Energy Security and the Connecting Europe Facility

Maximising public value for public money

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Summary

- Energy security is fundamentally a cross-border issue. The ability to share energy across borders in Europe increases resilience to supply disruption. However - in a striking parallel to the economic sphere - vulnerabilities within individual countries can jeopardise the security of the EU as a whole. European energy security entails both cross-border solidarity and a responsibility for member states to manage their energy systems efficiently.

- The Connecting Europe Facility (CEF) is a key instrument to drive forward cross-border infrastructure for European energy security and solidarity. It needs to be carefully targeted to ensure maximum public value from the very limited public funding available. This requires hard-headed economic valuation to ensure supported projects stack up over both the short and long term, and align with EU energy and climate goals.

- Projects that genuinely integrate European energy markets, end energy isolation or facilitate domestic renewable power sources can represent high-value investments in European security and resilience. By contrast, simply increasing gas import capacity represents poor value for money if the additional energy imported is ultimately wasted. There is a material risk, however, that security-critical electricity infrastructure and efficiency projects will be squeezed out in favour of a narrow focus on gas imports.

- Europe’s energy security strategy currently lacks coherence. There is a notable disconnect between the economic valuation of energy infrastructure and that of energy efficiency. Gas demand in Europe has fallen by 9% over the last decade, but gas projects are currently evaluated against scenarios that assume 72% higher EU gas demand in 2030 than would be the case if the proposed 30% energy efficiency target for 2030 is met. A failure to bridge the consistency gap will lead to public objectives being missed and public money being wasted on expensive but underutilised infrastructure projects.

Figure 1: Infrastructure project prioritisation is increasingly weighted in favour of gas

- To ensure real public value and energy security, the European Commission should:
  - Reallocate a portion of CEF funding from transport to energy, in recognition of falling transport demand and the new geopolitical context on energy security;
  - Make infrastructure funding conditional on the delivery of energy efficiency plans;
  - Implement an earmark for electricity; and
  - Ensure project valuation is fully consistent between sectors and in line with EU climate and energy targets.
Context

Energy security concerns have returned to the forefront of European political agendas following recent geopolitical tensions in Ukraine and with Russia. The European Commission’s Communication on the European Energy Security Strategy, published in June 2014, placed renewed focus on accelerating the development of cross-border electricity and gas infrastructure to increase resilience and enable energy solidarity. The new Connecting Europe Facility is a key financial mechanism for achieving these aims.

Energy infrastructure projects tend to be capital-intensive, long-term investments. Europe’s overall infrastructure investment needs in energy networks are considerable, particularly compared to recent delivery rates. At the same time, however, public finances in Europe remain under pressure after the recent economic downturn, and current political dynamics mean that EU budget expenditure will be subjected to unprecedented scrutiny.

This means it will be essential to achieve maximum public value from the limited budgets available for European energy infrastructure. Projects supported under the Connecting Europe Facility should not only respond to immediate energy security concerns but also stand up to hard-headed economic evaluation of their long-term viability and demonstrate consistency with the EU’s wider energy and climate policy goals.

The role of the Connecting Europe Facility

The Connecting Europe Facility is a new EU funding mechanism to drive forward the development of cross-border infrastructure. Out of a total budget of €33 billion, €5.85 billion is allocated to energy projects (compared to €26.25 billion available to transport and €1.14 billion for telecommunications). It is the first time that the EU has directed funding specifically to energy infrastructure on this scale.

However, the €5.85 billion available for energy within the Connecting Europe Facility is a small sum compared to the €218 billion overall investment needed for EU energy networks to 2020/

![EU transmission investment to 2020 (€bn)](chart)

Figure 2: CEF budget and EU transmission investment needs

The aim of creating the Connecting Europe Facility is to “accelerate investment in the field of trans-European networks and to leverage funding from both the public and the private sector”. Such networks should “facilitate cross-border connections, foster greater economic, social and territorial cohesion, and contribute to a more competitive social market economy and to combating climate change”. 2

In the energy sector, agreed priorities include:

- Promoting competitiveness by promoting the further integration of the internal energy market and the interoperability of electricity and gas networks across borders;
- Enhancing Union security of energy supply; and
- Contributing to sustainable development and protection of the environment, inter alia by the integration of energy from renewable resources into the transmission network and by the development of smart energy networks and carbon dioxide networks.

