ARTICLES IN ENGLISH, KOMMENTAR / ANALYSE

Power struggles: The Geopolitical Implications of EU Energy Policy

Dato: 27. november 2014  Av: Inga Margrete Ydersbond

Daniel Scholten

Thomas Sattich

Key EU energy policies will produce winners and losers among member states and industries. Increased participation in the EU power market will be considered a strategic issue.

EU policies to integrate energy markets, promote renewable energy, and diversify supply aim at making the European power sector competitive, and electricity available, affordable, and sustainable (EC 2001; 2011; 2013; 2014). Increasing the interconnection capacity between national power systems is one end these policies have in common. The resulting interactions and dynamics between power systems of neighbouring countries should largely affect the systems of electricity generation, transportation and storage in Europe.

But the three EU policies (will) also affect power systems in Europe individually: With increasing market integration come new markets, and new competitors. In addition, traditional coal, gas and nuclear power plants face new renewable challengers domestically and abroad. This new renewable based electricity generation capacity will be located differently than fossil and nuclear plants; and with the changing location the question arises what the suitable interconnection and storage services are. Moreover, diversification towards new supplier countries and sources will bring new trade routes and infrastructure such as LNG harbors; power generation capacity might follow.
All in all, should EU policies to integrate power markets, promote renewables, and diversify supply be fully implemented and effective, power systems in Europe will see a profound reshuffling of national energy assets in the coming decades. The combined impact of the three EU policies is thus likely to have considerable geopolitical implications for individual member states. The question hence is: What are the potential ‘geopolitical’ implications of strongly increased market integration, the large-scale transition to renewable energy, and supply diversification for the making of European energy policy?

In other words: In what way will EU energy policy affect the ‘geopolitical’ balance between member states and their capability to negotiate, agree on, and/or implement further measures? With this article we aim to provide some food for debate by conducting a thought experiment which explores potential benefits and losses for individual member states that follow Europe’s ‘energy transition’, and what political concerns may be expected to arise as a consequence. In the next section we therefore describe in more detail what effect the three EU policies will have on the allocation of power generation and transmission capacity. We then round up with a brief discussion of the geopolitical implications. The intention is not to forecast the future shape of Europe’s power system here, but rather to raise some general remarks for further discussion.

**Three EU Policies and Their Impact on Capacity Allocation**

EU policies on the field of energy are diverse and have been called ‘a patchwork’. However, with regard to their impact on the future shape of the European system of power generation, transmission and consumption, their relevance for relations between EU member states, and their capability to come to agreements acceptable for all sides, the following three stand out.

1. **Market integration**

   From a European perspective power systems in Europe are characterised by generation overcapacities on the one hand, and gaps/bottlenecks in the power transmission infrastructure on the other. The state of cross-border power transmission
infrastructure in Europe thus hampers the symbiotic interaction between different European markets, more security of supply, and a more efficient allocation of power generation units (Sattich 2012).

In an attempt to integrate national/regional power markets, the EU therefore developed different policies and legislations (such as grid integration and harmonisation of rules) to finalise the Internal Electricity Market (supposedly by the end of 2014). Capital-intensive and redundant overcapacities would be reduced to a minimum, in such a European market, thereby saving large financial means for other investments.

From a national perspective market integration implies, however, that new competitors to domestic producers emerge, and that electricity companies which are not efficient enough to compete on a European market will go out of business, while other utilities (including foreign) will be able to strengthen their market position. Moreover, in the longer term a European setting prevents the perpetuation of artificial interconnection capacity shortage to protect domestic markets from foreign competition; a successful EU market integration policy thus increases the likeliness for generation capacity to migrate beyond national borders. The slow process towards more interconnection capacity between France and Spain could, for example, be rooted in fears of such a scenario.

Unbundling is another main element of the EU’s attempt to create a European environment for the development of power systems and markets (Eikeland 2011a). The European Commission proposed a third legislative package for an internal gas and electricity market, which was adopted in July 2009. Unlike the proposal, the package does, however, not provide for full ownership unbundling. Instead, it offers different unbundling models that do not necessarily change the ownership, but the management and the supervision of transmission networks (Eikeland 2011a:24-25). It is therefore questionable whether these provisions ensure independence of transmission networks from generation interests (Dupont and Primova 2011:11). The lack of such a structure may heighten perceptions that interconnection equals unfair competition, i.e. the perception that even efficient domestic producers may be competed out of the market. The unfinished liberalization and unbundling hence reduces the trust in a fair and open European market system.

The geopolitical frictions resulting from EU market integration policy would thus be negligible if the balance between winners and losers were approximately equal in all EU member states, and if the regulatory framework established a level playing field for all market players which promises an overall net gain. But what if a substantial part of Europe’s electricity production would – for example – move towards North-Western Europe? Southern Europe surely is not waiting for more economic activity and employment to move north (given the asset of having large access to renewables, a more likely scenario is that sun from the South and wind from the North can contribute to balancing each other.)

