It can be argued that these RES and conventional capacities are developed in the logic of the internal energy market, but the type of specialisation that is evolving among the Member States in the Northwest European market shows that it also has a strong policy component. Differences in tariffs, investment incentives, licenses and local public acceptance play an important role.

In this paper the relationship between energy policymaking and regional markets will be further explored and discussed. This will be done building on earlier work by CIEP[3] and precluding on an on-going joint study project by CIEP, the Loyola de Palacio Chair (Florence), REKK (Budapest) and CEPS (Brussels). Focus will be given to the specific policy agenda that the EU is developing for the post-2020 period, when the Road Map 2050 will need to be further translated into concrete policy proposals. We will also address some of the concerns that are expressed in national capitals when policies are developed without taking due account of their cross-border impacts. We will give particular attention to the German *Energiewende*, its cross-border impacts and the opportunities this brings for enhancing further cross-border policy cooperation. Furthermore, the possible regional policy platforms that exist and which are evolving within the EU will be discussed, with a focus on the NW-EU energy market.

3 See Meulman, Boot, van der Linde, de Jong and Werring, 2012, 'Harvesting Transition? Energy Policy Cooperation or Competition around the North Sea', CIEP: http://www.clingendaelenergy.com/publications/publication/harvesting-transition.

THE POLICY CHALLENGE FURTHER EXPLORED[4]

In this section, a number of policy challenges will be made more concrete in the context of the NW-EU energy market. Successively, national road map policies, capacity mechanisms and market designs, regional approaches to new network investments, the role of cost-benefit analyses, RES support policies and, finally, market monitoring and industry policies will be discussed. Particular attention will be given to the cross-border impacts of the German *Energiewende*.

COMPARING NATIONAL ROAD MAPS 2050 IN MORE DETAIL

Developing energy roadmaps towards 2050 is a major policy issue in many countries. This instrument for assessing and discussing the transition towards a low-carbon energy economy stands high on the EU energy policy agenda for the coming years. Such exercises are not only happening at the level of the EU, but also at various national levels by national governments and at industry levels by the EU's major energy companies. A troublesome characteristic of the national roadmap process is the lack of interaction, both in being able to draft the documents and in terms of the impact on the planning of the activities of neighbouring countries[5]. These exercises do not always follow similar sets of hypotheses, assumptions and modelling, because they have to take into account different interests at various political and industry levels. Yet in a setting in which national markets are becoming more and more 'Europeanised' due to increasing cross-border interactions and developments, national policies will have to follow suit as well.

	Belgium	Denmark	France	Germany	Netherlands	UK
Security of supply	1	1	2	2	4	4
Affordability	2	4	1	4	1	2
GHG mitigation	3	2	4	3	3	1
Industrial opportunities		3	3	1	2	3
Ethical issues				5		

FIGURE 1. DRIVERS OF NATIONAL ENERGY POLICY IN MEMBER STATES (SOURCE: PBL[6])

4 This section is largely based on the 30.10.2012 CIEP-Conference 'Schengenization of EU Energy Policy'; see http://www.clingendaelenergy.com/events/event/ciep-conference-schengenisation-of-energy-policy.

5 Notenboom et al., 2012, 'Climate and Energy Roadmaps towards 2050 in North-western Europe', PBL Netherlands Environmental Assessment Agency.

6 Boot, 2012, Presentation at Clingendael on Smart Grids, 10 December 2012.

A clear understanding of the drivers of national energy policy is crucial in assessing national policy interactions. A recent study by The Netherlands Environmental Assessment Agency (PBL) on the long-term policy guidelines in energy roadmaps provides insight into the reasons why strategic plans towards the long-term goals are divergent between different EU Member States. Figure 1 gives an overview of these drivers.

The effort of planning for a low-carbon economy by individual Member States is influenced not only by EU policy, but also by the decisions made by other countries. For matters of efficiency in attaining the common goal, it is recommendable to align at least certain aspects of energy policymaking. From the PBL study, the following issues could be mentioned, as for these issues a wide variety of choices are possible, with very different consequences for technical system integration, market design and European coordination.

They are:

- The impact on the grid of an increasing load of intermittent wind and solar power, which extends beyond national borders;
- The deployment of RES on the basis of cost-efficient allocation of investments and coordinated policies in order to accommodate this;
- Off-shore opportunities for wind energy and carbon storage;
- New alternative propulsion technologies in passenger vehicle fleets and related infrastructure, in order to avoid different non-compatible systems;
- The sustainability of bio-energy and bio-chemical crops and the changes in land-use related to this; and
- Policies on the role of gas and their supporting infrastructures.

The main focus in the effort of cooperation should thus be on the exchange of information and the coordination of policy decisions, in order to limit negative externalities that could arise from unilateral decision-making. The exchange of information can also contribute to a more efficient development trajectory where experiences can be shared, even organising some form of collective learning. Some of the above-mentioned issues that are relevant for the Northwest European market could be addressed in the framework of the Pentalateral Forum.

CAPACITY REMUNERATION MECHANISMS AND ELECTRICITY MARKET DESIGN

Rapid changes in power markets provide challenges to investors in generation capacity. The increased share of power generated by renewable energy sources (RES) creates situations of overcapacity when favourable RES generation conditions are introduced. Because of the merit order effect, conventional sources tend to be pushed out by RES, which in the case of solar coincides with peak demand. As a

result, prices are depressed in a market already affected by the economic downturn. As RES capacity instalments are not based on market signals but made possible by RES support schemes, RES capacity additions are likely to continue as long as support mechanisms remain intact, even while prices for power are depressed and likely to remain so in the foreseeable future. The continued addition of RES in times of crisis draws heavily on government budgets and consumer payments, which in turn might result in diminishing the support schemes as they become too costly. The phase-out of (a share of) nuclear capacity in Germany, Belgium, Switzerland and France, and the closure and replacement of new plants triggered by environmental goals and regulations, is regarded as an alleviation of the previous point. However, based on previous investment decisions, a significant amount of gas and coal generation capacity (respectively 18.5GW and 10 GW) is under construction in the EU[7], contributing little relief. The business models for these plants have become less certain under the influence of the growing RES capacity. This is exemplified by different announcements from EU power majors that are considering mothballing power plants[8].

This uncertainty could lead to anxious situations especially for gas plants, even though they are needed to provide capacity to back up the intermittent RES; there is also a lack of commercially viable large-scale electricity storage to deal with the intermittency[9]. Whereas demand response mechanisms have the potential to address some of the intermittency issues, they are still not viable on larger scales. Meanwhile the macro-economic situation has contributed to uncertainty over CO_2 prices, whereas CO_2 pricing was intended to stimulate investments in low-carbon generation technologies. While the developments towards a single market have the potential to unlock much-needed (inter)connection potential in order to manage all these issues on a larger scale, infrastructure investments and developments cannot keep up with the pace of RES additions. As a result, uncertainty exists among policymakers about how to maintain generation and system adequacy, as they see increasing inertia among investors in power generation capacity. In a response to these developments, various governments have proposed support schemes for capacity mechanisms, either as a market mechanism or a governmental support scheme, in order to ensure the capacities needed to maintain system adequacy and security of delivery to consumers.

7 Approximately 10GW of coal-fired generation capacity is under construction in the Netherlands, Germany, Romania and Greece. Approximately 18.5GW of gas-fired power generation capacity is under construction in the UK, the Netherlands, Italy, Greece, Germany, Cyprus and Belgium (WGI, 23 January 2013, 'Brussels Aims for Hands-on Revival of European CCS').

8 Groot, 2013, 'European Power Utilities Under Pressure?', CIEP: http://www.clingendaelenergy.com/publications/publication/european-power-utilities-under-pressure.

9 Méray, 2011, 'Wind and Gas', CIEP: http://www.clingendaelenergy.com/publications/publication/wind-and-gas.

In a recent study by CIEP entitled 'Capacity Mechanisms in Northwest Europe'[10] on the topic of the influence of RES, the ability of the market to respond and the challenges this poses for policy makers has been scrutinised. The key findings of the study are:

- Capacity mechanisms should not be introduced as solutions for problems that are currently caused by a variety factors in the Northwest European markets, among others decreased demand, the rapid introduction of wind and solar power and the phase-out of nuclear power generation. These problems might prove to be only short-term, and solving this with long-term policy measures might therefore lead to more problems in the long run;
- By the time capacity mechanisms are set up and actually introduced, the problems now perceived might have already disappeared;
- The capacity mechanism might damage the creation of an internal market; the focus of policy should be on completing this first, on improving current market conditions by further harmonising cross-border exchanges, and on system-balancing in order to improve investor confidence;
- There is a lack of insight in the impact of Demand Side Response mechanisms;
- There is a risk that electricity generation will become more centrally planned than market driven because of these capacity mechanisms;
- Capacity mechanisms should be discussed in the context of the transition towards a low-carbon energy system and should be approached in a coordinated way, not on a Member State level, as the latter could weaken integration; and
- Although further adaptation of (inter)connection has been lagging behind the changes in generation infrastructure, it seems that the combined capacity in the Northwest European markets will to be able to meet aggregated demand for the foreseeable future, although some local problems may exist. More time should be allowed for considering measures, if any, that will enhance long-term generation adequacy and allow countries to reap the benefits of the internal market and possible generation surpluses in neighbouring countries.

REGIONAL APPROACHES TO NEW NETWORK INVESTMENTS

Market coupling, market integration and the transition towards a low-carbon economy all require the further expansion of (cross-border) infrastructure. Major challenges are emerging from this, not only surrounding transmission capacity expansion and distribution innovation, but also in system operations. The opportunities for efficiently managing these challenges would be enhanced if this were to be approached on a cross-border basis. For instance, by creating linkages between markets with naturally abounding storage capacity, as is the case in Norway[11]

10 See Méray and Meulman, 2012, 'Capacity Mechanisms in Northwest Europe', CIEP:http://www.clingendaelenergy.com/publications/publication/capacity-mechanisms-in-northwest-europe.

11 The recently agreed upon cooperation for the development for a cable between Germany and Norway is an example of this. See http://www.statnett.no/en/News/News-archive-Temp/News-archive-2012/Subsea-cable-Norway--Germany-Cooperation-agreement-concluded-on-large-scale-project/.

or Switzerland, markets with high percentages of intermittent RES capacity could increase the efficiency of their predominantly wind- and solar-powered generation.

