



European  
University  
Institute

ROBERT  
SCHUMAN  
CENTRE FOR  
ADVANCED  
STUDIES

# WORKING PAPERS

RSCAS 2015/44  
Robert Schuman Centre for Advanced Studies  
Florence School of Regulation

The experience of Italy and the US with exceptional  
regulatory incentives for exceptional electricity  
transmission investments

Nico Keyaerts and Leonardo Meeus



European University Institute  
**Robert Schuman Centre for Advanced Studies**  
Florence School of Regulation

**The experience of Italy and the US with exceptional regulatory incentives for exceptional electricity transmission investments**

Nico Keyaerts and Leonardo Meeus

EUI Working Paper **RSCAS** 2015/44

This text may be downloaded only for personal research purposes. Additional reproduction for other purposes, whether in hard copies or electronically, requires the consent of the author(s), editor(s). If cited or quoted, reference should be made to the full name of the author(s), editor(s), the title, the working paper, or other series, the year and the publisher.

ISSN 1028-3625

© Nico Keyaerts and Leonardo Meeus, 2015

Printed in Italy, June 2015

European University Institute

Badia Fiesolana

I – 50014 San Domenico di Fiesole (FI)

Italy

[www.eui.eu/RSCAS/Publications/](http://www.eui.eu/RSCAS/Publications/)

[www.eui.eu](http://www.eui.eu)

[cadmus.eui.eu](http://cadmus.eui.eu)

## **Robert Schuman Centre for Advanced Studies**

The Robert Schuman Centre for Advanced Studies (RSCAS), created in 1992 and directed by Professor Brigid Laffan, aims to develop inter-disciplinary and comparative research on the major issues facing the process of European integration, European societies and Europe's place in 21<sup>st</sup> century global politics.

The Centre is home to a large post-doctoral programme and hosts major research programmes, projects and data sets, in addition to a range of working groups and *ad hoc* initiatives. The research agenda is organised around a set of core themes and is continuously evolving, reflecting the changing agenda of European integration, the expanding membership of the European Union, developments in Europe's neighbourhood and the wider world.

Details of the research of the Centre can be found on:

<http://www.eui.eu/RSCAS/Research/>

Research publications take the form of Working Papers, Policy Papers, and e-books. Most of these are also available on the RSCAS website:

<http://www.eui.eu/RSCAS/Publications/>

The EUI and the RSCAS are not responsible for the opinions expressed by the author(s).

### ***Florence School of Regulation***

The Florence School of Regulation (FSR) is a partnership between the Robert Schuman Centre for Advanced Studies (RSCAS) at the European University Institute (EUI), the Council of the European Energy Regulators (CEER) and the Independent Regulators Group (IRG). Moreover, as part of the EUI, the FSR works closely with the European Commission.

The objectives of the FSR are to promote informed discussions on key policy issues, through workshops and seminars, to provide state-of-the-art training for practitioners (from European Commission, National Regulators and private companies), to produce analytical and empirical researches about regulated sectors, to network, and to exchange documents and ideas.

At present, its scope is focused on the regulation of Energy (electricity and gas markets), of Communications & Media, and of Transport.

This series of working papers aims at disseminating the work of scholars and practitioners on current regulatory issues.

#### ***For further information***

Florence School of Regulation Transport Area

Robert Schuman Centre for Advanced Studies

European University Institute

Via delle Fontanelle 19

I-50014 Fiesole (FI)

Tel.: +39 055 4685 795

Fax: +39 055 4685 755

E-mail: [fsr.transport@eui.eu](mailto:fsr.transport@eui.eu)

Web:

[www.eui.eu/DepartmentsAndCentres/RobertSchumanCentre/Research/Programmes/FlorenceSchoolRegulation.aspx](http://www.eui.eu/DepartmentsAndCentres/RobertSchumanCentre/Research/Programmes/FlorenceSchoolRegulation.aspx)



## **Abstract**

There is a trend in regulatory practice towards exceptional incentives for exceptional investments. Italy and the US have the longest experience with a regulatory framework for strategically important investments that deviates from the default framework. In these countries, the incentives provided to the project promoter are based on a case-by-case assessment of the project. Policy makers and regulatory authorities in countries that are considering setting up such a framework can learn from these experiences. In this paper, we therefore analyze them in detail. We find that the Italian scheme is simpler, which reduces the administration costs. The US scheme is more advanced in the case-by-case assessment of the requested incentives. However, both schemes have evolved, each becoming more sophisticated and complex. Countries that are considering the introduction of exceptional regulatory incentives for exceptional electricity transmission investments should note that this is a process that will require fine-tuning.

## **Keywords**

Electricity Transmission; Transmission grid; Interconnection; Incentive Regulation





## 1. Introduction

The default regulatory frameworks that apply to transmission system operator (TSO) investments predominantly provide the same return to all electricity infrastructure projects, irrespective of their costs and benefits, and irrespective of their risk profile. If transmission planning works well, only projects with a high net value are retained for investment, but they can be heterogeneous in terms of their risk profile. Therefore, the higher the return that applies to all investments, the higher the risk of overpaying for low-risk low-value projects, but the lower the return on investment, the higher the risk of underpaying for high-risk high-value projects.

In a multi-jurisdictional context, overpaying for investment is a local issue, whereas underpaying is of regional concern if it delays investment in projects that are of strategic importance to the region. Considering that electricity markets and grids often exceed the level of a single jurisdiction, transmission investment tends to be discussed more and more at regional level, as showcased by the many interstate projects in the US<sup>1</sup> or by the projects of common interest in Europe<sup>2</sup>.

The fundamental problem of the default regulatory frameworks applies especially to these projects because they tend to be riskier than an average project for two main reasons. First, they typically take longer to develop in terms of permit granting, cost approval, project routing etc. because more regulatory authorities are involved, leading to higher development cost risk. Second, projects with regional importance tend to be of a larger scale and use innovative technology, like HVDC submarine cables, leading to higher construction cost risks. Despite the greater cost uncertainty, we want these projects to be built in a timely fashion by ensuring that the regulatory framework that incentivizes investment for the transmission system operators is appropriate<sup>3</sup>.