Countries expecting to lose production capacity might thus be inclined to be satisfied with the current state of Europe’s cross-border transmission infrastructure, the lack of progress to increase cross-border power exchange capacity, and fractured power markets – depending on which actors are influential domestically.

2. Renewable transition
The EU and the member states have repeatedly stated the ambition to drastically increase the number of renewables in the power system, and implemented a number of policies to reach this goal. Consequently, one may assume that there will be a rising number of renewable power producers and significantly increased generation capacity in the market (e.g. European Environment Agency 2014). The integration of these renewables in the power mix implies, however, four important changes to the European power system (Scholten and Bosman 2013):

First, every country or region has access to at least some form and amount of renewable sources of energy (be it wind, solar, biomass, hydro, ocean or geothermal); yet some countries are better endowed to become competitive producers than others, because some types of renewable energy can be exploited more efficiently at certain locations (e.g. offshore wind in the North Sea). Production will therefore shift to those countries that have access to more sources of renewable energy, offer better
incentives for expanding capacity, and can exploit them more cost-efficiently. EU member states will hence increasingly face ‘a make or buy decision’, i.e. they can choose between cheap imports and the security of domestic supply (Bosman and Scholten 2013).

Strengthened power grid – essential to a European power market.

Hence, the question is what position individual countries will take on European energy markets. Countries which decide to exploit their own renewable sources to cover their consumption will (potentially) become more self-reliant, with the need for cross-border energy trade (potentially) becoming smaller. Other countries might prefer to import energy, i.e. to buy from European energy and power markets; as a consequence their strategic focus will shift from the access on overseas fossil fuel resources towards the ownership, management, and protection of grids (and other supply routes for renewables) in order to secure imports, and on the domination of related markets. Essentially these countries will face the economic and security of supply challenges of the integrated European energy market.

Second, most new renewable generation power is expected to be of an intermittent nature. Increasing the use of this form of power generation therefore implies growing price volatility and (costly) countermeasures to secure stable power supply. Large scale adaptation of the power transmission infrastructure are therefore necessary to harness renewable energy sources such as wind and solar. In addition, intermittent power production in one part of Europe likely leads to balancing costs elsewhere.

Without a regulatory framework that clarifies costs and benefits of renewable electricity generation and transport, conflicts will arise between consumers, grid companies, transmission companies and producers. Moreover, countries that feature cheap balancing services, i.e. ample supplies of dispatchable hydropower or other storage means, standing reserves, interconnector capacity, or renewables that can deliver in times of peak demand, could attract economic activity and enjoy (indirect) influence over other countries connected to the same power markets. This is for example the case for Norway as a potential ‘green
battery’ for Europe.

Third, renewable electricity implies distributed generation in so called combined power stations consisting of various numbers of smaller plants. Contrary to today’s big, centralized fossil fuel or nuclear power plants, this form of power generation hence allows for a business model that brings together a larger number of small units dispersed over larger territories of various sizes. Where the option of distributed generation is chosen, energy markets become rather locally oriented, and are likely to involve a mix of private and communal companies. Regions/countries with a focus on this business model would hence be less present on the integrated EU market. Yet electricity prices on that market would still guide investment decisions into local grid alternatives. Decentral options could therefore be an interesting way for policy makers to protect certain consumers and producers from the competitive pressures of European markets.

Consequently, a growing share of renewables could lead to more sustainable, competitive, and secure energy system in Europe, with less dependence on fossil fuels from overseas. But the increasing use of renewable energy sources for power production also involves a number of geopolitical insecurities, challenges and frictions: Changing allocation of generation capacity due to new energy sources, enhanced competition, unknown balancing related costs throughout Europe, strategic choices to keep certain consumers and markets off the European grid as a way to protect certain domestic producers, and possibly price volatility that harms household and industrial consumers.

On the other hand, with larger total generation capacity, average wholesale prices are expected to decline, to the benefit of the customers. One of the biggest uncertainty factors is perhaps the share of power that will be generated in a distributed fashion, and its effect on power markets: Based on the strategic considerations on the member state level, increasing recourse to the European electricity market to secure supply on the one hand, and local/regional self­sufficiency on the other will co­exist side by side.

3. Supply diversification
Security of energy supply has been on the policy agenda since the oil crises in the 1970s and especially since the Ukrainian crises in 2005/2006 and 2009. With the Ukraine crisis of 2014, energy security again hit the top of the EU agenda. Main fields are the diversification of sources, origin and transport routes of energy. Two dimensions of these EU policies can be identified: a) external relations between supplier and transit countries outside the EU and b) inter­member state issues.