More generally, the group of European TSOs (ENTSO-E) has the obligation under the Third Package to develop a ten-year network development plan (10YNDP) every two years. The latest version[12] focuses on the approximately 100 main bottlenecks in the transmission grids, of which some 80 are related to RES integration. For the ten-year period to 2022, ENTSO-E expects an increase in generation capacity of some 250 GW, or 26% of the present total. Figure 2 gives an indication of the bottlenecks and the suggested or even already planned investment projects. In addition to the more global picture, the 10YNDP focuses on specific regions, including the NW-EU. This indicates that these estimations have implications beyond the level of the individual Member States, as 40% of the suggested projects concern interconnection capacity. Coordinating planning and investments in interconnectors are therefore critical components of network planning and need to be approached on decent and fair cost-benefit terms.

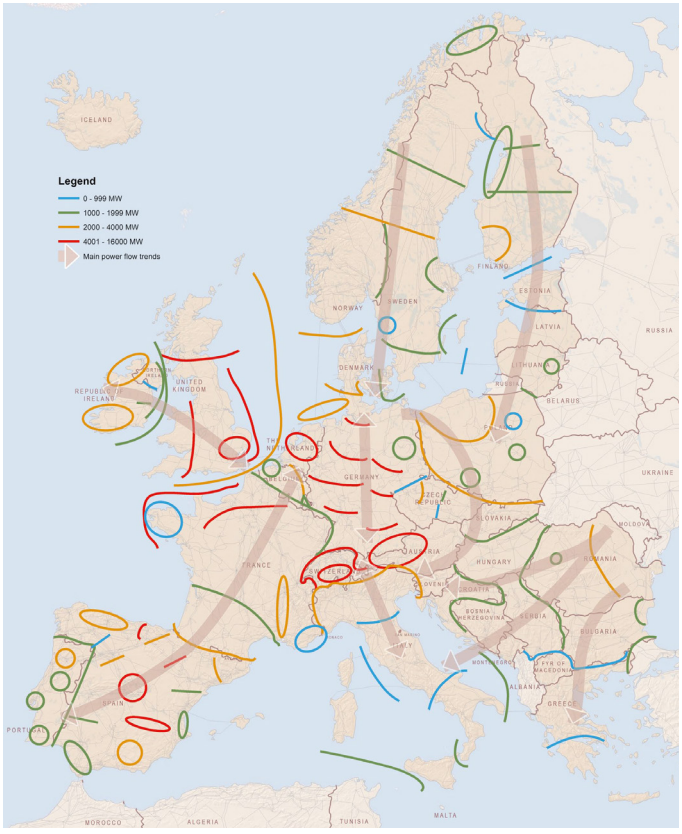


FIGURE 2. GRID TRANSFER CAPABILITY INCREASES (SOURCE: ENTSOE[13])

12 ENTSOE, 2012, '10-Year Network Development Plan': https://www.entsoe.eu/major-projects/ten-year-network-development-plan/tyndp-2012/.

13 ENTSOE, 2012, '10-Year Network Development Plan'.

This becomes even more important when cross-border approaches stall and grid congestion and further loop flows ensue, with increased risks for black-outs spreading over various markets. This is the case, for instance, in Germany, where rapid deployment of wind- and solar-power generation despite relatively hesitant grid expansions have led to excess flows from Germany into neighbouring countries, increasing risks for maintaining proper system adequacies. Further grid expansions are therefore necessary, if only when the load centres are further away from the generation capacities. Developing interconnection infrastructure between countries with (natural) storage facilities and countries with large shares of RES generation can also relieve the pressure on the grids of neighbouring countries that have to deal with excess flows and loop flows.

Huge investments are therefore required in networks and interconnectors, in storage capacity, in 'super grids' and 'smart grids'. In the EU infrastructure package released in 2011[14] the required investment was estimated at €210 billion[15,16]. Germany alone needs an approximate €20 billion to adapt its system to the new realities of large RES shares[17] and the nuclear phase-out, as described in its national-grid plan[18]. In addition, the actual connection of RES generation capacity is added to these challenges, especially in terms of cost, sparking debates about cost-allocation and the cost-creation principle. This is especially relevant for offshore wind parks.

As electrons do not stop at national borders when markets are interconnected, cross-border cooperation is not only an issue in the context of managing and developing infrastructures; the underlying specific energy policies and their relevant instruments have to be considered as well. In recent years this was exemplified by the impact of Germany's nuclear phase-out and its policy supporting RES. As a result, neighbouring States see themselves forced to introduce new policies. In the case of Poland, for instance, RES power generated in Eastern Germany sometimes flooded the Polish market due to limited transmission capacity between North and South Germany, causing risks of blackouts in Poland. As a consequence, the Polish government is developing a mechanism that can block loop flows from Germany at

14 EC, 2011, 'Energy Infrastructure Priorities for 2020 and Beyond': http://ec.europa.eu/energy/infrastructure/strategy/2020_en.htm.

15 EC, 19 October 2011, 'The Commission's Energy Infrastructure Package': http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/710&format=HTML&aged=0&language=EN&guiLanguage=en.

16 An approximate €140 billion is needed to establish a more interconnected and powerful network by constructing electricity transmission systems, storage and smart grid application. The remaining share of the estimate is directed at gas, and to a much smaller extent CCS infrastructure.

17 In order to attain the EU 2020 RES aim of 18% of primary energy being derived from renewables, Germany will have to increase its current 20/25% share of RES electricity generation to an approximate 35% in 2020 (PIW, 24 October 2012, 'Germany Rethinks Green Subsidy Regime as Consumer Costs Soar').

18 The Economist, 28 July 2012, 'Energiewende'.

the border[19], as the Czech Republic is also doing. By installing phase shifter transformers on the interconnectors, the effective phase displacement between the input voltage and the output voltage of a transmission line can be changed, controlling the amount of active power that can flow in the line. This practice has been in use for several years already in the Netherlands and Belgium[20]. These types of (policy) measures are at odds with the development of the single market.

The lack of effective cross-border arrangements is also seen in the case of the COBRA cable from Denmark to the Netherlands, which bypasses German Wind Parks[21]. It would be easy and cost-efficient to connect the German parks to the cable. Doing so, however, would forfeit the large German subsidies, as the cable lands in the Netherlands. Other challenges arise when there is no full ownership-unbundled network company. This could result in inter-company competition between stable returns in the regulated network and more risky investments in RES capacity[22]. This is not only the case with transmission but may become more important in distribution as well, where unbundling is less stringently required under EU law. Different unbundling requirements in neighbouring nations could therefore result in sub-optimal outcomes. As indicated earlier, the way in which connection costs are regulated adds to these impacts, with different allocations of shallow and deep connection costs between generators and consumers, and probably also between regions within a country.

All in all, these issues, problems and difficulties are screaming for some kind of cross-border approach, not only in a bilateral context but also in a more regional way. To develop comprehensive solutions, coordination between the involved Member States is essential. Innovative approaches for cost-benefit analyses and the appropriate allocation of these costs and benefits could be helpful elements in finding these solutions.

COST-BENEFIT ANALYSES ON (CROSS-BORDER) ENERGY INFRASTRUCTURE PROJECTS

Engaging in cost-benefit analyses (CBA) on cross-border infrastructure projects could be instrumental in stimulating cooperation. This in itself would be a good way to reinvigorate regional cooperation on policy, as it would bring the various policy

19 See http://www.welt.de/wirtschaft/article112279952/Polen-macht-die-Grenze-fuer-deutschen-Strom-dicht.html.

20 Energeia, February 5, 2013.

21 See http://energinet.dk/EN/ANLAEG-OG-PROJEKTER/Anlaegsprojekter-el/Kabel-til-Holland-COBRA/Sider/Kabel-til-Holland-COBRA.aspx.

22 Especially interesting for managers of large portfolios, as they provide a stable return on investment and are predominantly of a relative small size, making them especially attractive as majority share investments because of the influence that can then be exerted.

issues to the table in a systemised way. A CBA is a quintessential tool in evaluating the future benefits of a particular investment in an international infrastructure project, as well as in assessing the welfare impacts and differences between the 'winners' and the 'losers'. It is therefore to be applauded that the new 2013 EU Infrastructure Regulation places special emphasis on these cross-border CBAs, to be based on a common methodology. The two ENTSOs and ACER are working on this, and some regional approaches have already been started.

In its methodology proposal, ENTSO-E employs different scenarios and time horizons. In the development of these scenarios, various parameters can be used. The focus of ENTSO-E is on technical parameters, demand factors, economic parameters, generation capacity and the exchange patterns in interconnection capacity. Coming to an agreement on which parameters to use in an international effort requires coordination. The same applies to the assessment criteria, whereas stakeholders are likely to emphasise different aspects. ENTSO-E suggests indicators such as costs, environmental and social impacts, security of supply, EU 20-20-20 aims and socio-economic welfare. The latter is included in the assessment, based on the assumption that transmission helps to optimise generation portfolios across boundaries, creating value for producers and consumers[23]. In addition, transmission improves supply security for isolated or semi-isolated areas, providing quality to consumers[24].

In Eastern Europe a comparable CBA initiative is being developed by the Regional Centre for Energy Policy Research (REKK), 'estimating the welfare impacts of transmission investments by modelling regional gas and electricity markets'[25]. The project involves the identification of natural gas infrastructure priorities for the Danube region and the analysis of the welfare impacts of electricity transmission line investments in Europe[26]. Through the project REKK has introduced a methodology to evaluate and rank electricity transmission projects (packages) based on the assessment of simultaneous welfare impacts of new CB transmission capacities on the aggregate EU internal electricity market[27]. The REKK model ranks projects based on how they enhance net economic welfare (producer, consumer and TSO rents), thereby accounting for spill-over effects and the unequal distribution of costs and benefits.

23 ENTSOE, 29 October 2012, Presentation at Clingendael: 'System-wide Cost-Benefit Analysis'.
24 Ibid.
25 REKK, 29 October 2012, Presentation at Clingendael: 'Estimating the Welfare Impacts of Transmission Investments by Modelling Regional Gas and Electricity Markets'.
26 Ibid.
27 Ibid.