It is well known that the regulatory practice to incentivize investments is not harmonized across jurisdictions (e.g. Jamasb and Pollitt, 2001; Lévêque et al, 2009; Microeconomix, 2008; Ruester et al., 2012; Saguan et al., 2011). Concerns about the financeability of grid investments have already been expressed (e.g. Beckers et al., 2013; Brunekreeft, 2013; Mulder, 2012; Henriot, 2013). Glachant et al. (2013) even observe a tendency in regulatory practice to increase the risk borne by the TSO while not necessarily matching this with a higher return. In order to avoid countries with less attractive investment regulation delaying investment of regional importance, they argue for converging towards a target regulatory framework.

In this paper, we discuss an alternative approach. To avoid the cost of harmonizing the default regulatory frameworks, exceptional regulatory incentives could be introduced for exceptional electricity transmission investments. For these investments, we can then also decide the incentives case-by-case. Limiting the access to these exceptional regulatory frameworks can control the cost of administering them.

In the UK, several regulatory frameworks already exist for different types of transmission investments. There is a dedicated framework for the connection of offshore wind farms to shore (Meeus, 2014) as well as one for interconnectors to speed up EU market integration (Meeus and Keyaerts, 2014). France is also in the process of setting up a dedicated framework for interconnectors for the same reason. In Germany, large domestic and cross-border grid-expansion investments that

---

<sup>1</sup> See, for instance, the respective regional transmission plans in PJM, MISO, CAISO, etc.

<sup>2</sup> See the 2013 list of projects in Commission delegated Regulation (EU) No 1391/2013 of 14.10.2013 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council on guidelines for trans-European energy infrastructure as regards the Union list of projects of common interest. (EC, 2013a, 2013b)

<sup>3</sup> The European Agency for Collaboration of Energy Regulators has documented all incentives for transmission investment that are currently applied in EU Member States (ACER, 2014).

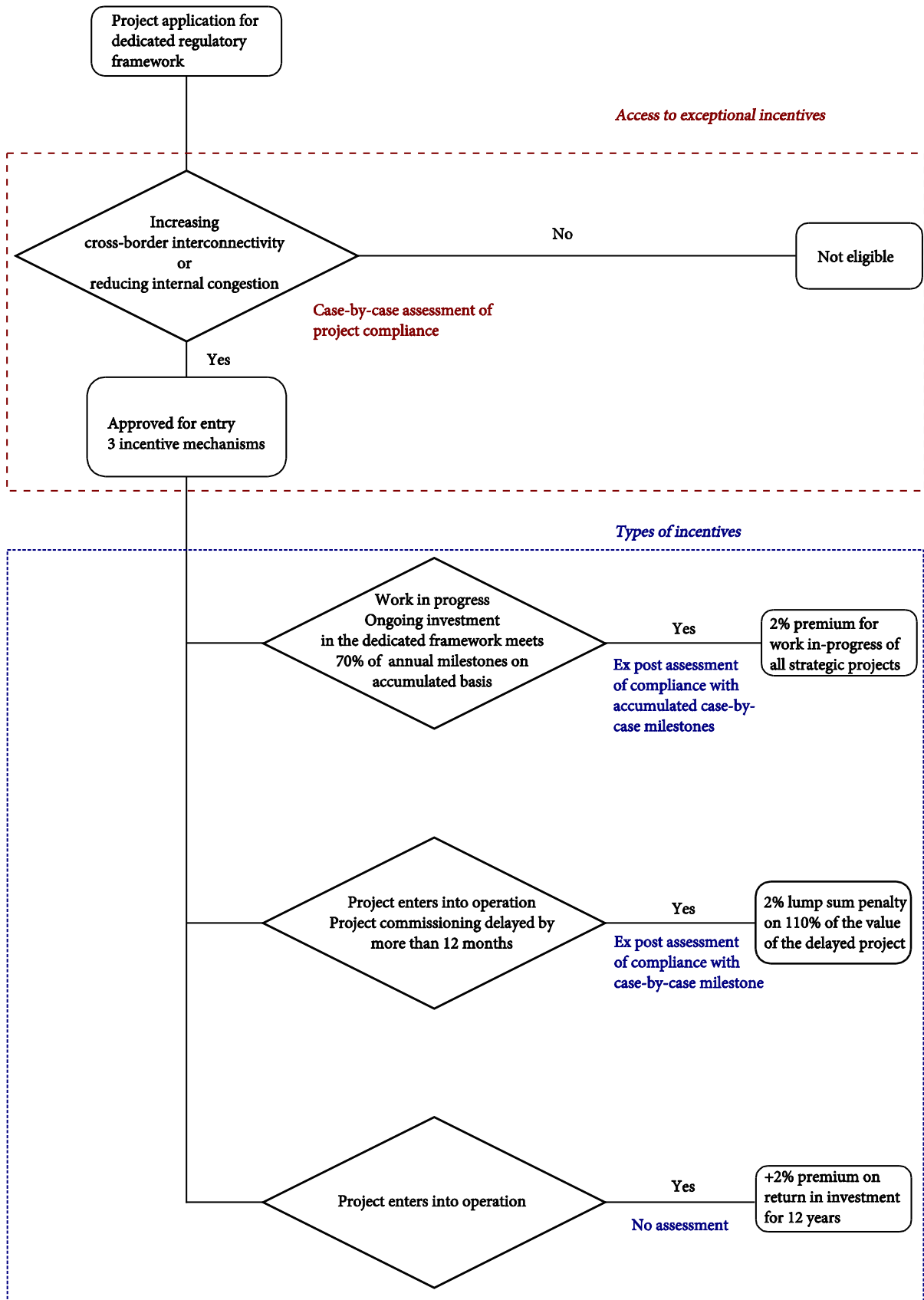
support the German *Energiewende* are accelerated with a dedicated regulatory framework. The longest and richest experiences with exceptional regulatory incentives for exceptional electricity transmission investments are, however, in Italy and the US. The contribution of this paper is to analyze these experiences in detail.

The paper is organized as follows. Section 2 introduces the Italian experience. Section 3 introduces the US experience. Section 4 compares the Italian and the US approaches to provide exceptional regulatory incentives for exceptional electricity transmission investments. Section 5 describes how both schemes have evolved over time into more sophisticated and complex schemes. The paper concludes with the lessons learned for the policy makers and regulatory authorities that are considering setting up such a framework.