Current plans envisage dividing the €5.85 billion CEF budget for energy equally between each of these priority areas.

In today’s political context, the potential role for the Connecting Europe Facility in safeguarding Europe’s energy security has attracted increasing attention. Cross-border electricity and gas infrastructure networks are critical for enabling the sharing of resources between member states; a key source of resilience and responsiveness. They can:

- Facilitate energy solidarity, where supply disruptions in one member state can be countered by sharing energy across borders;
- Provide shared access to gas and electricity storage facilities;
- Reduce the isolation of peripheral member states and diversify supply routes;
- Connect and integrate domestic renewable electricity; and
- Facilitate a more efficient and responsive system as a whole.

The recent geopolitical crisis in Ukraine has exposed the structural vulnerabilities of the EU’s energy system and added a sharp political impetus to infrastructure projects that will help address energy security concerns. However, this renewed political motivation has not been reflected in the Connecting Europe Facility budget: funding for energy was slashed from an original proposal of €9.1 billion to €5.85 billion in the negotiations on the Multiannual Financial Framework (MFF). This means that projects driven by short-term energy security concerns are forced to compete for very limited funding against projects of importance for long-term security, competitiveness and decarbonisation.

While the MFF budget cannot now be reopened, there is provision in the Connecting Europe Facility regulation for reallocation of funding between sectors following the mid-term CEF evaluation in 2017. The current allocation puts the transport sector in line to receive the lion’s share of CEF funding, with a budget for roads, airports and railway infrastructure that

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2 Connecting Europe Facility Regulation (No 1316/2013).
is nearly five times higher than the budget for energy. This budget is based on the assumed need for growth in transport infrastructure based on an ever-expanding demand for travel.\textsuperscript{3} This is despite recent evidence that passenger transport demand is increasingly becoming decoupled from economic growth in Europe\textsuperscript{4} - a shift that many commentators see as permanent.\textsuperscript{5} Some level of EU investment in transport infrastructure will continue to be necessary, to enable smarter transport systems and modal shift for passengers and freight. Nevertheless, a reallocation of part of the CEF budget from transport to energy would better reflect the most pressing challenges to European prosperity.

**Recommendation:** The European Commission should reallocate a proportion of Connecting Europe Facility funding from transport to energy, to reflect the urgency of investments to improve Europe’s energy security.

**Cross-border energy security and vulnerability**

While cross-border energy infrastructure and energy solidarity implies greater resilience, it also confers greater responsibilities on member states. Europe remains some distance away from achieving a true single market in energy. Nevertheless, energy systems in Europe are increasingly functionally interdependent. As shown in Figure 2, a supply shock to a single gas import corridor can cause cascading effects across Europe, affecting both electricity and gas markets.

![Figure 3: Electricity wholesale prices in Europe respond to gas supply shocks (€/MWh) \textsuperscript{6}](image)

The implication of this interdependence is that energy vulnerability also becomes a cross-border issue. Dangerous exposure within one member state may cause spillover effects and jeopardise neighbouring countries; inefficient management of energy supplies within one member state will expose others to the risk of higher costs or disruption.
This has striking parallels to the economic sphere, where fears of financial contagion during the European debt crisis turned a series of national economic shocks into a Europe-wide problem. This spillover eventually led to more formal oversight of national economic prudence through the European Semester regime, and conditionality requirements on economic solidarity mechanisms.

Levels of energy dependence and vulnerability are highly unequal between member states, as is performance on energy efficiency. A large proportion of Europe’s gas imports are currently wasted through inefficient industrial processes and building fabrics. This is economically unproductive, and also exposes Europe to a continued dependence on imported fuels.