Another example of innovative thinking in the CB context and the use of CBAs is found in a recent paper by Jonas Egerer et al.[28]. The authors develop three ideal-type scenarios to quantify the technical-economic effects for a 'status-quo (nationally driven) grid development, for a trade scenario' with bilateral point-to-point contacts and a meshed scenario with fully interconnected cables. The welfare implications for both producers and consumers are assessed, as these are usually the main political drivers of support or resistance. The analysis comes to a clear distinction between the overall global benefit and the specific national gains. These gains vary with the network designs, the regulatory approaches and the specific supply/demand basis. In general, traditional exporting countries tend to lose through additional competition and rent shifting from producers to consumers, whereas low-cost exporters (wind!) will gain, as they will receive higher prices in their export and national markets. Where producers benefit, consumers will be losers and vice-versa. It is a further indication that political decision-making on new and complicated, large off-shore grid designs should not be approached in a national or bilateral context only, but that smart CBAs could help to allocate and compensate fair costs and benefits.

There is therefore a clear need to take a regional approach, not just on a technical/operational and regulatory level, but on the policy level as well. CBA for cross-border infrastructural projects is a useful tool toward this end. The various regional policy mechanisms will be discussed later, but the North Sea Countries' Offshore Grid Initiative (NSCOGI) can already be mentioned as a good example, as it brings together governments, regulators, TSOs and stakeholders to discuss approaches to developing the grids necessary for harvesting the Northern Seas' RES potential[29].

RES SUPPORT SCHEMES, MORE GENERALLY

The implementation of the EU RES Directive, establishing national targets for RES deployment in 2020, allows national governments to establish their own support schemes for developing RES facilities. This becomes very apparent when one compares the rather uncoordinated way in which National Renewable Action Plans (NREAPs) have been developed. Several drawbacks become apparent when broader perspectives are assessed, also in a more regional context. Support schemes are nationally based and bound by national borders, having no validity beyond these. As a consequence, wind and solar parks are not always optimally located, impeding efficiency and driving up costs. Figure 3 provides an overview of the different support schemes in effect throughout the European Union.

28 Egerer, Kunz and von Hirschhausen, 2012, 'Development Scenarios for the North and Baltic Sea Grid', Florence, EUI Working papers.

29 See http://www.benelux.int/NSCOGI/.

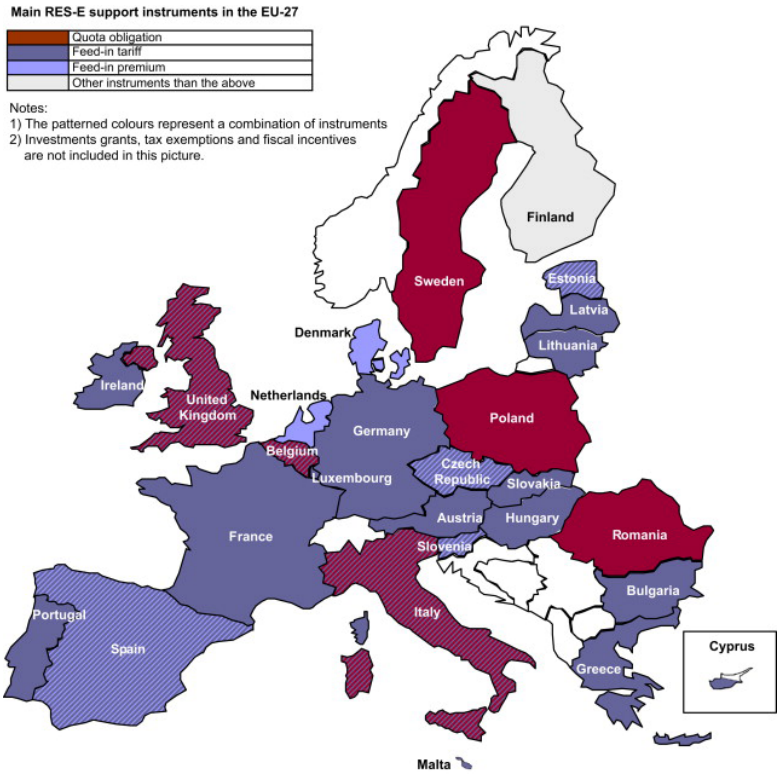


FIGURE 3. MAIN RES-E SUPPORT SCHEMES IN THE EU-27 (SOURCE: KLESSMANN, 2011[30])

Another effect of purely national approaches is seen in their potential to distort market functioning, cross-border trade and security of supply[31]. By adopting a regional approach, these schemes could be better tailored towards providing effective, efficient and non-distortionary solutions to the integration of RES capacity in the electricity systems, limiting the negative burden of unilaterally adopted policies on neighbouring States. Also in relation to the COBRA cable, cross-border coordination of RES schemes could facilitate a more efficient development of the required infrastructures.

Regional coordination of energy policy in general, and RES support schemes in particular, can also be a crucial measure in avoiding policy competition between Member States. RES capacities should be built where they can deliver in a cost-efficient way, not based on the level of subsidies. In addition, if it is found politically appropriate to formulate binding targets for RES deployment in the post-2020 setting, a more regionally oriented approach would be much preferable to resorting (again) to national-level policies.

30 Klessmann et al., 2011, Energy Policy (39, 12): 'Status and perspectives of renewable energy policy and deployment in the European Union: What is needed to reach the 2020 targets?'

31 CEER, 29 January 2013, 'CEER's Review of Renewable Support Schemes'.

MARKET MONITORING

When market forces are allowed to work within the context of policy-oriented boundary conditions, effective monitoring of what is happening in the market place is a necessity – not only because of assessing the impact of the policy mix and its more detailed instrumentations, but also in order to check whether or not fair competition is developing. This is all the more relevant with regional policies, as many of the required market actions and investments are capital-intensive and will lead to companies seeking economies of scale, with mergers and acquisitions as a result. Since the introduction of energy market liberalisation, the power sector in the EU has gone through several phases of industrial restructuring. One element stems from the various approaches of unbundling the networks from the vertically integrated industries, usually followed by a consolidation in generation and supply[32]. Other elements come from the adaptation of company strategies, making choices with regard to technologies, markets and fuel mixes. Depending on ownership structures, political considerations may also play a relevant role. As a result there is now a limited group of large companies, the 'EU power majors'[33,] with considerable market power, producing nearly 60% of all electricity generated in the EU marketplace[34]. In the Northwest European market, the shares in total production are even higher. The seven European power majors have geographically diversified portfolios, with installed capacity overarching various EU markets, as seen in Figure 4.

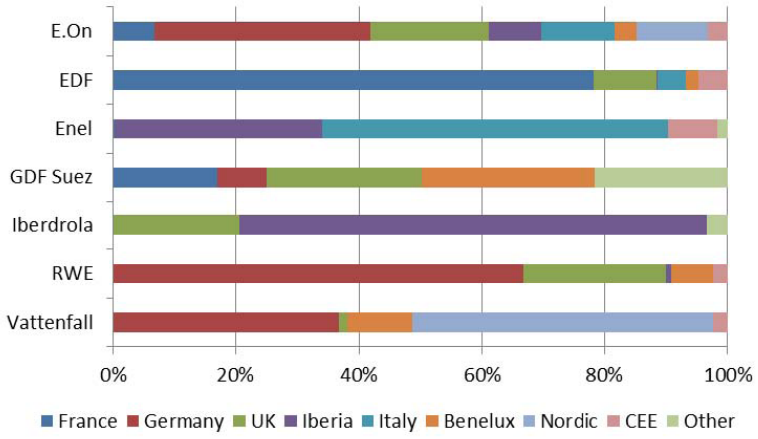


FIGURE 4. MAJOR EU POWER UTILITIES INSTALLED CAPACITY MIX IN THE EU (SOURCE: CIEP RESEARCH[35])

32 Amongst others M&A's between RWE and Essent; Vattenfall and Nuon; EDF and Edison; Enel and Endesa; EDF and British Energy; Gas de France and Suez; GDF-Suez and International Power

33 Groot, 2013, 'European Power utilities: Under Pressure', CIEP: http://www.clingendaelenergy.com/publications/publication/european-power-utilities-under-pressure.

34 EDF, E.On, RWE, GDF-Suez , Enel, Iberdrola and Vattenfall in 2010 produced approximately 60% of all power produced in the EU (1892TWh out of 3240TWh). Eurelectric, 2011, and Vattenfall, 2011, Annual Report.

35 Groot, 2013, 'European Power Utilities Under Pressure?', CIEP.

Portfolio management, both in terms of investment decisions and in day-to-day operations, is a crucial element in attaining the various (national) public policy aims that may not always conform with the cross-border decisions made by the industry. This could carry at least two potential problems for policy makers and regulators, with regard to market power and/or policy objectives. Assessing market power and its potential risks of abuse is usually an ex-post activity done by the relevant national (competition) authority. But as power markets are still in a process of transition, sometimes also impacting national political sentiments with both positive and negative connotations regarding the 'incumbent' market players, more pro-active market monitoring may be more appropriate. Power markets are complex markets, both technically and economically, requiring relevant knowledge and understanding, also in relation to the more specific regulatory designs of the network systems. In addition, there are also cross-border aspects, as can be seen from Figure 4, so a cross-border approach may be necessary.

When policy outcomes are to be assessed, for instance in terms of required generation adequacy and fuel mix objectives, sometimes in relation both to capacity and to fuel inputs, or in terms of effectiveness of support schemes and investment climate, or relating to the needs for expanding (cross-border) infrastructures, a 'simple' national approach may also be insufficient. An additional issue may arise when bordering governments have different views of the meaning of market failures when policy objectives are not met. Corrective policy actions could then lead to all sorts of counterproductive actions and suboptimal market outcomes.

Here again, international consultation and cooperation should be more than appropriate. And again, regional approaches may be more productive than an EU-wide one. ACER (the new EU Agency for cooperation between national regulators), however, could deliver relevant groundwork for further policy debates – especially since the interactions between competition-policy and sector-specific regulatory designs are key factors in understanding and assessing energy market developments and outcomes.

THE GERMAN *ENERGIEWENDE*

The impact of the German *Energiewende* is a further example of specific national policy decisions and their resulting unintended and perhaps unforeseen cross-border effects bringing additional opportunities for strengthening regional cooperation. It should be recalled that German energy policy has placed a strong focus on the development of RES for quite some years already. This has resulted in a specific legal framework in which RES-installations receive guaranteed subsidies for a number of

years[36]. The explosive development of both wind- and, in particular, solar power systems was not sufficiently followed by the necessary adaptations to the electricity infrastructures, both in terms of hardware and of operation, leading to sometimes unintended and unforeseen effects in Germany's neighbouring countries.