## **2. Introduction to the Italian experience**

Italy decided to prioritize important expansions of the transmission grid that were deemed necessary to promote competition and improve market integration in the aftermath of a countrywide blackout in 2004 (AEEG, 2003, 2005). This section looks at the Italian experience during the fourth regulatory period, which covers 2012-2015 (AEEG, 2011a, 2011b, 2013a, 2014b). In this fourth regulatory period, twenty-five projects have received exceptional incentives for important transmission investment (AEEG, 2013a, 2014b). Some of these projects are under construction or near completion, whereas other projects are at the stage of obtaining permits. In what follows, we first discuss the access to this scheme, and then the type of exceptional incentives that can be granted under the scheme.

**Figure 1: Flowchart of Italy’s dedicated regulatory framework for strategic electricity transmission investment as applicable in the fourth regulatory period (2012-2015)**



## **2.1 Access to exceptional incentives in Italy**

As illustrated in the upper part of Figure 1, the project promoter submits the proposed project to the Italian regulatory authority. The authority then assesses whether the project is either an interconnection that connects Italy to neighboring countries, or a domestic transmission line that reduces internal congestion. Both categories are proxies for what constitutes strategically important investment, bearing in mind that the underlying policy objectives are increasing market integration and reliability.

Following a positive assessment of the type of infrastructure investment, the project is granted access to the three types of exceptional incentives that are discussed below. In case of a negative assessment, the project receives the default incentives for transmission investment. Any approved project automatically exits the exceptional framework after a predefined period, which is currently after twelve years<sup>4</sup> of operational service of the transmission project. It subsequently receives the default incentives for its remaining regulatory lifetime. As the scheme has been initiated in the second regulatory period 2004-2007, the earliest such exit, after twelve years, will occur in 2016.

To sum up, access to the exceptional incentives in Italy is limited in time, and also limited by predefining eligible project categories, which is relatively simple to administer. The Italian regulatory authority for energy AEEG did not create a dedicated department to administer this scheme, and is simply relying on the existing staff<sup>5</sup>.

## **2.2 Type of exceptional incentives in Italy**

In the Italian approach, there are three types of exceptional incentives (lower part of Figure 1): 1/ a premium return on investment for completed projects; 2/ a premium for work in progress; and 3/ a penalty for projects exceeding their planned commissioning date. The latter two incentives are voluntary. Promoters can ask for the additional work in progress incentives, but only if they then also accept to be exposed to the penalties associated with delays.

How they are administered is explained in what follows. First, upon completion of a project, a two-percentage point increase of the default return on investment is automatically awarded for twelve years. Second, work in progress qualifies for a two percent premium conditional on making sufficient progress with authorization or construction work. Progress is measured through an assessment of annual milestones. These project milestones are expressed in a monetary value and are set for each project by the regulatory authority in agreement with the project promoter upon entry into the framework. Each year, the regulatory authority assesses for the aggregated work in progress whether a project promoter has met at least seventy percent of the accumulated value of his milestones of the previous year. If the threshold is met, the project promoter gets a two percent premium for all work that has been in progress by 31 December of that previous year. While there is a case-by-case element in setting the milestones, the actual assessment looks only at the aggregated level of all projects of a project promoter: about 74 % of ongoing investments met their milestones in the first half of 2013 (AEEG, 2013b); over 90 % of ongoing investments met their milestones in the second half of 2013 (AEEG, 2014a). Third, if the actual commissioning date exceeds the planned date by more than twelve months, the project promoter has to pay a lump sum penalty to the regulatory authority in the amount of two percent calculated on 110 % of the invested capital and pro rata of the months that the project is late.

In other words, the exceptional incentives in Italy are, to a large extent, the same for all projects that get access to the scheme with the exception of projects that do not meet their milestones, and/or

---

<sup>4</sup> The current regulatory period for the default regulatory framework lasts four years (2012-2015).

<sup>5</sup> Staff numbers of AEEG amounted to approximately 180 at the end of 2013 (<http://www.autorita.energia.it>).

commissioning date. There is an element of case-by-case assessment of projects, but it is limited to the establishment of milestones, and the monitoring of progress. Note, finally, that the incentives are mostly positive, while there are also penalties for delays.

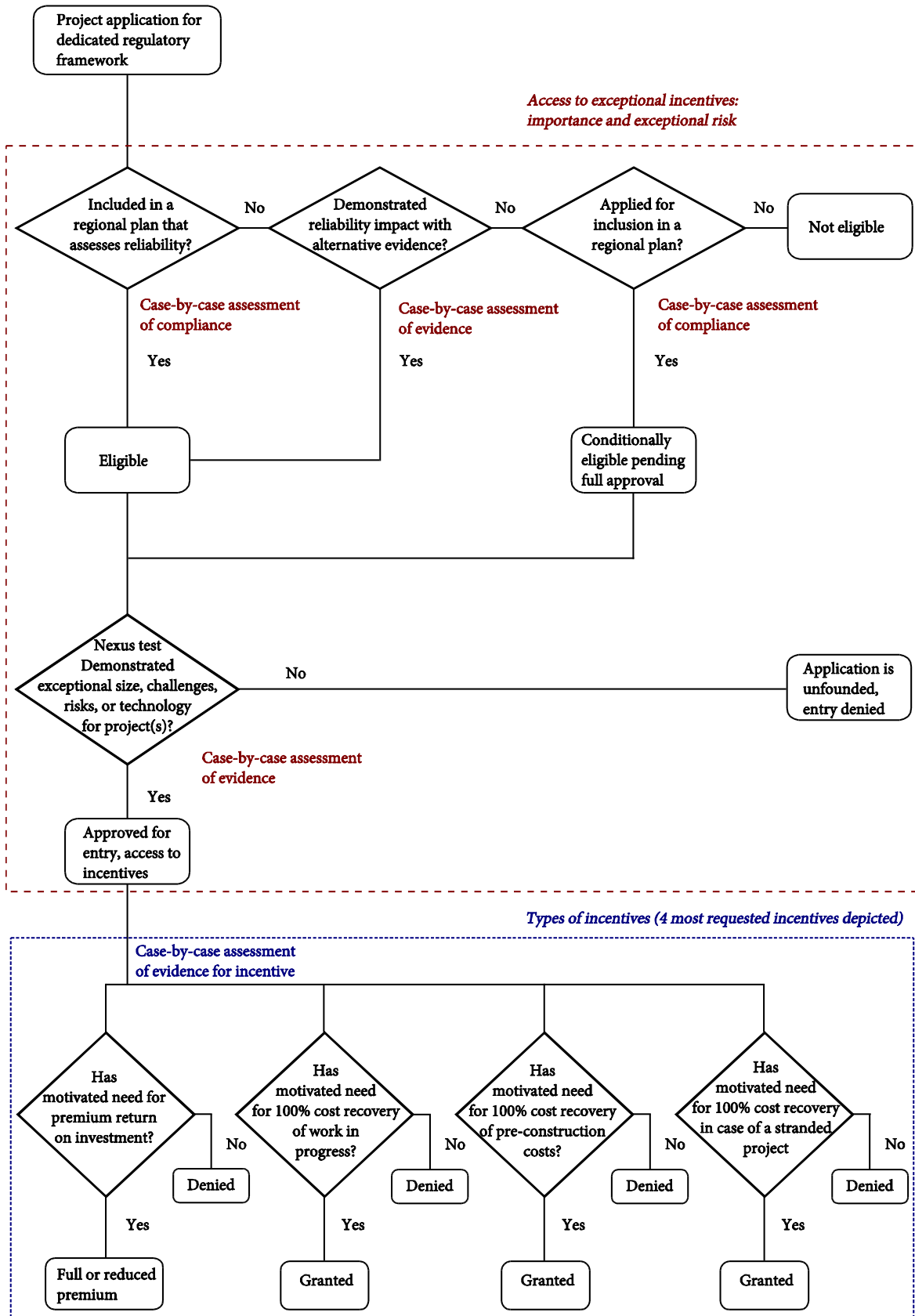
### **3. Introduction to the US experience**