Implications of external policies for the European power sector are numerous: Diversification away from Russian and Middle Eastern energy sources towards other regions and countries as part of the common energy foreign policy (or planned Energy Union, see e.g. Ydersbond and Sveen 2014) may lead to shifts in fuel types. Moreover, new supply routes will alter entry points to the European energy system and make new infrastructure necessary; importing natural gas from Nigeria, (possibly) Iran and more from Norway and Algeria instead of Russia may, for example, lead to more LNG capacity at old and new harbour locations, adding to the gas grid in the West, South, and the Baltics, at the expense of Eastern pipelines. In a European setting power generation and transmission capacity might follow these changes. Member states in risk to lose power generation to countries closer to new entry points will oppose further steps in such a direction. Another example would be solar PV imports from Africa, which would necessitate new HVDC (high voltage direct current electricity cable) and interconnector capacity at the Southern European border. Member states which are located too far away to benefit from potentially lower electricity tariffs in the Southern regions will most likely oppose the use of European funds to stimulate the construction of the necessary power transmission infrastructure.

A main element of the EU’s internal approach to supply diversification is its policy to stimulate the construction of new cross­border transmission infrastructure. Common grid planning (for example in the Ten Year Network Development Plans TYNDP) and Projects of common interest (PCIs) for electricity and gas grids are two important instruments to reach that goal. Yet more interconnection capacity would not only increase the ability to secure power supply in times of shortage from a broader variety of regions and to stabilize power systems in times of growing numbers of intermittent renewables, but as in the case of market
integration also contribute to shifts in power generation capacity to the most favourable sites. Supply diversification through more cross-border interconnection capacity hence implies increased dependency on the will and the capability of (power companies in) neighbouring countries to uphold and stabilize electricity supply or import power surplus. Moreover, the stimulation of interconnectors is currently pursued without a clear legal framework for such an integrated market. Potentially the EU’s internal approach to supply diversification therefore opens the door to continuous fears about the reliability of neighbouring countries. Will France for example provide Italy with nuclear electricity if both countries face a power shortage? And what will Poland do in the future when Germany continues to export increased surplus electricity there (Sattich 2014)? Clear agreements and regulations are therefore necessary to avoid mistrust among member states; otherwise member states will conceive unnecessary but costly national counter measures.

What does it all mean?

While the EU policies aim to make electricity more available, affordable, and sustainable, member states have enough reasons to worry as to their relative position in the emerging European energy system: Bigger markets, growing transmission capacities, new (renewable) energy carriers, and new supply routes represent greatly altered framework conditions for the future evolution of the power system. And not every country is likely to benefit equally from changes involved with a European power system such as the relocation of power generation capacity and the accompanying infrastructure effects.

To us, it seems therefore likely that member states will consider increased participation in the EU power market as a matter of strategic choice: Even though large parts of the electricity generated in Europe might one day be transmitted through a truly European grid system, governments will attempt to keep self-provision for areas of vital state interests and economic reasons, while local communities may anyway desire to become self-sufficient in their power supply, as seen in e.g. several German villages.

In short, the EU policies discussed above will cause increased economic activity in some countries and industries, whereas others will lose parts of their power industry, and hence produce winners and losers. In our perspective the successful implementation of EU policy to integrate markets, increase renewables, and diversify supply requires at least three different elements:

- High levels of mutual trust between member states must be reached in order to increase the political acceptance of shifts in power generation and transmission capacities implicit to the EU policies under discussion.
- Economic instruments and a regulatory framework are necessary to ease the geopolitical concerns of EU member states.
- Co-ownership and/or shared control over grid assets and their operation, either between groups of countries or on the EU level.

If this level of transparency is not reached, we may expect to see a lot of issues arising that hamper the further development of Europe’s energy sector: What and under what circumstances are countries obliged to deliver energy? Who finances projects and where are production and storage facilities to be located? Who is going to be responsible for operations and disturbance response? How should the intermittency of power generation in cross-border networks be managed, and how will damages in one area incurred by fluctuating power in another area be resolved? Clear agreements seem a prerequisite to avoid opportunistic behaviour.

References


Sattich, T. Forthcoming. «Electricity grids: no decarbonisation without infrastructure», Decarbonisation in the EU: Internal


ACKNOWLEDGEMENTS: this research has been financed by a grant of the Energy Delta Gas Research (EDGaR) program. EDGaR is co-financed by the Northern Netherlands Provinces, the European Fund for Regional Development, the Ministry of Economic Affairs and the Province of Groningen, and also supported by the research centre CICEP, Strategic Challenges in International Climate and Energy Policy, which is funded by the Norwegian Research Council.

Create your free online surveys with SurveyMonkey , the world’s leading questionnaire tool.