This became all the more apparent when the German government decided in 2011 to immediately shut down some of its nuclear plants, which led to a mismatch in the overall supply/demand power balance between the north (where wind energy is concentrated) and the south (where demand is concentrated). This raised large concerns by all of Germany's neighbours and further created the internal German policy awareness that additional action would be needed, including a possible redesigning of its RES policies. In cases like this, cross-border policy cooperation becomes more and more necessary, eventually bringing new momentum to existing regional platforms, such as the Pentalateral Forum. The EU reacted to the *Energiewende* with the creation of an all-EU Electricity Group, and although relevant discussions are taking place at that rather high level committee, it is no surprise that the more specific issues around Germany created by the cross-border loop-flows require more detailed and specific technical discussions.

Over the past year or so, more concrete ideas have arisen, suggesting bilateral or regional discussions about the possible regulatory redesign of the electricity market. Managing the grids and securing operational reliability and system adequacy are key topics on the policy agenda. Operating intermittent generation in a more market-based mode, giving these generators balancing responsibilities and including them in a balancing market are suggested for consideration. Enhancing the day-to-day coordination of grid-management would be another option, especially as both the Dutch and Belgian TSOs are active as transmission system operators in Germany. Direct bilateral meetings at ministerial levels, such as the one between the responsible Dutch and German ministers this past spring, have brought new momentum. This resulted in a revitalisation of the Penta-process and the Penta-ministers' new Memorandum of Understanding (MoU) of June 7, 2013[37].

36 The EEG-system, ErneubareEnergieGesetz, the legal basis for German RES support schemes.

37 See http://www.benelux.int/fr/home_intro.asp.

MANAGING THE CHALLENGES

National preferences for specific policies and incentive schemes therefore require more coordination to prevent policy imperfections. Bottom-up types of approaches between bordering Member States in a more regional context could be useful additions to the more top-down EU-28 approaches. Energy policy drivers differ, but agreement on all main drivers is not necessary for this to still be a worthwhile attempt. Indeed, not only could climate ambitions be pursued, but also security of supply and economic resilience. A pragmatic approach would constitute a much-needed step forward in the energy transition. Regional coordination must search for an optimum between international and national tendencies.

The European dimension is all the more important because the main European energy companies have outgrown their national boundaries. But the local dimension should not be neglected, as the people have to experience in their hearts and minds the necessity and benefits of energy transition. Without public support, energy transition will not happen. This means that coordinated story lines need to evolve in such a way that local people experience them as their own stories. The coordination options we have recommended vary from information sharing, allowing policy makers to include neighbouring countries' preferences in their deliberations, to harmonising policies across borders. In a period when public finances are under pressure and energy policy space is increasingly overlapping, coordination that prevents more costly options from being realised should be applauded.

Larger Member States carry some responsibility here, because they are instrumental in making the lighter forms of coordination work for the smaller Member States. At the same time, the smaller Member States can provide the type of balancing important for the larger Member States. Supply of RES energy, also in larger Member States, is sometimes geographically separated from demand, and national networks are insufficient to match these without balancing across borders. The German *Energiewende* has shown that anticipated large changes in production capacity are relevant for neighbouring countries. Moreover, from the country descriptions it is clear that policy claims on storage, network capacity and production capacity can be incompatible. Without resorting to intense and heavy-handed policy cooperation, lighter forms of cooperation at a pragmatic level can already help national policies to be more effective. Enhanced regional cooperation can provide a crucial basis for avoiding national policy competition and other capacity mismatches.

Energy policy is a joint competence of the Member States and the EU. Importantly, Article 194 of the Lisbon Treaty – the legal basis for the EU's energy policy – specifies that fuel mix choice is the national sovereignty of a Member State. While this Article does not exclude the incorporation of coordination obligations between countries in this area, in future EU law it could make it more difficult if each Member State were to contest, ex-ante or ex-post, EU legislation. Nevertheless, if coordination remains un-codified in EU law, voluntary coordination of fuel mix issues between countries on a bilateral or regional basis is still an option. The Lisbon Treaty specifically allows individual Member States to go beyond the EU *acquis communautaire* if they so desire, creating a 'coalition of the willing'. This 'Schengenisation' of energy policy is therefore an option to be considered when regional energy market issues are addressed at the policy level.

Within the Third Energy Market Package, cooperation between Member States is required for the purpose of realising regional markets as an intermediate step to create a fully integrated EU internal market. In the 2009 Renewables Directive (RES Directive), rather than harmonising the RES incentive schemes, coordination between Member States on the role of RES in the fuel mix is actively encouraged by including the option that a country's national 2020 RES targets can be achieved (in part) in another country by making use of the flexibility mechanisms. Proponents of the internal market school (i.e., making use of comparative advantages) favour including this option to collaborate. With the exception of the joint RES support scheme of Sweden and Norway, there are so far no other agreements between Northwest European countries that use the flexibility mechanisms. While not being very concrete, it seems that most Northwest European countries are considering using them. Of course, the decision on whether or not to use the instrument depends on whether a sufficient level of surplus will exist by 2020.

With a power industry that is organised more and more across Member State borders, and with companies employing cross-border portfolio strategies, energy policymaking is still quite national in focus. This is in part due to the way the competency of the EU in these matters is organised, and in part to the national preferences for certain policies and fuel options. This is not new. Throughout the history of the EU, Member States have cherished their own domestic energy industries, and these preferences also resound in the new fuel policies arising from the introduction of the European 20-20-20 policies. From an internal market perspective this is remarkable, but from a national policy perspective perhaps not. Subsidiarity and a certain design of the competencies point more in the national direction.

EXPLORING REGIONAL ENERGY POLICY APPROACHES

Some further discussion on exploring and assessing the potentials for coordinated energy policy making at the regional level, taking due account of the specific respective issues and characteristics, seems to be appropriate. Energy policy coordination at the regional level would require some form of governance structure that would facilitate these developments. It could also lead to questions about the relation with overall EU energy policymaking, including reflecting on whether enhanced policy coordination at the regional level would be more adequate. In the latter case, one could even speak of a form of 'Schengenising' European energy policy.

Before discussing options for enhancing policy cooperation at regional levels, the already existing mechanisms within the EU need to be mentioned. These mechanisms exist in formal and informal gatherings within the context of the European Council or the European Commission. However, with 28 members as of the first of July, their government representatives and administrations, it is not always practical or useful to pursue EU-wide exchanges on all issues, due to the large differences that exist within the national structures, arrangements and practices, let alone the wide differences in interests between all these actors. Instead of a quick harmonisation at the European level, the interactions between countries could easily lead to the pace of coordination being determined by the slowest country. A more pragmatic approach based on 'differentiated coordination' – coordination among Member States at different speeds – could be useful. This is a less advanced form of the concept of 'differentiated integration' such as the Schengen approach. Examples of instruments are voluntary agreements, different forms of self-regulation, soft law and open methods of coordination. The latter revolves around voluntarily adopting best practices of other Member States via peer review, benchmarking and guidelines[38].

The difficulty of reaching agreement among a large group of stakeholders from the Member States also became apparent in the general proceedings of the Florence and Madrid Fora. Seven Regional Initiatives (RIs) for electricity and three for gas were created, as elaborated on in the previous section, in an attempt to create a more

38 Jordan and Schout, 2006, 'The Coordination of the European Union: Exploring the Capacities of Networked Governance', p. 6., Oxford University Press

practical mechanism or process to solve cross-border issues en route to market integration. However, these Regional Initiatives mainly focused on regulatory issues and not so much on the underlying policy issues. Therefore, certain issues concerning market integration at regional levels could not be left to the discussions between regulators, TSOs and market parties; some political direction was deemed necessary. The Nordic countries were front-runners in this politically-oriented process, using the already existing wider political cooperation in the Nordic Council of Ministers. In the context of the Nordic Council, in addition to cooperation of the TSOs and the regulators, the Council also provides a political umbrella. A similar political umbrella was provided by Spain and Portugal when a single Iberian electricity market was created, but the implementation was nevertheless somewhat uneven. When the Dutch and Belgian TSOs started to explore the creation of mutual benefits through the Benelux Electricity Market, the regulators of the two countries were not able to join that process, and hence the two governments had to step in. A Benelux market was considered unfeasible, however, without the involvement of the French and German markets, and a set of MoUs was concluded between the various capitals, later followed by the creation of the Pentalateral Forum. A closer look has been given to these energy mechanisms in the Annex to this paper, covering respectively the NW-EU, Mediterranean and Nordic regions. The more recent energy cooperation in the Visegrad4/Danube region is also discussed.

Based on the model of the Pentalateral Forum we have explored a number of the policy issues that are already (and some not yet) on the combined regional policy agenda in the NW-EU market. We have also seen that in some other regions institutional mechanisms are in place or developing to start discussions on specific energy policy issues in a regional context. It would be useful to take into account the work that is being done by the European energy regulators in the context of the other Regional Initiatives.

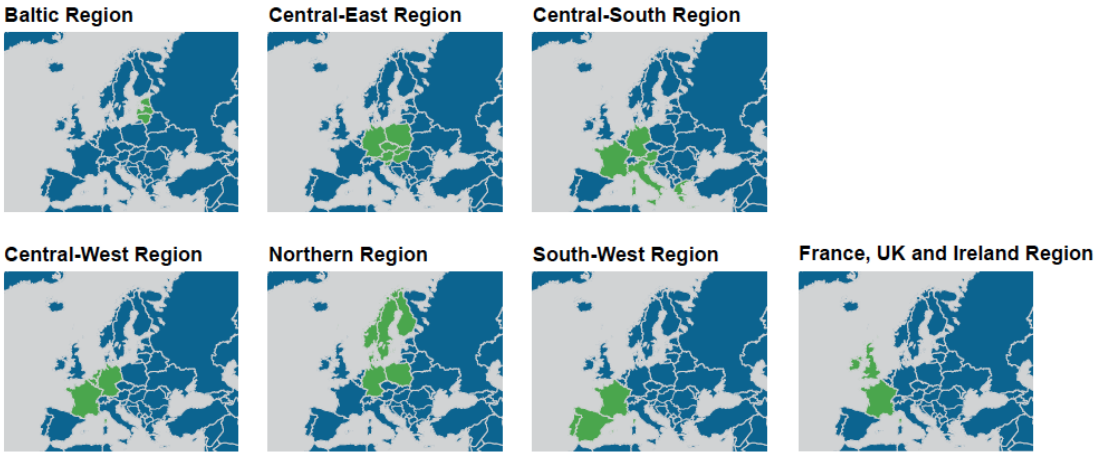
THE REGIONAL INITIATIVES OF THE CEER

As a reaction to the request of the European Commission, the CEER (Council of European Energy Regulators) took the initiative in the spring of 2006 to create regional platforms for gas and electricity, the so-called Regional Initiatives (RIs), see figure 115. The CEER Regional Initiatives. There are seven 7 RIs for electricity and three for gas, with the aim to create regional markets as a staging post towards the single EU energy market. The involvement of stakeholders is a key element in the RIs, bringing together regulators, the European Commission, Member State governments, the TSOs and the energy companies. They are delivering significant improvements, e.g. in the areas of managing bottlenecks, calculating and allocating

grid capacity, and making much-needed information (e.g. about capacity) available to the market. They are playing a key role in the process of further enhancing market integration at the regional level.