The US had also faced a large blackout in 2003. The report following the incident identified the failing transmission grid as an aggravating factor (U.S.-Canada Power System Outage Task Force, 2004). Furthermore, the US had been observing decades of declining transmission investment (Benjamin, 2007; Hirst and Kirby, 2001; Hirst, 2004). This led to the conclusion that additional incentives were necessary for investment in regional reliability projects. Subsequently, in the Energy Policy Act of 2005, the federal regulatory authority for energy, FERC, who is the competent authority for all that affects interstate<sup>6</sup> commerce, was mandated to set up a new framework for exceptional interstate transmission investment (FERC, 2006b, 2006c, 2012). By 2012, around 85 applications for entry had been filed, representing billions of USD in investment and covering more than a hundred infrastructure projects (FERC, 2012). In what follows, we first discuss the access to this scheme, and then the type of exceptional incentives that can be granted under the scheme.

---

<sup>6</sup> Intrastate transmission investment that has no regional impact is dealt with by State regulators. Interstate investment that is not exceptional gets the default ratemaking treatment by FERC.

**Figure 2: Flowchart of the United States' dedicated regulatory framework for strategic electricity transmission investment applicable since 2006**



### **3.1 Access to exceptional incentives in the US**

As illustrated in the upper part of Figure 2, the importance of the project is first established through case-by-case assessment in the US. There are three ways for a project promoter to demonstrate the importance of a proposed project. The first is for the project to be included in a regional transmission expansion plan<sup>7</sup> (RTEP) that performs an assessment of the reliability and/or congestion impact. In that case, the regulatory authority presumes that the project is indeed important. If a project is not included in a RTEP, the project promoter can submit alternative evidence such as private technical studies to demonstrate the impact on the regional transmission grid. The regulatory authority evaluates this evidence and decides whether the project is indeed important or not. The third option available to the project promoter is to apply for access that is conditional to a pending inclusion of the project into the RTEP process. The second step in the entry process is the so-called “nexus test”. Project promoters have to demonstrate the exceptional risk of their proposed projects. The exceptionality of the project can come from the financial size of the project compared to the existing assets of the project promoter, the innovativeness of the technology, or other practical challenges. The regulatory authority has provided further guidance on how to demonstrate exceptional risk in its case-by-case rulings (see section 5).

Following a positive assessment, the project is granted access to ten<sup>8</sup> types of exceptional incentives of which the four that are applied most are illustrated below. In case of a negative assessment, the project receives the default incentives for transmission investment, e.g. the investor gets the regular return on investment that has been set for his company. Any approved project automatically exits the exceptional framework after a predefined period, which is currently at the end of the regulatory lifetime of the transmission project. FERC will consider accelerated depreciation as short as fifteen years<sup>9</sup> as one of the incentives that can be accessed. As the exceptional framework initiated in 2006, the earliest an exceptional investment would reach the end of its regulatory lifetime is 2021.

To sum up, access to the exceptional incentives in the US is limited to the regulatory lifetime of the asset, and also controlled by a two-step case-by-case assessment of projects. This can be relatively costly to administer for the regulatory authority. However, the burden of proof is on the project promoters, and the decision is taken at Federal instead of State level in the US, which reduces the administration costs. Still, to administer this scheme, the FERC significantly expanded its staff with a few dozen full time equivalents between 2006 and 2009<sup>10</sup>.

### **3.2 Type of exceptional incentives in the US**

In the US approach, there are ten types of exceptional incentives<sup>11</sup>; the four that are most used are discussed here (lower part of Figure 2): 1/ a premium return on investment; 2/ a 100% cost recovery of

---

<sup>7</sup> A regional transmission expansion plan can be organized by an Independent System Operator (ISO) or a Regional Transmission Operator, depending on the local organization of the electricity system.

<sup>8</sup> The ten are: 1/ a premium return on investment; 2/ 100% cost recovery of prudently incurred construction work in progress; 3/ 100% cost recovery of prudently incurred pre-construction costs; 4/ 100% cost recovery of prudently incurred costs of a stranded project; 5/ the use of hypothetical capital structures; 6/ accumulated deferred income taxes for transmission companies; 7/ adjustments to book value for sales/purchases; 8/ accelerated depreciation; 9/ deferred cost recovery for utilities with retail rate freezes; and 10/ a higher rate of return for utilities that join and/or continue to be members of transmission organizations, such as RTOs and ISOs.

<sup>9</sup> FERC would even consider depreciation periods below 15 years case-by-case, if well motivated.

<sup>10</sup> According to its annual budget requests (FERC, 2006a, 2007a, 2008a), FERC requested +25 full time equivalents for fiscal year 2007, +75 for 2008 and +65 for 2009 dedicated – at least in part – to the implementation of the competences laid out in the Energy Policy Act of 2005.

