

POLICY *brief*

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Identifying Benefits and Allocating Costs for European Cross-Border Infrastructure Projects¹

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Highlights

- Cross-border investment projects having a European interest are currently undertaken country by country with insufficient cooperation between all actors impacted by such a project. The asymmetry of cost allocation and benefit distribution of cross-border infrastructure plus the presence of economic externalities have led to a suboptimal situation at the EU level.
- A cost-benefit analysis would be an interesting tool to enhance the scope of studies of cross-border investments. A cost-benefit analysis is more suitable for undertaking a country to country cross-border analysis. An extra complexity arises when one wants to consider a full EU infrastructure package.
- TSOs should invest the congestion rents generated in cross-border trade or lose them (“invest it or lose it”). TSOs not interested into cross-border efficient investment projects should transfer the congestion rents to a “European Interconnection Fund” to finance other EU relevant interconnection projects.
- The existing “Inter-TSO Compensation” mechanism should be either replaced or supplemented by an ex ante instrument based on a cost-benefit analysis. This welcome upgrade should explicitly take into account the economic externalities of the new investment projects.
- ACER could play a more powerful role in approving investment plans. EU legislation could be revisited to permit this. An interesting alternative to the today’s European system operation frame would be to create an EU “Independent System Operator” (EU-ISO) which would have access to the relevant network and operation information that ACER does not get. That EU ISO could play an active role in the studies contributing to European cross-border infrastructure planning.



Florence School of Regulation

The Florence School of Regulation (FSR) was founded in 2004 as a partnership between the Council of the European Energy Regulators (CEER) and the European University Institute (EUI), and it works closely with the European Commission. The Florence School of Regulation, dealing with the main network industries, has developed a strong core of general regulatory topics and concepts as well as inter-sectoral discussion of regulatory practices and policies.

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¹ Conclusion of a Workshop held in Brussels in May 2011 in association with DG Energy. The full paper is available at: http://www.florence-school.eu/portal/page/portal/FSR_HOME/ENERGY/Policy_Events/Workshops/2011/Cross-Border_Infrastructures

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Background

The European Union is engaged in a process of market integration over a long period. Cross-border energy infrastructure investments should play a key role in reaching this objective. However, cross-border investment projects having a European interest are currently undertaken only country by country with an insufficient cooperation between actors involved in such a project. Beside the lack of cooperation, the asymmetries of cost allocation and of benefit distribution of cross-border infrastructure plus the presence of economic externalities have lead to a suboptimal situation at the EU level.

Problem Identification

Investing in cross-border lines in well-interconnected electricity systems can benefit the origin country by reducing its congestion costs as well as to third party countries by increasing their power trade. Some players in certain countries may then have significant benefits without taking a proportionate part in the costs incurred by the investment in the origin country. It leads to the significant problem of “free-riding”. The asymmetric allocation of costs and benefit distribution calls for a better coordination of stakeholders across borders for many significant investments in cross-border lines.

Large-scale renewable energy is adding more challenges. Not only a stronger coordination is required between European Transmission System Operators (TSOs) and National Regulators authorities (NRAs), but other stakeholders are also concerned such as renewable energy developers and in some cases actors from outside the EU (e.g. North Africa). Indeed, the ongoing smartening up of the grid gives rise to complex multilateral network externalities induced by the asymmetric allocation of innovation’s risks and gains.

In the gas sector, several infrastructure investment projects are also lacking the right incentive to stimulate cooperation between impacted stakeholders and are then facing an inefficient cost allocation problem. Multiple stakeholders already take part in the investment decision process. Gas TSOs are key players having public or private status with different responsibilities in the decision process. The transmission demand side –the shippers- may also take part (notably with “open seasons”) and in some cases, national governments and regulators play a direct and active role. Given this colourful context a thoughtful cooperation is still strongly required.

The gas 10 Year Network Development Plan (TYNDP) to be issued in 2013 should help to increase knowledge and to streamline views about networks needs and issues. It will however lack a definition of how costs should be allocated and to whom. Many stakeholders could pay for the new infrastructure if the right conditions are put in place. For instance, gas producers would be inclined to pay if they can get exclusive rights on infrastructure. TSOs could pay to supply national end users while being not allowed by their NRAs to bear cross-border costs for purely foreign needs. Considering the continental scope of the European gas market, the EU itself could participate to the infrastructure cost recovery. However, this could increase political interference with the market play.

Anyhow the benefiting consumers and / or suppliers should pay for any infrastructure that feeds them. The challenge is that they may prefer to not pay today while expecting somebody else to bear the investment, so as to get later access to this new capacity on a more flexible and cheaper basis. We do not find there are conditions for a “one size fits all” perfect frame.

Revisiting Cross-Border Investment Planning Tools

Planning tools are mainly considered at the national level. Advanced planning of projects having a European interest is conceived of as being parallel to regional initiatives. The roof of the European planning process is the TYNDP introduced by the Third Legislative package. It aims at developing long term and top-down scenarios for conceiving new transmission assets. While it could give a benchmark for a planning integrating EU climate and energy policy targets “20-20-20”, it is not clear how the requirement of increasing coordination of stakeholders across borders is addressed. Only TSOs and NRAs are explicitly involved in the planning process. Rather, it is not conceived to deal with grid smartening objectives. For instance, the involvement of renewable energy developers is not clearly envisaged. Anyhow, since the TYNDP has to be issued in 2012 for electricity and 2013 for gas, it is only a very first step to meet the EU energy policy targets by 2050.