At the end of 2010 the Commission intervened in order to accelerate the implementation of the Second and Third Legislative Energy Packages, including the network codes, ensuring competitiveness through market coupling by 2015, identifying regional infrastructure priorities and coordinating cross-border investments, and promoting the development of renewable energy. In addition, the new European Agency for the Cooperation of Energy Regulators (ACER) was invited to monitor and coordinate the work of the RIs, securing greater coherence of the region's work programmes. The Commission also tried to increase the number of GRIs and to invite national governments to play a greater role in the process in order to bring in the necessary policy coordination. These last two ideas, however, were not successful because they lack the necessary political backing.

THE SEVEN ERIS



THE THREE GRIS

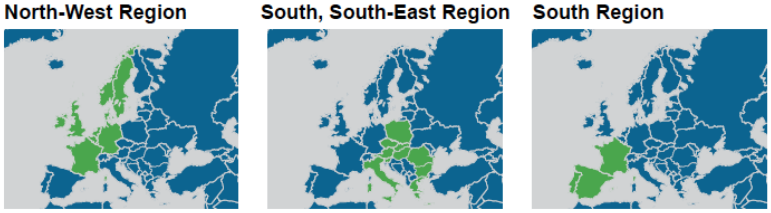


FIGURE 5. THE CEER REGIONAL INITIATIVES (SOURCE: CEER WEBSITE)

NEW APPROACHES FOR REGIONAL GOVERNANCE

A recent CIEP paper[39] discussed in some detail a number of possible approaches to enhance further policy cooperation in the NW-EU context. These range from rather informal information sharing devices to a much more focused harmonisation of the various policy instruments. They will be briefly summarised below.

Information sharing could, for instance, be relevant for all fuels in the power sector and infrastructure. Information could even be shared on all issues for which national developments have an impact on other national markets. Some information sharing has taken place in the context of the Pentalateral Forum, whereby the UK, Norway and Denmark could join this activity, and this could perhaps be organised in an MoU. One step further could be some kind of coordination, building further upon the existing PF and NSCOGI structures. Knowledge and information could be developed jointly on issues such as energy storage facilities (CO_2, electricity, gas, or even nuclear waste). Tendering processes for offshore wind could be coordinated, as could the implementation of RES-support schemes, including early notification when changes are to be made. Some gradual alignment could occur, eventually developing into the voicing of joint opinions in EU discussions. At the industry level, cross-border TSO cooperation could be strengthened, such as on cross-border balancing issues. Moreover, it could then also involve regulatory impacts and mandates. Yet countries would still take all decisions individually and no joint institutions would be developed. National conclusions could result from joint or shared analyses. A new Penta-Plus MoU could be the framework for organising this manner of alignment, exploring lessons learned in the Nordic Council.

A further option might be coined as 'coordination plus', where neighbouring countries search for common policy considerations. RES support schemes are a good example; these are when Member States seek a scheme that incentivises RES production that is not too costly and does not create windfall profits. Sharing and comparing information about the pros and cons of the schemes in use could be a great help: costs of RES energy could be compared in basically a common environment, with the goal of narrowing the additional sums to be paid. With the intention to reach this level of coordination, such a joint effort of investigating the advantages and disadvantages of different incentive mechanisms could also form the basis for covering broader issues, such as the interactions between the power and gas grids and systems. A joint CCS approach could be another fruitful route for coordination, not to mention the even more challenging issues of carbon pricing in combination with regulatory measures such as an installation-based EPS. Discussions on short- and longer-term worries about system reliability and fuel supply security,

39 See Meulman, Boot, van der Linde, de Jong and Werring, 2012, 'Harvesting Transition? Energy Policy Cooperation or Competition around the North Sea', CIEP.

on back-up capacities, storages and demand side management could be added as well, seeking cross-border solutions while exploring the most cost-efficient possibilities. This would require joint policy frameworks at the regional level. Still, only broad policy discussions would take place, and actual policy instruments could still differ from country to country according to legal and parliamentary traditions.

Joint instruments would then be one step further and could be considered when the more differentiated approach is no longer effective. The joint instruments approach would, for instance, need a joint incentive mechanism for RES and could be expanded to the formulation of a single RES objective for the whole region. Support for CCS could be organised jointly if this were deemed necessary, and various schemes of market design could be jointly introduced, paired with a harmonising of the legal instruments of system operation and balancing. A final 'maximum approach' at the end would be that of a joint electricity policy across the whole region. This would not necessarily be relevant for local options such as heating systems or building codes but would include all aspects of the power market.

When assessing these possibilities one should, as a word of warning, not forget a fundamental road block when it comes to the implementation of one option or the other: the Institutional Legacy. This term refers to the way in which decision-making structures play a role in influencing each other before various degrees of consensus are developed – in policy terms, in political terms, but also very much in the way in which stakeholders in industry and as consumers are organised. National interests in the energy policy process, even basic security and public policy concerns containing all sorts of irrational and emotional elements, are not to be underestimated and should be channelled in various policy-making structures.

The history of EU energy policymaking is full of these kinds of developments and needs to be seriously considered when further steps in the direction of any sort of cross-border policy-coordinating devices are being discussed. On the other hand, when the awareness increases that neighbouring States have to cooperate more together in managing their cross-border issues, they will realise that this has to be done within the common EU legal framework. The development of such a framework is the responsibility of the EU, whereas implementation is usually done at the national level. And although the European Commission seems to be aware of the need for more regional cooperation[40], effective cooperation may sometimes be hindered by EU rules (or their absence). This is the case in monetary policies and sometimes even more so in energy security policies. This may lead to some kind of a 'catch-22' situation between harmonisation at the EU level and cooperation at regional levels.

40 The Third package, for instance, has some very specific references to regional cooperation.

CONCLUDING REMARKS

Since the conclusion of the 2007 European Council, European energy policy has focused on three basic objectives: competitiveness, sustainability and supply security. These have since been translated into a variety of policy packages, with the Climate Package and the Third Market Package being the most prominent. In these implementation processes, a number of mutually interrelated inconsistencies have occurred, as we discussed in our project on a Smart EU Energy Policy[41]. Very often the ambition to coordinate at the European level is not matched by a similar drive at the level of implementation. It is exactly here that national policymaking is most dominant and where cross-border benefits are missed. In our 'smart conclusions' we noted, among others, to 'allow willing Member States to carry out regional energy policymaking and initiatives while still preserving overall EU consistency', with further reference to the examples of the Euro-group, the Schengen-arrangement and the Pentalateral Forum. It would be useful to consider these remarks as a starting point for the discussion on the broader energy policy issues that will have to be developed in the context of the 2050 Energy Road Map.

One of the many lessons from the euro-crisis is that the void between the European and the national level should not be ignored and that effectiveness of policymaking can be improved substantially when information is shared in smaller groups and new policies can include anticipating each other's reactions. The many discussions on existing market failures should be complemented by a discussion on how best to minimise government failures to make a success of the internal energy market and the transition to a more sustainable energy system in a mutually consistent way.

Exploring policy interactions at regional levels might therefore be very useful. Existing formats, such as the Pentalateral Forum, the Mediterranean Energy Forum and the Danube Energy Project, could further discussions on regional policy interactions. A pragmatic, bottom-up type of approach in a well-organised stakeholder-involved process should allow for new opportunities for practical and effective contributions to overall EU energy policies. Especially the policies on the transition towards a low-carbon energy system will bring about all sorts of combinations of the three more general energy policy objectives. Enhancing the competitive market in line with

41 See 'A smart EU Energy Policy', a project by CIEP, FSR, FEEM and Wilton Park: http://www.clingendael.nl/publications/2010/20100412_CIEP_Misc.%20Publication_JJong_Smart%20EU%20Energy%20Policy.pdf.

meeting the challenge of the low-carbon economy and ensuring relevant supply security and system adequacies should be based on some global joint guiding policy principles at the EU level. But the translation and implementation into practical policies and instruments do not necessitate a 'one-size-fits-all' approach. As energy markets are already increasingly integrating, as are cross-border cooperation and industrial mergers, a pure national policy approach no longer makes sense. Regional approaches therefore may bring useful solutions, hence requiring more elaborate analysis of the existing experiences at the regional level and the development of a coherent EU policy framing to further advance the regional approach.

In this context, a further revitalisation of the Penta-process, as recently announced at the Penta-ministerial level, either as the existing Forum or as some other cooperative device, would be very useful. One can already see a new awareness of this in national capitals such as Berlin, the Hague, Brussels, Prague and Warsaw. This could be used as a start-up, with a further addition as appropriate from Copenhagen, Zurich, Vienna, Bratislava and Budapest. Some arms-length involvement of the EU Commission would be highly recommendable, allowing the EU to preserve the paradigm of its internal energy market. Similar approaches on other regional levels could also benefit from such developments.

ANNEX

EXISTING REGIONAL PLATFORMS FOR ENERGY COOPERATION

THE NW-EU REGION

Within the region at least three different structures are in place, i.e., the Pentalateral Energy Forum (PEF), the North Seas Countries' Offshore Grid Initiative (NSCOGI), and the CEER Regional Initiatives for electricity and gas. These structures do not all cover the same geographic areas, but the Benelux countries, Germany and France are core members in all three.