<sup>11</sup> Snarr (2007) and Daileader (2007) are two authors that have previously discussed these incentives.

work in progress during construction; 3/ a recovery of pre-construction costs; and 4/ a 100% cost recovery in case of a stranded project.

How they are administered is explained in what follows. For each incentive requested, the project promoter has to demonstrate with factual evidence that the particular incentive is necessary to proceed with the project. A project promoter can, for instance, request a premium return on investment to cover the challenges of applying innovative technology to the project. Or a project promoter can provide evidence of cash flow challenges that can be mitigated with the expedited full cost recovery for work in progress or the full recovery of pre-construction costs. If a project is still in the early stages of its development and is, for instance, dealing with several authorities, it could also request an incentive that allows full recovery of efficient costs in case of a stranded project, insofar as the future abandonment is beyond the control of the project promoter. The project promoter also has to demonstrate that the total package of incentives matches the risk of the project. There are, for instance, several rulings in which the regulatory authority assessed that the requests for a premium return on investment were justified, but nevertheless the level of the requested premium was decreased because other incentives that reduce the project risk had also been granted.

In other words, the exceptional incentives in the US are strongly dependent on the project risk and the evidence that can be presented by the project promoter. The US scheme therefore has 3 elements of case-by-case assessment: 1/ the importance of the project; 2/ the project risk; 3/ how the package of requested incentives connects to the demonstrated project risk.

#### **4. Comparison of the Italian and the US experience**

The contexts, in which the Italian and US scheme to provide exceptional regulatory incentives for exceptional electricity transmission investments have been developed, are very similar. In both cases, a blackout triggered the change in regulatory practice, and the perception was that this was partly due to a lack of transmission investment under the default investment scheme. The two approaches have in common that they control the costs of the scheme by limiting access to the exceptional investment incentives. They also have in common that the incentives are not necessarily the same for all projects, and the incentives are a package of measures focused on either reducing the risk for project promoters to invest, or increasing their return on investment.

There are also clear differences between the Italian and the US experience. The US scheme is more advanced in the case-by-case assessment of the requested incentives. As discussed above, there are three assessment steps encompassing the importance of the project, the project risk, and the package of incentives that is appropriate for the risk of the project. The incentive package in the US is also more advanced. They include a greater scope of the risk and return on investment, and can be adapted to each project. In comparison, the Italian scheme is simpler, and therefore also less costly to administer. The higher costs of the US scheme are, however, shared at federal level. Arguably, the US might also have chosen a simpler scheme had it been implemented at state level, rather than at federal level. The equivalent of the US scheme for Europe would be to have ACER perform these case-by-case assessments of projects of common interest.

#### **5. Evolution of the Italian and US regulatory practice with exceptional incentives for exceptional investments**

In this section, we first discuss how the Italian regulatory practice evolved across regulatory periods to its current design, and then how the US regulatory practice evolved based on landmark cases.



### ***5.1 Evolution of the Italian regulatory practice across regulatory periods***

Italy started with exceptional regulatory incentives for exceptional electricity transmission investments in 2004 during the second regulatory period of the default investment framework. As we discuss in what follows, the initial setup did not include a case-by-case element, but this was introduced in the third regulatory period, and fine-tuned in the fourth regulatory period.

#### *Second regulatory period: no case-by-case assessments*

Initially, during the second regulatory period, the dedicated regulatory framework in Italy operated without case-by-case project assessments. Important transmission investment was remunerated two percentage points more than regular investment, and this increased return on investment was granted for twelve years upon the project being approved by the Ministry of Industry (AEEG, 2004a, 2004b, 2004c, 2007b). This approval formed the only level of assessment, but it is unclear on what basis the ministry granted approval.

#### *Third regulatory period: start of case-by-case assessments*

Important changes were introduced to the framework before the start of the third regulatory period 2008-2011 (AEEG, 2007a, 2007b). Regarding the access to the exceptional investment incentives there are two important changes. First, the regulatory authority was put in charge of controlling the access of projects to the scheme. Second, project categories were introduced to determine the eligibility of a project for exceptional investment incentives.

Regarding the types of exceptional investment incentives that can be granted under the scheme, there are also two important changes. First, the return on investment premium was increased to three percentage points. Second, the regulatory authority introduced an acceleration incentive for work in progress (AEEG, 2007b). This acceleration incentive granted a three percent premium for construction work in progress in combination with a requirement to meet the planned commissioning date (AEEG, 2008). In case of a delay, the project promoter had to return the premium received for work in progress, whereas in the case of early commissioning the premium return on investment was extended beyond twelve years by the number of months the project was early.

By the end of the third regulatory period, the regulatory authority observed that the implementation pace of important projects was still slow (AEEG, 2010a). The existing acceleration mechanism was then clarified by separating the incentive for work in progress from the incentive for timely commissioning. This then also led to the introduction of new tools to administer these incentives. Milestones with a 70% threshold were introduced to administer the work in progress incentive. These incentives that still exist today, as discussed above in section 2, were tested for the first time in 2010 and 2011 on 22 important transmission projects admitted into the framework (AEEG, 2010b, 2011a, 2012).

#### *Fourth regulatory period: the fine-tuning of case-by-case assessments*

Most of the changes introduced during the third regulatory period were confirmed for further use during the fourth regulatory period 2012-2015. The premium return on investment for completed projects continues to be granted automatically without case-by-case assessment, but the level of the premium was reduced again to two percentage points on top of the default remuneration (AEEG, 2011b, 2011c). The new work in progress incentives and new incentives for delayed projects also continue, but remain voluntary.

The number of projects admitted into the framework in the fourth regulatory period that opted in on all incentives rose to twenty five projects, with some of the projects being carried over from the previous period (AEEG, 2013a, 2014b).

## ***5.2 Evolution of the US regulatory practice based on landmark cases***

The US started with exceptional regulatory incentives for exceptional electricity transmission investments in 2006 through FERC Orders 679 and 679-A (FERC, 2006b, 2006c). As we discuss in what follows, landmark cases have gradually clarified the case-by-case assessment of project importance, exceptional project risk, and the connection between project risk and exceptional incentives.