In this context, better management of energy is a key tool for not only directly reducing the EU’s energy dependence, but also for reducing the need for additional energy infrastructure. The European Commission estimates that energy efficiency measures could reduce EU gas imports by 174 Mtoe per year by 2030. This is roughly 20 times more than projected import volumes from the Southern Gas Corridor (the EU’s flagship gas infrastructure project) and over twice the projected import capacity of all the gas Projects of Common Interest combined.

A best-value approach to infrastructure investment would combine access to energy solidarity for member states at risk with a responsibility on member states to deliver agreed energy efficiency plans. Efficiency measures should be prioritised over new infrastructure investments where they are cost-effective. Without an integrated approach, new publicly-funded infrastructure projects will be quickly rendered obsolete if efficiency targets are met. Member states that do effectively manage their resources should not have to lose out on access to funding for interconnection in order to underwrite the energy profligacy of others.

**Recommendation:** The European Commission should cross-check prospective CEF projects against member state delivery of Energy Efficiency Directive obligations. Where cost-effective efficiency measures could deliver comparable energy security benefits, priority

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should be given to utilising structural and cohesion funds to deliver on efficiency plans, ahead of allocating scarce CEF funding to projects that risk creating stranded assets.

Policy coherence and project selection

While the European Energy Security Strategy places considerable focus on short-term measures for gas infrastructure, electricity networks will also be critical to Europe’s long-term energy security. Unlike gas pipelines – which at present can only carry natural gas\(^9\) – electricity networks are able to transmit energy from a range of sources. Electricity is also expected to make up an increasing proportion of the EU energy system over time, as the heat and transport sectors are increasingly electrified and domestic electricity displaces imported gas and oil. European Commission projections indicate that this electrification will lead to an increase in electricity demand of 14% by 2030 and 28% by 2050, even though energy demand as a whole will fall by 30% to 2050.\(^{10}\) This means that the EU’s long-term energy security will depend more on its electricity transmission networks and smart grids than it will on gas import pipelines.

Estimates of EU infrastructure needs indicate that €155 billion needs to be spent on electricity transmission and smart grid infrastructure up to 2020, compared to €71 billion for gas.\(^{11}\) Additional studies suggest that if the EU continues on a low carbon pathway, while the planned gas infrastructure within the ENTSO-G Ten Year Network Development Plan should be adequate up to 2030, a further €68 billion of investment will be needed in electricity transmission.\(^{12}\)

This presents an ‘investment gap’ – or the difference between what will be funded in a ‘business as usual’ scenario and the overall investment required – that reaches €48 billion for electricity by 2020, compared to €16 billion for gas.\(^{13}\)

In recognition of the growing role of electricity in Europe’s energy mix, the Connecting Europe Facility regulation stipulates that:

> Assistance to electricity projects of common interest will account for the major part of the energy financial envelope under the CEF.

The CEF regulation also specifies that:

> The CEF should contribute to the Union’s mid-term and long-term objectives in terms of decarbonisation.

However, both of these provisions were contained to the recitals of the regulation, and neither is repeated in the main text as selection criteria for CEF financing. This leaves considerable discretion for the allocation of CEF financing to the European Commission.

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\(^9\) While there has been interest in renewable gas sources, ‘power-to-gas’ is not yet economic due to high conversion losses, and biogas is likely to be limited by the availability of sustainable bioenergy resources.


There are worrying signs that these provisions from the CEF regulation will not be fully adhered to in the final allocation of funding – and that key electricity projects of importance to the EU’s long-term energy security may lose out to gas import projects, that risk being underutilised as Europe decarbonises its energy system (see Figure 4).

**Figure 5: EU infrastructure investment needs and prioritised projects**

To be eligible for Connecting Europe Facility financing, projects must first be selected as ‘Projects of Common Interest’, according to criteria in the 2013 Energy Infrastructure Regulation. While ‘regional groups’ of countries play an important role in project evaluation, the final list of Projects of Common Interest is selected by the European Commission – and the process has been criticised for a lack of transparency.14

While the Commission estimates that electricity projects represent a higher proportion of energy infrastructure needs than gas, the selected Projects of Common Interest provide more investment for gas pipelines than for electricity. 132 projects in the electricity sector were selected as PCIs, representing €50 billion of investment costs. This compares to 107 gas projects, with investment costs of €53 billion.15

The long list of Projects of Common Interest was followed by a shorter list of “key security of supply infrastructure projects” in the European Commission’s Communication on the European Energy Security Strategy.16 This list contains 27 gas projects, and only 6 electricity projects. There is no transparency on how this list was developed, which criteria were used for project selection, how the list will be used to inform the allocation of the Connecting Europe Facility, or even whether the identified projects have been assessed against the EU’s decarbonisation, security and competitiveness objectives.