Regional cooperation was more or less initiated in the early 2000s when the Dutch and Belgian TSOs started discussions about cross-border electricity transmission issues and the way in which their two electricity markets could be better integrated to facilitate the further development of cross-border trade. The Belgian side quickly brought the French side into the discussions, and the Dutch side was keen to enhance further contacts with the German TSOs. Although explicitly or implicitly supported by the regulatory authorities, it became clear that some kind of political umbrella would be needed to make more concrete progress. Two bilateral MoUs were concluded, between the Netherlands and Belgium and between Belgium and France[42]. The German side did not want to enter into a formal arrangement, but in practice it was fully involved. It became clear, however, that a broader mechanism would be necessary, especially when more concrete rules would be required to enhance market integration in electricity.

This process resulted in the creation of the *Pentalateral Energy Forum* (PEF) in 2007. The PEF is a temporary, intergovernmental initiative based on an MoU signed in June 2007 between the five governments (Benelux-France-Germany), their respective National Regulatory Authorities (NRAs), their seven Transmission System Operators (TSOs) and their four respective power exchanges (PEs). It has the objective to create a regional Northwest European electricity market as an intermediate step towards one common European electricity market, in close cooperation with other regional initiatives. It is supported by the European Commission and facilitated by the Benelux Secretariat, which provides a neutral platform and the necessary process management. The PEF as such is basically initiated and directed by the region's ministers of energy, who meet regularly. For the practical preparation of and follow-up to the decisions, each minister relies on a coordinator. In that respect, each

42 As Belgium and Luxemburg are fully integrated power market areas, Luxemburg was full involved from the start.

coordinator chairs several ad hoc support groups composed of experts from all involved parties of the involved countries. The 2007 MoU was not only about creating a platform for cooperation, but was also very concrete in agreeing on a system for market coupling with a concrete timetable and a set of principles added to the MoU in an annex.

It is relevant to underline that the work of the PEF in the early years was very much inspired by and related to the Regional Initiatives(RIs), set up in the spring of 2006 by the European Regulators at the request of the European Commission. The RIs are also seen as an interim step in moving from national electricity and gas markets to a single energy market. Seven electricity regions and three gas regions were created. The Regional Action Plan that was published by the CWE group (covering all members of the PEF) in February 2007, constituted an important trigger and target for the PEF governments and their stakeholders.

Five years have passed since the PEF was created. The creation of the NW-EU electricity market is by far its major accomplishment, where in practical terms both Austria and Switzerland have joined this process and are also participating in the PEF-work. The process has involved a number of highly technical issues, such as day-ahead electricity trade, the various succeeding models for market coupling and its start-up in the spring of 2010. The market coupling model that was started in the Penta-region has further emerged into the EU Electricity Target model as the standard for electricity market integration. As of today, this concept of day-ahead cross-border electricity trade covers – albeit still with some different models – the areas of Scandinavia, Estonia, Germany, the Benelux, the UK, France and Austria. In addition Italy and Slovenia, the Czech Republic and Slovakia (with Hungary soon to follow) and the Iberian Peninsula are price coupled (see Figure 6.)

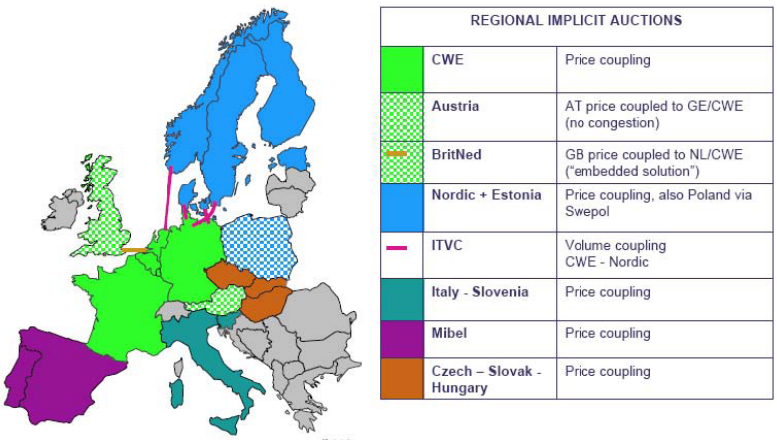


FIGURE 6. DAY-AHEAD STATUS AS OF THE END OF 2012 (SOURCE, CLAXTON, APX-ENDEX)

Part of the success stories are also the industrial joint ventures that have emerged from the Penta-idea. The TSOs have created a joint cross-border service company (CASC) as a central auction office for cross-border transmission capacity. It facilitates the explicit purchasing and selling of that capacity by providing a single auction platform for cross-border trades beyond the day-ahead. Market parties such as traders and suppliers have the opportunity to buy cross-border physical transmission rights on a 'use-it-or-lose-it' basis. Since its inception in 2008 CASC has been expanded and covers the areas of the Benelux, Germany, France, Denmark, Switzerland, Austria, Slovenia, Italy and Greece. In addition, TSOs and the Power Exchanges created EMCC, a separate company to allocate their cross-border capacities in the implicit auctions to operate the market-coupling process, covering the Penta-area and Scandinavia. A further result of the PEF is the creation by some TSOs[43] of a regional service company to monitor, forecast and coordinate cross-border flows in the region, enhancing supply securities and system adequacies for the whole Penta-region, the UK and Italy.

PENTA AND GAS

It was not only electricity that was covered in the PEF. Soon after 2007, also a Gas Platform was created, with the same members (Benelux-France-Germany) and the same focus, i.e., the creation of a regional Northwest-European gas market as an intermediate step towards one common European gas market. Two working groups are set up, one to deal with market and competitive issues and one on security of supply issues. The first working group discusses issues such as market-based allocation mechanisms of gas infrastructures and covers political support for pilot projects. Supply security issues covered a first test of a new security of supply tool: 'supply disruption simulation', together with the identification of 'reverse flow' projects, and analysed a legal framework as input in the broader EU discussions.

In addition to the five PEF members, contacts have been taking place between the UK and Norway, but it is from the outside unclear what the status is and to what extent these contacts are taking place on a more permanent basis. More generally noted, it remains rather sketchy what the practical results are of the work in the Gas Platform, the more so in addition to the activities that are taking place in the CEER Regional Gas Initiative. This by no means implies that the regional gas market in NW-EU is not developing further. Market parties, shippers and suppliers, TSOs and Gas Exchanges are active in enhancing regional market integration wherever feasible and practicable. The TTF spot market has become the leading spot market on the continent, the TSOs in the region are exploring and initiating their cross-border

43 Started by RTE (Fr.) and Elia (B), National Grid (UK), Terna (I) and 50Herz (E-FRG) followed later.

operations and activities, and, following the example in electricity, the NW-EU gas market is seen as a 'target' for other regions in the EU as well. Cross-border cooperation between the relevant NRAs and their governments, however, apparently are not always able (or willing?) to follow or keep pace with these developments.

As a recent example of the growing inter-TSO cooperation in gas that is further spreading out beyond the Penta-region, the Prisma project should be mentioned. Prisma is a European capacity platform and a brand for capacity booking in the EU. It aims to further connect European gas capacity markets via an early implementation of the new European Network Codes and is open to participation by all European TSOs. Prisma already covers the Penta-region, Denmark, Austria and Italy. It builds upon the experience of the existing smaller platforms and is part of the broader strategy of European TSOs to create a single joint European capacity platform for the EU gas market. This will then facilitate efficient and market-based border crossings of gas flows by shippers, who will then be able to book capacities at European network points through one single tool. Prisma will be handling different capacity products, offering auction mechanisms and serve different TSO-backed systems. It will also have a secondary market function.

NSCOGI

A new development in the region is the North Sea Countries' Offshore Grid Initiative (NSCOGI). This Initiative started with a political declaration by the EU's North Sea countries and Luxembourg in December 2009 to embark on a joint process of defining and implementing the work streams with a view to efficiently deploying the wind energy potential in the Northern Seas by developing the necessary grid infrastructures. The work programme was put into a Memorandum of Understanding at the ministerial level, which was signed at the end of 2010. In particular, the MoU shares the common goal of moving to a sustainable low-carbon economy while maintaining security of energy supply most cost-efficiently, and recognises that the renewable energy sources of the North Seas have the potential to make a significant contribution to this goal. It takes into account the ambitious plans for the installation of wind farms offshore and the fact that these will require the large-scale development of appropriate offshore infrastructure as well as reinforcement of the onshore grid. The MoU recognises that the scale of investment required is substantial and will need explicit political support from the governments. The MoU intends to facilitate a strategic, coordinated development of the offshore and onshore grids to ensure more cost-effective and sustainable investment, to identify and tackle barriers to grid development at the national, regional and EU-levels, particularly in regulatory, legal, market, planning, authorisation and technical issues. Signatories to the MoU are the Penta-countries, the UK, Denmark, Sweden, Norway and Ireland[44].

44 See http://www.benelux.int/NSCOGI/.

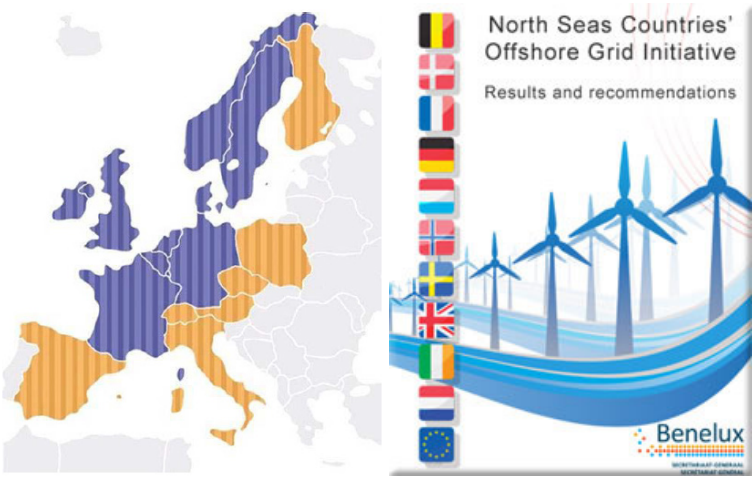


FIGURE 7. THE NSCOGI-PROCESS (SOURCE: BENELUX-WEBSITE)

NSCOGI is led by the governments and fully supported by the NRAs, the TSOs and the European Commission. The Chair rotates and is assisted by the Benelux Secretariat to facilitate the continuity of the process and the preparation of meetings. The secretariat acts as a liaison office between the working groups, the Steering Committee and Programme Board. A Steering Committee composed of government officials and representatives of the European Commission oversees, guides and monitors the work of the working groups as described in the Annexes and reviews overall progress towards achieving the objectives of the MoU. The Steering Committee reports to ministers and informs the European Commission of progress on an annual basis. A Programme Board, consisting of representatives of the Steering Committee and representatives of ENTSO-E, ACER and the regulators, is responsible for coordinating and managing the work of the different working groups. Other stakeholders may be invited to attend meetings of the Board where appropriate.