### *Landmark cases for the assessment of project importance*

In Duquesne Light Company (FERC, 2007b), the regulatory authority made a distinction between eight projects included in a RTEP for which the reliability impact had been evaluated, on the one hand, and fourteen projects that were mentioned in a RTEP without such an evaluation, on the other hand. The former eight projects were presumed to be important based on their inclusion in the RTEP, whereas the latter fourteen were only admitted conditionally on submitting sufficient private evidence of their importance.

In the ruling on Baltimore Gas & Electricity (FERC, 2007c) the regulatory authority accepted the project promoter's private technical studies on the reliability impact as evidence of the importance of the projects. The regulatory authority has been referring back to this landmark ruling to illustrate which evidence can be used to demonstrate a project's importance.

In the rulings on Tallgrass Transmission & Prairie Wind Transmission (FERC, 2008d) and Ameren (FERC, 2011), the regulatory authority reconfirmed that inclusion into a RTEP is not a prerequisite for entry into the exceptional scheme, granting provisional entry into the scheme pending full approval in a later stage. The regulatory authority furthermore clarified that being granted entry – conditional or full – did not imply an automatic inclusion in an ongoing RTEP process, which is the sole prerogative of the regional transmission operator.

### *Landmark cases for the assessment of exceptional project risk*

In the ruling on Duquesne Light Company (FERC, 2007b), the regulatory authority accepted factual evidence that showed the project was challenging for the project promoter in terms of its financing, permitting and technology. This evidence sufficiently demonstrated the exceptional risk of the project.

In Baltimore Gas & Electricity (FERC, 2007c), the regulatory authority established a practice to assess the importance of a project by proxy, asking whether a project was “routine” or “non-routine”. The Baltimore Gas & Electricity ruling furthermore provides guidance on what arguments the regulatory authority would consider for qualifying a project as non-routine, such as the size of the project, the impact of the project on the regional market or the challenges faced by the project. Even though this assessment by proxy looks at the risk of a project, it does not evaluate whether the risk is exceptional and, indeed, requires exceptional investment incentives.

In Westar (FERC, 2008b) and Pepco (FERC, 2008c), the regulatory authority had to decide whether or not to evaluate several submitted projects as a single project. It declined to view the three projects in Westar as a single project, and subsequently it found that two projects were not able to demonstrate their exceptional risk separately. The eight projects submitted in the Pepco file, on the other hand, were accepted as a single project, meaning that the project promoter could demonstrate the riskiness at the aggregated level. In PJM Interconnection (FERC, 2009), the regulatory authority further explored the issue of grouped projects, stating that multiple projects can be submitted as a single project if there is supporting evidence for the interactions between the individual projects, adding another level of case-by-case assessment. It also stated that multiple projects can be submitted as individual projects in a single application file. In that case, the project promoter must demonstrate the importance and risk of each project separately.

In 2012, the regulatory authority abandoned the assessment by proxy established in Baltimore Gas & Electricity (FERC, 2012). It argued that while the proxy provided an indication of risk, the proxy did not sufficiently assess that the risk was exceptional and would need exceptional incentives to mitigate that risk. The newly introduced regulatory practice relies on a full case-by-case assessment of whether a project faces exceptional risks that require exceptional incentives.

#### *Landmark cases for the connection between risk and incentives*

In the ruling on Duquesne Light Company (FERC, 2007b), the regulatory authority granted a return on an investment premium that was lower than requested; indicating that the project's risk was already partly mitigated with other granted incentives. In that same ruling, the regulatory authority clarified what factual evidence it would consider to decide on granting the full cost recovery of construction work in progress.

In the ruling on Baltimore Gas & Electricity (FERC, 2007c), the regulatory authority granted the requested premium on investment for only two out of eight projects that entered the scheme, rejecting the premium for the other six projects on the grounds of those six projects not having the same risk profile as the first two projects. Furthermore, the regulatory authority rejected the request for 100% cost recovery of construction work in progress on the grounds that there was insufficient evidence that the incentive was necessary to implement the project.

In Tallgrass Transmission & Prairie Wind Transmission (FERC, 2008d), the granted premium return on investment was lowered compared to the request by the project promoter because the allegedly innovative technology had been marked as mature technology in other cases the regulatory authority had ruled on.

The regulatory authority decided to further increase the degree of case-by-case assessments in its 2012 policy statement (FERC, 2012), requiring the project promoters to demonstrate what they have done to deal with the project risk, including requesting risk-mitigating incentives, before applying for a premium return on investment. In the cases submitted after the 2012 policy statement, few requests were made for a premium return on investment, whereas requesting this premium was standard practice before the policy statement.

## **6. Conclusions and policy implications**

There is a trend in regulatory practice towards exceptional incentives for exceptional investments. Policy makers and regulatory authorities in countries that are considering setting up such a framework can learn from the existing practices. Italy (since 2004) and the US (since 2006) have the longest experience, as we have discussed in detail in this paper. Both schemes have evolved towards a more sophisticated model. In the US, the regulatory authority has clarified its approach in landmark decisions that it has referred to in future decisions. In Italy, the regulatory authority started with a relatively simpler approach that has been fine-tuned over three regulatory periods.

More sophistication, of course, also implies more complexity for the project promoters that have to apply for the exceptional investment incentives and the regulatory authorities that have to administer the process. In the US, the burden of proof is on the project promoters. They have to demonstrate that their request for exceptional incentives is justified by exceptional project risk. In Italy, the complexity is limited to the establishment and monitoring of project milestones for work in progress incentives, and to administer the possible penalty for delayed commissioning of the project.

Both cases nicely illustrate that granting exceptional incentives can be done case-by-case to avoid overpaying for important low-risk projects, and to avoid underpaying for important high-risk projects. It is typically a combination of reducing risk and increasing the return on investment, while also making project promoters accountable for delays. This does not necessarily mean that all countries

have to follow this trend in regulatory practice. Some countries might argue that the costs of administering the case-by-case approach are too high, or the benefits are minimal. This might be the case in small countries that only have a few projects with a homogeneous risk profile so that the default framework can be adapted to this risk profile.

