The Integrated Offshore Grid: Dilemmas and Paradoxes for Regional Expansion Governance

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Overview

Development of offshore wind and power transmission in the European North Seas is accelerating, leading to the formation of a North Seas offshore grid. This grid performs two functions: to interconnect the asynchronous power systems of Scandinavia, Great Britain and continental Europe, and to connect offshore wind farms to these systems. Traditionally, these two functions are performed by separate transmission lines, but in an integrated offshore grid hybrid lines perform both (Dedecca et al., 2017). Cooperation for an integrated offshore grid in the North Seas is increasing due to its socio-economic, technical and environmental benefits, but concrete integrated projects are still scarce.

In parallel, the Energy Union proposal holistically reforms the European power system regulation in order to reach the European energy and climate policy targets (EC, 2015). Regional expansion governance is central to developing the intergrated offshore grid, as supported by multiple stakeholders (ENTSO-E, 2017; Jay and Toonen, 2015; Palle, 2013). However, the Energy Union does not address it. We thus identify three dilemmas and two paradoxes for the regional expansion governance of the integrated North Sea offshore grid.

Methods

First, we conduct a structured literature review, with search terms on the topics of the Energy Union, regional governance and the offshore grid. Second, from governance studies we identify dimensions which allow to categorize governance frameworks (Treib et al., 2007). The selected dimensions are the governance level (European, regional or national), implementation obligation (binding or not binding) and implementation discretion (rigid or flexible). The regional level has a particular importance in our analysis, for much of the offshore grid expansion governance should take place at this level, in line with recent developments on the design of the European expansion governance framework (ENTSO-E, 2017; Palle, 2013). Third, we then apply the selected governance dimensions to analyze regional expansion governance paradoxes and dilemmas for the integrated offshore grid.

Results

Figure 1 presents a summary of the methodology and results, where the literature review and the three selected governance dimensions allow to identify five paradoxes and dilemmas for offshore expansion governance.

The top-down dimension dilemma indicates that reaping the advantages of centralization at the European level for regional cooperation requires a balanced use of binding and rigid regulation, avoiding the disadvantages of centralization through flexible and if necessary non-binding implementation. **The bottom-up devolution dilemma** requires North Seas countries to voluntarily relinquish expansion governance powers for the regional benefit, possibly against their national interest. **The non-European Union countries dilemma** concerns the participation of Norway and the post-brexit UK: their partial involvement in the European expansion governance restricts the advantages that either a higher or a lower implementation obligation and/or discretion levels would bring. Higher levels would be achieved through full membership in the European Union, while lower levels through not participating in any organization such as the ENTSO-E, establishing bilateral agreements instead. However, none of these two scenarios is likely, with only partial participation remaining as an option.

The regional planning paradox arises from the fact that regional planning for integrated projects in the Ten-Year Network Development Plan is dependent on plans developed at the national level, where the national interest may conflict with the regional one. Thus, the current European regulation creates an inherent contradiction for regional planning. Finally, **the pricing and financing paradox** emerges because while the Trans-European Networks for Energy (TEN-E) regulation is non-binding, it is nonetheless rigid, placing cross-border cost allocation agreements as a pre-requisite to funding applications . This creates a conflict since these agreements and funding applications are interdependent, with integrated offshore grid projects relying on both cross-border cost allocation and on European financing. Here, the TEN-E regulation creates an inherent conflict between pricing and financing.

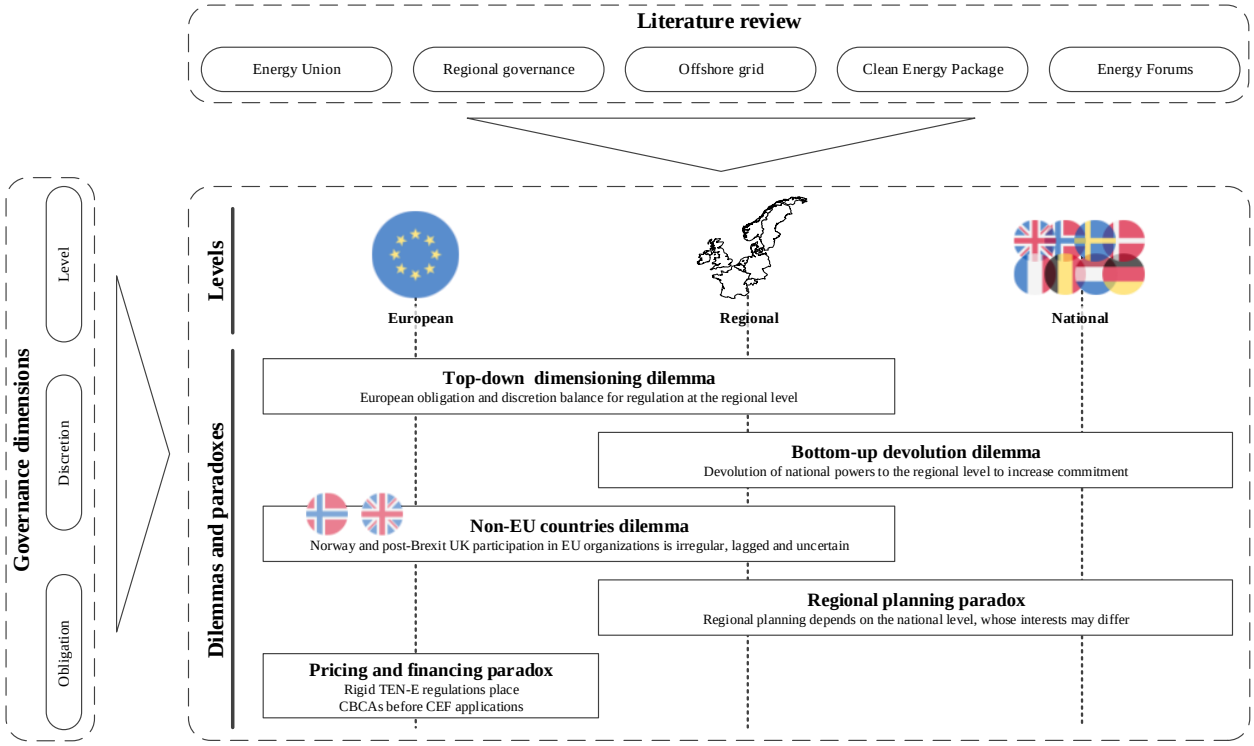

Figure 1: Methodology and results summary

Conclusions

Our methodology applying a literature review and governance dimensions allows to identify conflicts in the current European regional expansion governance affecting the integrated North Seas offshore grid. The identified dilemmas relate to the interaction of the European and national levels with the regional one, and the participation of non-EU countries. The paradoxes are more specific: regional planning is dependent on national development plans, which consider national interests; and cost allocation for projects of common interest rigidly precedes the application for financing.

Regional governance is attracting attention as the adequate decision-making mode to conduct expansions for the European and other multi-level, multi-actor power systems (ENTSO-E, 2017; Jay and Toonen, 2015; Palle, 2013). The Energy Union focuses the European energy and climate policies governance and the power system operation, so regional expansion governance remains largely unaltered, and our dilemmas and paradoxes unaddressed. There are positive but limited changes to the interaction among the European, regional and national levels, but regulatory and integrated project inertia call for further flexible, non-binding regulation and cooperation.

Due to legistlative and project development inertia, non-binding and flexible governance measures are all the more important because they are faster to implement and modify. But the bottom-up devolution dilemma also highlights the importance of achieving sufficient obligation through the devolution of powers from the national to the regional level.

References

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