The initial findings emerging from the work programme were reported to ministers at the end of 2012 and basically cover issues such as the differences in the national planning and permitting regimes, requiring further coordination and harmonisation; the tackling of regulatory and market barriers to the coordinated development of offshore networks, by drawing up high-level guiding principles for decision-making, for instance via options for trading across assets, combining interconnections and offshore generation. The report also underlines that the current onshore grids will not fulfil the future requirements coming from off-shore sources. Countries continue to follow their scheduled paths towards larger capacities of both conventional and renewable energy sources from 2020 to 2030. The timely establishment of necessary grid reinforcements is therefore required. Two possible 2030 offshore grid design options are considered: a radial one (point-to-point connection of offshore wind farms and shore-to-shore interconnectors, implying the continuation of mainly uni- or bilateral solutions) and a meshed one (coordinated offshore and interconnector designs, which implies multilateral cross-border cooperation). Both design variants

result in similar initial investment costs (around €30bn) and market benefits, basically due to the relatively small offshore volumes that could realistically be expected between 2020 and 2030. As there is already a slight difference in net annual costs, a preference for a meshed approach may be coming, especially if capacities are to be expanded after 2030.

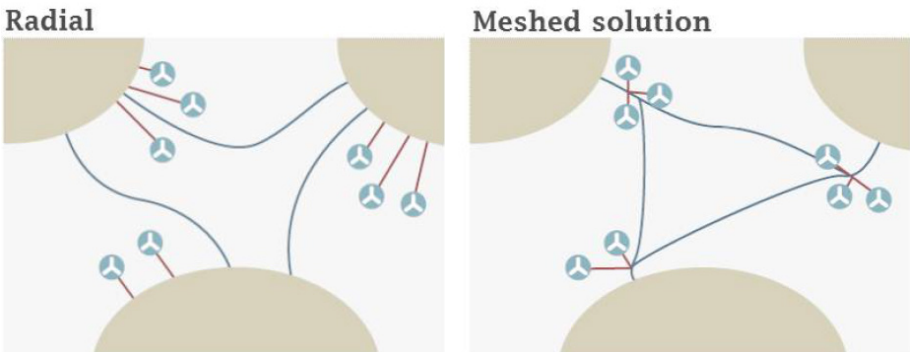


FIGURE 8. TWO OFF-SHORE GRID DESIGN OPTIONS (SOURCE: NSCOGI-REPORT)

It is recommended to continue to work on these and other issues from 2013 onwards. Work on trading arrangements, cost-allocation, RES support scheme impacts and design topology options are recommended, together with the use of virtual or real pilot projects to test policy viability. Ministers have asked the network operators, ENTSO-E, ACER and national regulators to continue to work with the governments and the European Commission to assess pathways towards possible future grid configurations for the North Seas area, using a range of generation and demand scenarios, and to develop proposals to address the regulatory, market and planning barriers. But it will need to be clear that most, if not all, of these issues are to be seen as part of a more integrated set of problems, covering off-shore and on-shore policy developments alike.

Penta-ministers (Benelux, Germany, France, Austria and Switzerland) meeting around the EU Energy Council signed a new political declaration for a working programme covering the issues of market integration and security of supply. A new political commitment was given for the implementation of implicit flow-based market coupling in the first quarter of 2014 and its more specific integration with the Nordic borders, Austria and Switzerland. In addition, work will continue on improving the cross-border supply/demand balance in electricity with due regard for the increasing roles of intermittent sources. A number of specific actions were agreed upon and will be reviewed again by ministers by the end of 2013.

CONCLUDING ON THE PEF-NSCOGI

It could be concluded that the PEF has reached a number of important results, in policy terms but maybe even more so in terms of cross-border industrial cooperation. Part of the success of the PEF is the political umbrella that was created to facilitate and support a number of nascent initiatives from the electricity sector and, later, the gas sector. It also helped that at least some of the key ministers were directly involved, especially in the beginning. Voluntarism, complementary to other European initiatives, a European orientation, slender working structures, a neutral secretariat, stakeholder approaches and involvements all worked together in a pragmatic and fruitful direction. It should also be underlined that the successful further developments in cross-border inter-TS cooperation could only take place thanks to the much more detailed technical stakeholder discussions in the CEER's Regional Initiatives. For gas this RI covered the wider NW-EU area, including the UK and Scandinavia, whereas for electricity the focus was more specifically on the Penta-region. But as preparing technical details is loaded with devils, the RI mechanism brought regulatory authorities together with the TSOs, the energy exchanges, the (gas) shippers, the network users and the suppliers, gradually allowing the TSOs and the exchanges to jointly develop new structures for servicing the market.

On the other hand, it can also be noted that the impression is arising that some of its original momentum and focus seems to be diminishing. In the PEF process, the success story of market coupling has been accepted, but the necessary further policy discussions on meeting the next challenges are more or less stalling. Some of these issues have been mentioned in this paper. Some of these issues also have a direct and indirect relation with the work programme recently adopted by the NSCOGI partnership. As with Penta-plus, in the NSCOGI-context there is also the risk of the crowded policy spaces, both in the region itself and in its wider relation with the work at EU levels.

Especially when policies are to be developed in the context of the post 2020 agendas, policy interrelations are increasing. All these policies are relevant for market models and market designs, are relevant for the grid-issues in the North Sea, are relevant for the contribution that offshore RES would and should play in the post-2020 fuel mix, are relevant for the role that gas should and could play in the mix and in the global system, and above all are relevant and determinant for the way in which energy infrastructures and the internal energy market should meet the policy requirements of the wider EU-2050 agenda. The recent June 2013 Memorandum of Understanding is a promising step in this direction. It would be useful if the Penta/NSCOGI combination could be further strengthened, in policy terms and in practical terms for regulators and TSOs alike, with an efficient stakeholder involvement

process. It would also be useful if this could be done within a set of more general EU-wide principles and guidelines to be agreed at the EU level. This would allow a much more practical and pragmatic translation to the more detailed policy, regulatory and business requirements at regional levels.

THE MEDITERRANEAN REGION

As the Mediterranean region has important energy options, a separate framework for energy was also created by the Union for the Mediterranean. This political framework promotes economic integration and democratic reform across the sixteen neighbours to the south of the EU in North Africa and the Middle East. Formerly known as the Barcelona Process[45], the cooperation agreements were re-launched in 2008 by the so-called Paris Declaration as the Union for the Mediterranean (UfM). The re-launch covered areas such as the economy, the environment, energy, health, migration and culture. Energy is considered to be an important area in which further mutually beneficial cooperation should be explored, eventually leading to concrete subjects, programmes or projects. The UfM further created a structure for cooperation and a technical secretariat, located in Barcelona, with the mandate of identifying, processing, promoting and coordinating projects in the key areas mentioned.

The Paris declaration covered the energy issue in an explicit way, highlighting the common energy challenges and adopting as one of its key priorities the Mediterranean Solar Plan (MSP). The MSP does not only cover renewable energy policy, production and transmission, but also deals with the promotion of energy efficiency. It furthermore targets the build-up of 20 GW of renewable energy productive capacity by 2020. A number of very specific projects have evolved from this political declaration, such as the Euro-Mediterranean Energy market Integration Project and the Mediterranean Renewable Energy Programme. Even more concrete are the Mediterranean Solar Plan, the institutional framework from two more associations, MEDREG and MEDGRID, and the industrial partnership called DESERTEC. As a separate activity, OME should be mentioned: the Observatoire Méditerranéen de l'Energie, a non-profit association created in 1988. OME comprises thirty-two leading Mediterranean energy companies from fourteen countries. Its main objective is to promote cooperation and collaboration between the region's energy companies, thus making energy a key element for regional integration.

45 Barcelona process, see,http://eeas.europa.eu/euromed/barcelona_en.htm.

MEDREG is the Association of Mediterranean Regulators for Electricity and Gas, established in Rome in November 2007[46]. The main objective of MEDREG is to promote a transparent, stable and harmonised regulatory framework in the region, fostering cooperation, information exchange and assistance and providing a permanent framework for discussions. MEDREG consults energy stakeholders on a regular basis and has the broader aim to create the conditions for the establishment of a future Mediterranean Energy Community.

Set up in July 2010, Medgrid is a consortium of industry leaders in electricity generation, transmission and distribution as well as in infrastructure financing and climate change services. Their shared vision is to create new highways for sustainable electricity between the northern and southern rims of the Mediterranean, as well as interconnections across the entire Mediterranean region. They are studying the feasibility of these goals from the technical, economic and institutional standpoints. Among the founders are French companies such as Alstom Grid, Areva Renouvelables, EDF and RTE.