The TYNDP should be supplemented by a top-down master plan looking 30 years ahead which is a bridge to reach 2050

Cost-benefit analysis (CBA) would be an interesting tool to enhance the planning of cross-border infrastructure investments. It relies on evaluating ex ante the costs and the benefits of investment projects with consideration of productive, alloc-

ative and dynamic efficiency. To apply it to investment planning in the whole EU as it can be in isolated Member States, the first challenge is to define the appropriate jurisdictions and parties affected in each of the related countries.

To properly take into account the technical and economic externalities that could arise from cross-border investment projects, the CBA analysis should be “granular” instead of “global”. It has to investigate what the likely welfare changes are among various stakeholder groups. Furthermore, consumers’ willingness to pay should be taken into account and key stakeholders should be clearly identified as units of analysis to avoid predictable deadlocks and political blockage.

A cost-benefit analysis would be suitable to undertake a country by country cross-border investment planning analysis. An extra complexity arises when one wants to consider a full EU infrastructure package.

Revisiting Existing Cost Recovery Tools

To recover the cost of maintaining infrastructure and the cost of the new invested cross-border capacity, several cost recovery tools have been used.

Regulated Tariffs: At the national level, regulated transmission tariffs recover the TSO’s cost of investment in interconnection capacity. It could be an appropriate tool for increasing projects of national interest. However within this scheme, there is no appropriate incentive to enhance efficient cross-border infrastructure, unless those would impact the local system by reducing internal congestion costs.

A good option is to turn the national incentive regulation scheme toward cross-border cooperation. An advanced scheme could include risk-adapted rates of return for investments of European interest. A minimum degree of harmonization across countries should however be ensured to create a kind of “EU level playing field”.

Congestion Rents: when a market-based allocation of capacity is used, TSOs receive congestion rents that are allowed to be used to guarantee the availability of the allocated capacity, increase interconnection capacity, or reduce the regulated tariff inside the country. In practice however, these rents are mainly allocated to tariff reduction and not to finance EU intercon-

TSOs should have to invest these rents in cross-border enhancement or lose them. TSOs not interested in undertaking efficient investment projects would have to transfer the congestion rents to a “European Interconnection Fund” to finance other interconnection projects of European interest.

Inter-TSO Compensation (ITC): The ITC mechanism, which only exists in electricity, defines compensation rules for costs incurred by TSOs as a result of cross-border flows. This compensation scheme however operates a reallocation of the costs of existing infrastructure (such as losses) only ex-post. It is then designed only to deal with existing infrastructure, which had not been conceived to serve an EU internal market but separated national trade zones. ITC totally lacks an appropriate scheme to incentivize investment in a new infrastructure which would benefit several national zones: it does not consider ex ante costs and benefits of new pieces of infrastructures.

ITC should be either replaced or supplemented by a new ex ante EU instrument based on a renewed cost-benefit analysis. Any upgrade should explicitly take into account the externalities generated by the interconnection investments.

EU Public Funding: EU funding has been used to support interconnector investments for certain projects of European interest. EU funding covers for example the Trans-European Network Program, the European Economic Recovery Program and the European Investment Bank Projects. However, until recently, available funds through the Trans-European Network process have very limited and only used to finance feasibility studies. They therefore had a marginal impact in comparison to the total budget needed for the implementation of an interconnection project.

The EU could have a significant public fund, to be financed by Members States contributions, via the general EU budget or an EU transmission stamp. In spite of the risk of political interference with the market play, these funds could bring support to interconnection investments that yield too strong EU positive externalities at the country level. They should be dedicated to projects that market mechanisms cannot deliver given these externalities’ constraints.

Governance Process

The needed investment in cross-border infrastructures is suffering from a lack of cooperation among stakeholders across Member States borders. Till today most of the coordination between the TSOs and with the other stakeholders for cross-border issues has been voluntary arrangements permitted by the existing national allocations of powers and of incentives. The issue there to go ahead with projects of European interest is the governance to be put in place.

First, there is still a key role to play by NRAs to deal with the lack of coordination among them as well as between TSOs (or DSOs) and generation developers contributing to large-scale renewable energy integration. NRAs should have a clearer and more efficient role in the planning process and should be able to check whether the planning of TSOs (DSOs) reasonably meets EU interest.

Second, ACER should play a more powerful role in assessing investment plans from the European interest point of view. EU legislation could be revisited to provide this. The process could be to allow ENTSO-E or some regional bodies to propose priority projects based on some predefined cost-benefit criteria. ACER then could intervene to assess such projects and guarantee their European interest. It could also intervene in the cost

allocation process when strong externalities arise and be the manager of a new European compensation scheme, if applied.

Third, an interesting alternative to the existing EU TSO industry structure would be to create an EU Independent System Operator (EU-ISO). It would have access to relevant network and operation information that ACER does not get. This EU ISO could play an active role in cross-border infrastructure analysis. The national TSOs would act in such a new framework as service providers or as projects developers implementing the EU ISO program while not making the cross-border infrastructure analysis by themselves. The independence of the ISO would ensure transparency and neutrality vis-a-vis existing local interest groups as well as welfare maximization in the European interest, without requiring European TSOs to merge which are legitimate business units and state or private shareholders properties.

In regard to the gas sector, an EU-wide planning approach is not likely to lead to fast or efficient decisions. An improvement could however be to establish common platforms, developed from existing open season processes. These platforms would allow interested parties to reserve long term capacity on corridors and the TSOs to offer competing capacity development projects.