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Systemic instrument for systemic offshore wind problems in Europe

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Abstract

Offshore wind energy is a relatively young but rapidly developing and increasingly competitive sector. While in the early 90s the industry was still in its infancy with the first offshore wind turbine being set up in Denmark, in 2011 the total installed offshore wind capacity in Europe reached 3294MW and up to 2020 another 40GW is either under construction, consented or planned. Presently offshore wind energy covers 0.4% of the total European electricity demand and provides Europe with 160000 jobs. The additional 40GW is the combined ambition of the EU Member States specified in the National Renewable Energy Action Plans to contribute to the binding renewable energy target. Realization of this ambition would allow meeting over 4% of the EU's total electricity demand and avoid 87mln tones of CO₂ emissions. It would also provide with huge employment opportunities, help various countries diversify their energy sources and even help them become energy exporters to emerging markets.

Despite of recent developments in the field, however, the sector is facing a number of problems that hinder its quick development. Some of them include: underdevelopment of technology, potential lack of specialized human capital, high costs, dependence on governmental subsidies or obsolete grid infrastructure unable to accept larger amounts of renewable electricity.

In this paper we use insights from the innovation system studies to assess the offshore wind as a technological innovation system. In particular we make use of a systemic policy framework to identify systemic problems that hinder the system development and to design a systemic policy instrument that would address the identified problems in an integrated manner. By this, the paper links well to the other contributions proposed to this conference on systemic analysis of offshore wind in Europe but instead of presenting the analysis, it focuses on classification of identified problems as systemic problems and on the design of a systemic policy.