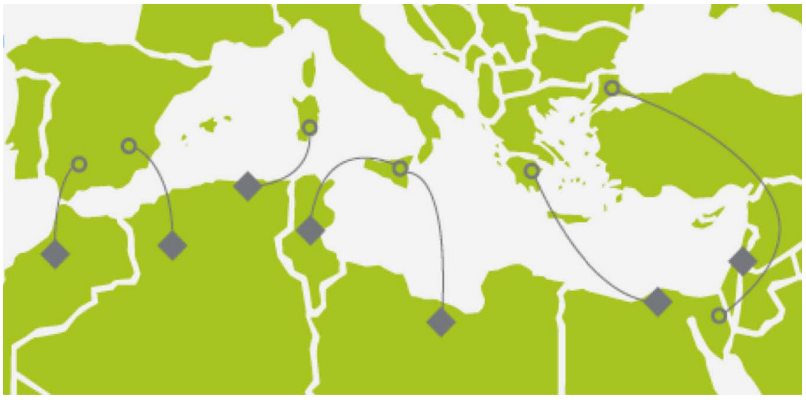


FIGURE 9. THE MEDGRID PROJECTS (SOURCE: MEDGRID WEBSITE)

The Desertec Industrial Initiative is a private industry joint venture, founded in 2009. It aims to produce power from the sun and wind in the deserts of North Africa and the Middle East for local and European demand. The long-term goal is to meet about 15% of Europe's electricity demand by 2050. Shareholders include, among others: ABB, Siemens, Deutsche Bank and E.ON. Desertec and Medgrid concluded an MoU in 2011, establishing close cooperation between RES production and energy

46 It currently includes energy regulators from Albania, Algeria, Bosnia-Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Malta, Montenegro, Morocco, Palestinian Authority, Portugal, Slovenia, Spain, Tunisia and Turkey. The Florence School of Regulation is providing the service of a secretariat to Medreg.

transmission. This cooperation between the two private industry initiatives is key to the promotion of a renewable energy partnership between the EU and countries in the southern Mediterranean. It brings a concrete perspective of solar and wind energy being produced for the joint benefit of European and Northern African and Middle Eastern markets. There remain, however, a number of uncertainties around this project, as some of its major partners have left the project in recent years[47].

It is interesting to note that regional energy cooperation in the Mediterranean region does not so much concentrate on the conventional fossil fuels but much more on renewable energy, particularly solar energy. In addition, the industrial and regulatory partnerships are also focusing on infrastructures and markets. In that sense this regional setup is comparable to what is happening in the NSCOGI project.

FIGURE 10. THE DESERTEC CONCEPT (SOURCE: DESERTEC WEBSITE)

THE NORDIC COOPERATION

The Nordic Council is the Nordic inter-parliamentary body, while the Nordic Council of Ministers is an inter-governmental body. A range of other Nordic organisations and associations also exist. Nordic cooperation between the governments (i.e., Denmark, Finland, Iceland, Norway and Sweden, whereas Greenland, the Faroe

47 See for instance http://blogs.nature.com/news/2012/11/bosch-quits-desertec.html.

Islands and Åland are also represented and have positions), is taking place on a number of different policy issues, including energy. The Nordic cooperation is supported by a professional secretariat located in Copenhagen, with a staff of some 100 professionals. Energy as such is not a subject for cooperation but is part of a wider agenda on Business, Energy & Regional Policy. There are, however, several specific working groups on energy efficiency, on renewable energy and on the electricity market.

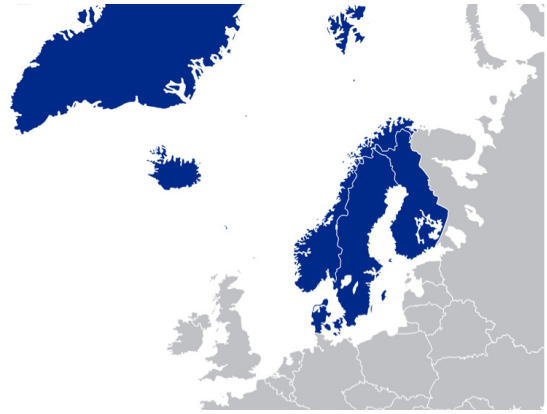


FIGURE 11. THE NORDEN CONCEPT (SOURCE: NORDEN WEBSITE)

Especially in the electricity market, the Nordic cooperation is a success story. In 1995 the Nordic ministers of energy presented their vision for an open and free electricity market in the Nordic Region. The world's first international electricity exchange, NordPool, was set up the next year, and the Nordic markets were liberalised before the year 2000. The common Nordic electricity market strengthens security of electricity supply and ensures a better use of the energy resource in the Nordic countries. As a result of the harmonising of the Nordic electricity markets, joint institutions were set up. Their role was to trade for the benefit of the Nordic market as a whole. These are the Nordic Organisation of Transmission System Operators (Nordel) and the Nordic organisation for regulatory authorities (Nordreg).

Nordel was founded in 1963 as a body for cooperation between the transmission system operators in Denmark, Finland, Iceland, Norway and Sweden, whose objective was to create preconditions for the further development of an effective and harmonised Nordic electricity market. Nordel contributed to international cooperation and information exchange pertaining to the electric power system and the electricity market. In 2009 it disbanded, and all operational tasks were transferred to ENTSO-E. Nordreg is an organisation for the Nordic energy regulators. Its mission

is to actively promote the legal and institutional frameworks and conditions necessary for developing the Nordic and European electricity markets. This is done on the basis of the EU *acquis communautaire*, which is fully implemented, also in Norway.

The work on energy efficiency concentrates on Nordic cooperation in connection with various energy efficiency initiatives in the EU, including the implementation of EU/EEA directives and programmes. Work in the field of renewable energy follows the same pattern by helping and supporting the Nordic countries' political and professional work through the exchange of information and the instigation of cooperation projects. In addition, the group markets Nordic technology and know-how on renewable energy to neighbouring countries, to the EU and worldwide. Noteworthy is the green energy market integration that was recently decided between Norway and Sweden.

Nordic cooperation on energy is a success story, both in policy terms and in practical cooperation on institutional and industrial levels. The success of the common liberalisation of the Nordic electricity market has become a model for regional cooperation and harmonisation in the EU. The combination of policy discussions and practical implementing devices, with relevant stakeholder involvements and generally supported at the highest political levels, has formed the basis of this success.

THE DANUBE/VISEGRAD4 REGION

The Visegrad4 Group was formed on 15 February 1991 at a meeting of President Havel (Czechoslovakia), President Lech Walesa (Poland) and Prime Minister Antall (Hungary). This high-level meeting in Visegrad, Hungary, created an imaginary historical arch linking this meeting to that of a similar meeting in 1335 between the kings of Bohemia, Hungary and Poland. The central motif of the two meetings was the desire to intensify mutual cooperation and friendship among the three Central European States. It was especially in the initial period of its existence (1991-1993) that the Visegrad Group played its most important role during talks with NATO and the EU, promoted by the US, arguing that economic help would be more efficient to a group of countries than to individual ones, following the example of the Marshall Plan in the late forties. In the following years, the intensity of cooperation between the V4 countries began to slacken due to the prevalence of the idea that individual efforts towards accession to the Euro-Atlantic integration formations would be more efficient.

Cooperation received new momentum, however, in the aftermath of the Ukrainian gas crisis in 2009, when the Czech Republic, Slovakia, Hungary and Poland met together with Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Serbia, Slovenia and Romania as the Visegrad4+ group, expressing their support to strengthen cooperation in further integrating their gas networks and diversifying routes and sources of supplies. More concretely, they agreed to promote the North-South interconnections through all V4 countries between the planned Croatian and Polish LNG terminals and to further promote and implement the Nabucco and NETS projects by supporting the Constanta LNG terminal and other LNG and CNG projects in the wider Black Sea region. These ideas were further supported when, in late 2010, under the initiative of the Hungarian EU presidency, an EU Strategy for the Danube Region was created, with a number of priority areas, including energy.

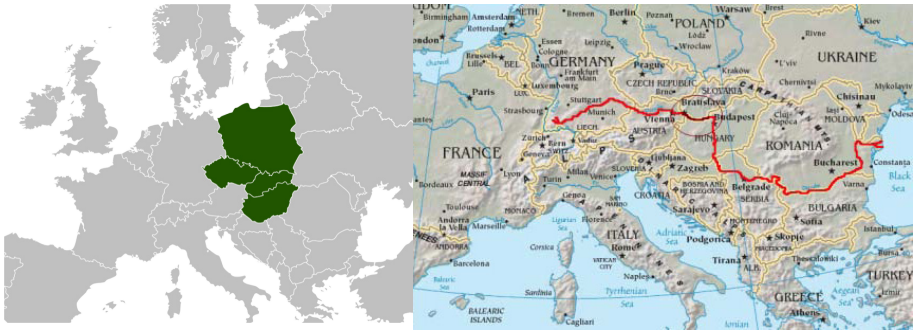


FIGURE 12. VISEGRAD4 AND THE DANUBE REGION (SOURCE: VISEGRAD4 WEBSITE)

In this strategy a number of energy action lines were agreed upon: on energy infrastructure, on energy markets, on energy efficiency and on renewable energy. With respect to infrastructures the focus was regional cooperation on gas, including the N-S interconnection, and on gas storages, together with the creation of joint positions in forthcoming EU-discussions on the TEN-E policies. With regard to energy markets, regional network integration was high on the agenda, together with the enhancement of regional market integration. In terms of energy efficiency, the focus lay in joint cooperation and information sharing when the new EU programmes are to be implemented; whereas for renewables actions concentrated on joint projects for biomass, wind and hydro, and on solar energy. An additional feature for this strategy was found for collaborative action in the context of the Energy Community Treaty[48], where all are members and agree to jointly operate.

48 This ECT, established in 2006, extends the EU Internal Energy Market to the whole of SE-Europe, via a binding legal framework for the implementation of the EU energy *acquis*. Members of the ECT are all EU-28 members, Albania, Bosnia-Herzegovina, Croatia, Serbia, Montenegro, ENMIK, Macedonia, Moldova and Ukraine, with Norway, Georgia, Armenia and Turkey as observers.

Work continues on the energy strategy of the region and on regional gas market integration. It includes modelling and contributes to the selection of new infrastructure projects. Perhaps it will lead to the establishment of a Central Eastern European Forum for Gas Market Integration. A study is planned to support the development of a more integrated regional gas storage market. The recent market couplings of the Czech, Slovakian and Hungarian power markets have profited from the work on the Danube strategy, as will the further market integration of other strategy partners. For renewables a regional monitoring programme will be started that will include the exchange of good practices.

It can be concluded that the Visegrad4/Danube region energy cooperation is largely politically driven, with a strong focus on energy (gas) security. It has the possibility to enhance further cooperation and joint operations in forthcoming broader EU energy policy discussions, including cooperative efforts to implement new EU legislation. The latter is subject to the more specific regional circumstances that could and should be taken into account.

CLINGENDAEL INTERNATIONAL ENERGY PROGRAMME | CIEP

VISITING ADDRESS
Clingendael 12
2597 VH The Hague
The Netherlands

POSTAL ADDRESS
P.O. Box 93080
2509 AB The Hague
The Netherlands

TEL +31 (0)70-374 66 16
www.clingendaelenergy.com
ciep@clingendaelenergy.com