## **References**

- ACER, 2014. Recommendation of the Agency for the Cooperation of Energy Regulators No 03/2014 of 27 June 2014 on incentives for projects of common interest and on a common methodology for risk evaluation.
- AEEG, 2003. Tariffe per il servizio di trasporto e corrispettivi per i servizi di misura e vendita dell'energia elettrica per il periodo di regolazione 1 gennaio 2004- 31 dicembre 2007. 1 luglio 2003. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2004a. Tariffe per il servizio di trasporto e corrispettivi per i servizi di misura e vendita dell'energia elettrica per il periodo di regolazione 1 gennaio 2004- 31 dicembre 2007. 13 gennaio 2004. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2004b. Deliberazione 30 gennaio 2004, Testo integrato delle disposizioni dell'Autorità per l'energia elettrica e il gas per l'erogazione dei servizi di trasmissione, distribuzione, misura e vendita dell'energia elettrica per il periodo di regolazione 2004-2007 e disposizioni in materia di contributi di allacciamento e diritti fissi (deliberazione n. 5/04). <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2004c. Relazione tecnica. Testo integrato delle disposizioni dell'Autorità per l'energia elettrica e il gas per l'erogazione dei servizi di trasmissione, distribuzione, misura e vendita dell'energia elettrica per il periodo di regolazione 2004-2007 e disposizioni in materia di contributi di allacciamento e diritti fissi (deliberazione n. 5/04). 30 gennaio 2004. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2005. Annual report to the European Commission on the state of the services and on the regulation of the electricity and gas sectors. 31 July 2005. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2007a. Deliberazione 29 dicembre 2007, n. 348/07 Testo integrato delle disposizioni dell'Autorità per l'energia elettrica e il gas per l'erogazione dei servizi di trasmissione, distribuzione e misura dell'energia elettrica per il periodo di regolazione 2008-2011 e disposizioni in materia di condizioni economiche per l'erogazione del servizio di connessione. Allegato A. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG 2007b. Allegato A. Testo integrato delle disposizioni dell'Autorità per l'energia elettrica e il gas per l'erogazione dei servizi di trasmissione, distribuzione e misura dell'energia elettrica. Periodo di regolazione 2008-2011. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2008. Deliberazione 19 dicembre 2008 – ARG/elt 188/08 Aggiornamento per l'anno 2009 delle tariffe per l'erogazione dei servizi di trasmissione, distribuzione e misura dell'energia elettrica e delle condizioni economiche per l'erogazione del servizio di connessione. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2010a. Deliberazione 11 giugno 2010 – ARG/elt 87/10 Disposizioni in materia di accelerazione degli investimenti di sviluppo della rete di trasmissione nazionale di cui all'articolo 3, della deliberazione dell'Autorità per l'energia elettrica e il gas 19 dicembre 2008, ARG/elt 188/08. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2010b. Delibera ARG/elt 130/10 Approvazione della proposta di interventi di sviluppo della RTN ai sensi del comma 11.2 della deliberazione dell'Autorità per l'energia elettrica e il gas 11 giugno 2008, ARG/elt 87/10. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG. 2011a. Delibera ARG/elt 101/11 Accertamento dell'incentivazione all'accelerazione degli investimenti di sviluppo della rete di trasmissione nazionale, di cui all'articolo 8 della deliberazione dell'Autorità per l'energia elettrica e il gas 11 giugno 2008, ARG/elt 87/10. Allegato A alla deliberazione ARG/elt xx/11 - Raggiungimento Milestone anno 2010. 21 luglio 2011. <http://www.autorita.energia.it>, last accessed March 2015.

- AEEG, 2011b. Deliberazione 29 dicembre 2011 - ARG/elt 199/11 Disposizioni dell'Autorità per l'energia elettrica e il gas per l'erogazione dei servizi di trasmissione, distribuzione e misura dell'energia elettrica per il periodo di regolazione 2012-2015 e disposizioni in materia di condizioni economiche per l'erogazione del servizio di connessione. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2011c. Allegato A. Testo integrato delle disposizioni dell'Autorità per l'energia elettrica e il gas per l'erogazione dei servizi di trasmissione e distribuzione dell'energia elettrica. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2012. Deliberazione 31 maggio 2012 228/2012/R/EEL Accertamento dell'incentivazione all'accelerazione degli investimenti di sviluppo della rete di trasmissione nazionale. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2013a. Deliberazione 31 gennaio 2013 40/2013/R/EEL individuazione degli investimenti strategici di sviluppo della rete di trasmissione nazionale e delle relative date obiettivo e milestone. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2013b. Deliberazione 24 ottobre 2013 469/2013/R/EEL Accertamento dello stato di raggiungimento delle milestone degli investimenti strategici di sviluppo della rete di trasmissione nazionale relativi al primo semestre dell'anno 2013. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2014a. Deliberazione 6 giugno 2014 259/2014/R/EEL Accertamento dello stato di raggiungimento delle milestone degli investimenti strategici di sviluppo della rete di trasmissione nazionale, relativi al secondo semestre dell'anno 2013. <http://www.autorita.energia.it>, last accessed March 2015.
- AEEG, 2014b. Deliberazione 23 dicembre 2014 654/2014/R/EEL Aggiornamento delle milestone e delle date obiettivo degli investimenti strategici di sviluppo della rete di trasmissione nazionale. <http://www.autorita.energia.it>, last accessed March 2015.
- Beckers, T., Klatt, J.P., Lenz, A.K., 2013. The adequate level of incentives in infrastructure regulation in the light of the investment needs. 2nd Annual Conference on the Regulation of Infrastructure Industries in an Age of Convergence. 7th June 2013, Florence, Italy.
- Benjamin, R., 2007. Principles for Interregional Transmission Expansion. *The Electricity Journal*, Volume 20, Issue 8, October 2007, Pages 36–47.
- Brunekreeft, G., 2013. On the role of international benchmarking of electricity Transmission System Operators facing significant investment requirements. *Competition and Regulation in Network Industries*, Volume 14 (2013), No 1.
- Daileader Jr., R.L., 2007. Real World Issues in Encouraging Transmission Investment in the Wake of Order 679. *Natural Gas & Electricity: Special Issue: Focus: Environment and Clean Fuels Debate Now Everywhere and All the Time*, Volume 23, Issue 9, pages 1–31, April 2007.
- EC, 2013a. Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009.
- EC, 2013b. Commission delegated Regulation (EU) No 1391/2013 of 14.10.2013 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council on guidelines for trans-European energy infrastructure as regards the Union list of projects of common interest.
- FERC, 2006a. FY 2007 Congressional Performance Budget Request. February 2006.
- FERC, 2006b. Promoting Transmission Investment Through Pricing Reform. 116 FERC. Order 679. Docket No. RM06-4-000, 20 July 2006.

