Beyond “grid-lock” in German-Polish electricity interconnectors

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Based on the research conducted with dr Kacper Szulecki (Hertie School of Governance) within the framework of the Dahrendorf Symposium Project, 2013
Why are the grids needed?

• EU goals: common electricity market by 2014, increasing RES deployment, transformation to low carbon economy
• Market coupling and a promise of a price convergence
• Reaction to increasing loop flows
• Political push (i.e. post 1989 case of Poland)
Comparison: Germany and Poland

**Germany (2012)**

- **Installed capacity:** 171.7 GW
- **Total generation:** 611 TWh
- **Electricity consumption:** 571 TWh; 7000 GWh/pc

**Poland (2011)**

- **Installed capacity:** 37.4 GW
- **Total generation:** 162 TWh
- **Electricity consumption:** 149 TWh; 3864 GWh/pc

**TSOs:**

- **Germany:**
  - 50HertzT (ownership unbundling – shareholders: Belgian Elia System Operator, Australian Industry Fund Management);
  - Transnet BW, Amprion, TenneT TSO.
- **Poland:**
  - PSE SA (ownership unbundling – Polish state owns 100% shares)

What are the plans on the border?

- **Krajnik-Vierraden**: grid enhancement to 380/400 kV, phase shifter
- **Mikułowa-Hagenverder**, phase shifter
- **New interconnector (253 km)**, Plewiska-Eisenhuttenstadt

All listed as the PCIs (EC, 14 October 2013)
Grid development - Poland
Grid development - Germany

Source: 50Hertz
Why is there a „grid-lock”?

H1: Financing
An insufficient financing model can be a hindrance to the investments. Contrarily, the appropriate system at place can provide for the appropriate rate of return.

H2: Interests of stakeholders
What is the potential and perceived benefit calculation on both sides – for TSOs, regulators, exchanges and governments?

H3: Governance and administrative processes
Not harmonised, complicated processes on the domestic level, and when coordination across borders is requires, the process stalls. In this case, what are the problems (administrative, societal, legal) and how can they be overcome? What sort of regulation and governance is needed?

H4: National “energy security” and trust
Lack of political actions stemming from different paradigms of energy security and views on the electricity markets. If that is the case, is this difference in perspectives shared across levels of governance, or is it a question of elite definition of national interests which can be altered through dialogue?
Financing of the investments

Regulatory model, though merchant model also possible.

Not the major hindrance for the TSOs, as the costs will be transferred on the final customers in tariffs. More certain rate of return in Germany.

Parallel TSOs projects (LitPol Link, Soth-West Corridor)

All projects listed as the EU PCIs. The granting of additional funds from Connecting Europe Facility would help prioritise the investments on the national level.

Visible shift in the debate, from „stabilising the grid” to decrease in prices, and market creation.
### Interests of stakeholders

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<th>Stakeholders</th>
<th>Poland</th>
<th>Germany</th>
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<tr>
<td>TSO</td>
<td>PSE Operator</td>
<td>50 Hertz</td>
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<td>Regulator</td>
<td>URE</td>
<td>Bundesnetzagentur</td>
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<td>Government</td>
<td>Ministry of Economy</td>
<td>BMWi – Federal Min. of Economies and Technology</td>
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<tr>
<td>Regional</td>
<td>Wielkopolskie, lubuskie</td>
<td>Brandenburg</td>
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<tr>
<td>Middle agents, Academics, Professionals,</td>
<td>University of Technology, Law Firm, f.</td>
<td>PIK Potsdam, Germanwatch, EC</td>
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<td>NGOs</td>
<td>former European Coordinator</td>
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Governance and administrative processes

Lengthy procedures, due to the administrative and permitting processes and the case-by-case negotiations for the right to the land and compensation on the Polish side.

German model of grid planning as a one that involves the public acceptance and gains credentials from Bundestag.

Problems with the Polish „Act on Corridors” - too many sectors in one law, too many interest groups, problems with regulating the right to the land, and the compensation formula.

Centraloisation of decision-making processes. Importance of the industry interest in Germany, and energy companies in Poland.

Uncertainty and dependence on the final form of the EU market coupling.

Room for legislative best practice sharing from Germany to Poland? Need for the pan-European TSO and regulator?
National ‘energy security’ and trust

• National or European energy security?
  “We cannot think of the energy sector only in terms of economic calculation. That kind of thinking will result in importing electricity from abroad. The state has to secure supply stability. Energy security is key” – Analyst, Jagiellonian Institute

• Electricity as commodity vs. electricity as existential security
  “This is a matter of State energy security” – Interviewee, Warsaw Energy Exchange

• “Realist” logic vs. cooperation and mutual understanding
  “What is good for the industry is good for Germany” – interviewees on both sides

• Lack of trust in Pl-DE contacts, resulting from other issues (i.e. Nord Stream)
  “I do not understand the German culture [...] They never treated these negotiations seriously, never sent high level representatives. Speaking roughly – they just could not care less” – former European Energy Coordinator
Conclusions

**Windows of opportunity open again.** The plans to phase out electricity production facilities, be it nuclear or coal, create the need for new national generation facilities or, less costly, electricity imports. These “gaps” should be used to develop trade, thus shifting the perception of cross border interdependencies, from “risk” to the “means to stabilize the system”.

**The EU as a trigger.** So far, the works of the European Commission, ENTSO-E, ACER, definition of the PCIs legitimise and push forward the European energy market integration. The joint, Polish German effort is needed to receive financing under the CEF. Moreover, the broader impact of intermittent RES on the system, including the question of electricity storage, should be investigated more broadly by the EC.

**Effective market design.** The energy market is an entity on the border of market mechanisms and security, and because of this, it needs careful design and receptive oversight. Markets alone might not be able to deliver the infrastructural improvements needed, especially in the absence of clear signals leading there. Also, the European market zones should resemble the actual flow of electricity, with the optimal transactions based on the flow-based allocation.
Conclusions

**Speedy completion of the phase shifter transformers.** In the absence of an effective market design to ensure timely information on generation and load patterns and response capacity with TSO, unplanned loop flows remain a concern and can be limited through phase shifters. Their completion in 2015-16 will minimise the current burden on neighbouring systems but should not undermine efforts to capture synergies from an integrated system operation.

**Trust-building measures.** Knowing the tensions in bilateral relations in the last years, increased contacts between partners at all levels, combined with measures that bring a minimum of mutual security (i.e. phase shifters) should be promoted.

**Legislative best practice sharing.** While working out the legislative solutions to ease the administrative burden as well as to give the legitimacy to the projects, an increased Polish-German cooperation and best practice sharing is advisable. The Polish ‘Corridor Act’, which is still in the making, can draw important lessons from the German experience of an Act to Accelerate the Expansion of the Grid Infrastructure.
Thank you!