- FERC, 2006c. Promoting Transmission Investment Through Pricing Reform. 18 CFR Part 35. Order 679-A. Docket No. RM06-4-001, 22 December 2006.
- FERC, 2007a. FY 2008 Congressional Performance Budget Request. February 2007.
- FERC, 2007b. 118 FERC ¶ 61,087. Duquesne Light Company. Order conditionally granting declaratory order, accepting proposed formula rates, subject to conditions and establishing hearing and settlement judge procedures. Docket Nos. EL06-109-000, ER06-1549-000 and ER06-1549-001. February 6, 2007.
- FERC, 2007c. 120 FERC ¶ 61,084. Baltimore Gas and Electric Company. Order accepting revised tariff sheets subject to revision and establishing technical conference. Docket Nos. ER07-576-000 and ER07-576-001. July 24, 2007.
- FERC, 2008a. FY 2009 Congressional Performance Budget Request. February 2008.
- FERC, 2008b. 122 FERC ¶ 61,268. Westar Energy, Inc. Order denying, in part, and granting, in part, petition for declaratory order, and accepting, in part, and denying, in part, proposed formula rates, subject to conditions and establishing hearing and settlement judge procedures. Docket Nos. EL08-31-000 and ER08-396-000. March 24, 2008.
- FERC, 2008c. 124 FERC ¶ 61,176. Pepco Holdings, Inc. Order granting transmission rate incentive. Docket Nos. ER08-686-000 and ER08-686-001. August 22, 2008.
- FERC, 2008d. 125 FERC ¶ 61,248. Tallgrass Transmission LLC & Prairie Wind Transmission, LLC. Order consolidating proceedings, granting rate incentives, conditionally accepting tariff revisions and establishing hearing and settlement procedures. Docket No. ER09-35-000 and ER09-36-000. December 2, 2008.
- FERC, 2009. 126 FERC ¶ 61,281. Pioneer Transmission, LLC. Order on transmission rate incentives and formula rate proposal. Docket Nos. ER09-75-000 and ER09-75-001. March 27, 2009.
- FERC, 2011. 135 FERC ¶ 61,142. Ameren Services Company. Order on transmission rate incentives. Docket No. EL10-80-000. May 19, 2011.
- FERC, 2012. Promoting Transmission Investment Through Pricing Reform. 141 FERC. Docket No. RM11-26-000, 15 November 2012.
- Glachant, J.M., Sagan, M., Rious, V., Douguet, S., 2013. Incentives for investments: Comparing EU electricity TSO regulatory regimes. FSR Research Report. December 2013. DOI:10.2870/80768.
- Henriot, A., 2013. Financing investment in the European electricity transmission network: Consequences on long-term sustainability of the TSOs financial structure. Energy Policy 62, November 2013, 821-829. DOI: 10.1016/j.enpol.2013.07.011.
- Hirst, E., Kirby, B., 2001. Transmission Planning for a Restructuring United States Electricity Industry, Edison Electricity Institute, Washington, DC, June 2001.
- Hirst, E., 2004. United States Transmission Capacity: Present Status and Future Prospects, Washington, DC, Edison Electric Institute, Aug. 2004.
- Jamasb, T., Pollitt, M., 2001. Benchmarking and regulation: international electricity experience. Utilities Policy, 9(3): 107-130.
- Lévêque, F., Glachant, J.M., Sagan, M., de Muizon, G., 2009. How to rationalize the debate about 'EU energy third package'? Revisiting criteria to compare electricity transmission organizations. EU working paper RSCAS 2009/15. <http://hdl.handle.net/1814/11028>, last accessed, March 2015.
- Meeus, L., 2014. Offshore grids for renewables: do we need a particular regulatory framework? Economics of Energy & Environmental Policy, Volume 4, Number 1. <http://dx.doi.org/10.5547/2160-5890.4.1.lmee>

- Meeus, L., Keyaerts, N., 2014. The Role of the EU and ACER to Ensure an Adequate Regulatory Framework for Projects of Common Interest. FSR Policy Brief, Issue 2014/05. September 2014. <http://hdl.handle.net/1814/32851>, last accessed March 2015.
- Microeconomix, 2008. La régulation incitative appliquée au transport de l'électricité. <http://www.microeconomix.fr/publications/la-regulation-incitative-appliquee-au-transport-de-lelectricite>, last accessed September 2014.
- Mulder, M., 2012. Financeability of investment and allocation of costs: an assessment of the incentive regulation of the Dutch high-voltage network. *Competition and Regulation in the Network Industries*, Volume 13 (2012), No 2.
- Ruester, S., von Hirschhausen, Ch., Marcantonini, C., He, X., Egerer, J., Glachant, J.M., 2012. EU involvement in Electricity and Natural Gas Transmission Grid Tarification. Final report of the EU FP7 Funded Research project THINK (Topic n° 6/12: <http://think.eui.eu>). ISBN: 978-92-9084-076-3.
- Saguan, M., Ahner, N., de Hauteclocque, A., and Glachant, J-M., (2011). The UK Charging System on Interconnectors. Final Report. Florence School of Regulation. <http://hdl.handle.net/1814/23858>, last accessed March 2015.
- Snarr, S.W., 2010. FERC Rate Incentives for Transmission Infrastructure Development. *The Electricity Journal*, Volume 23, Issue 2, March 2010, Pages 6–17.
- U.S.-Canada Power System Outage Task Force, 2004. Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations. April 2004. <http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/BlackoutFinal-Web.pdf>, last accessed March 2015.



**Author contacts:**

**Nico Keyaerts**

Florence School of Regulation, Robert Schuman Centre for Advanced Studies, EUI  
Via delle Fontanelle 19  
I-50014 San Domenico di Fiesole  
Email: Keyaerts, Nico <Nico.Keyaerts@EUI.eu>

**Leonardo Meeus**

Florence School of Regulation, Robert Schuman Centre for Advanced Studies, EUI  
Via delle Fontanelle 19  
I-50014 San Domenico di Fiesole

Vlerick Business School  
Vlerick Energy Centre  
Bolwerklaan 21  
B-1210 Brussels  
Belgium  
Email: Meeus, Leonardo <Leonardo.Meeus@EUI.eu>