Decisions on public investment in energy infrastructure should be made on the basis of delivering the EU’s security goals and wider policy objectives in the most cost-effective way possible. This requires transparency in project evaluation and an overall investment allocation that reflects Europe’s investment needs. Given the substantial investments required in electricity infrastructure and its importance for long-term energy security, the Connecting Europe Facility regulation was right to specify that assistance to electricity projects should represent the major part of the CEF budget for energy.

**Recommendation:** The European Commission should implement an explicit earmark for electricity projects in the Connecting Europe Facility, in line with the guidance contained in

the CEF regulation. The Commission should report annually on CEF allocation, including providing evidence for how the supported projects meet the requirement in the CEF regulation to ‘contribute to the Union’s mid-term and long-term objectives in terms of decarbonisation’.

Which future counts?

A key element for ensuring public value for public investment is avoiding ‘policy cannibalism’, where one set of actions undermines other EU policy objectives. This requires a consistency of approach between different policy areas and types of infrastructure.

Currently, however, the economic evaluation of projects varies considerably according to the type of energy project, with differing assessment periods and discount rates, and the use of wildly different future scenarios to assess cost-effectiveness.

The current methodology for evaluating gas infrastructure projects is not conducted on the basis of meeting EU energy and climate change objectives, and differs substantively from approaches used for decisions on energy efficiency and other energy policies.

This is a non-trivial issue – it means that if Europe delivers on its stated goals then publicly-subsidised gas infrastructure projects will become stranded. Alternatively, if the infrastructure is fully utilised, then agreed European objectives will be missed.

Recent trendlines point to an ongoing decline in gas demand in the EU despite the recent economic recovery, as a result of increased take-up of energy efficiency measures and structural shifts in Europe’s economy. In 2013 EU gas demand was 9% lower than it had been a decade previously (Figure 5).\(^\text{17}\)

\[\text{Figure 6: EU-28 gas consumption (2003-2013)}\]

Despite the declining trendlines, gas infrastructure Projects of Common Interest are currently assessed for economic viability based on the assumption that EU gas demand will grow by 23% by 2030, to 619 bcm. This is 30% higher than the European Commission’s reference scenario projections for EU gas demand, which foresee consumption flatlining at 479 bcm in 2030 even without new policy measures.

Neither scenario, however, takes the EU’s newly proposed 30% energy efficiency target for 2030 into account, which is estimated to reduce the EU’s overall gas demand by 25% compared to the reference scenario. This suggests that the gas Projects of Common Interest have been assessed for economic viability using an assumption for 2030 gas demand that is 72% higher than the gas demand implied by meeting Europe’s efficiency targets (Figure 6).

The implication of this mismatch is that a number of the gas projects that have been selected as Projects of Common Interest and are eligible for Connecting Europe Facility support would likely not have been deemed economically beneficial if the scenarios used to assess them were more closely aligned with the European Commission’s own projections. As it stands, there is currently a strong probability of Connecting Europe Facility funding being spent on projects that are at serious risk of stranding.

**Recommendation:** Achieving best value for EU infrastructure and efficiency funding requires a consistency of approach across project types. The economic valuation of Projects of Common Interest and prospective Connecting Europe Facility projects urgently needs reform, to ensure a common set of scenarios are used for project evaluation and EU policy decision-making. To enable transparent comparison of projects, evaluation timescales and discount rates should also be aligned between different types of energy security projects (gas pipelines, electricity lines and efficiency investments).

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18 Booz & co (2013) Market analysis and priorities for future development of the gas markets and infrastructure in Western Europe, South Eastern Europe and the Baltic Sea Region.
Conclusions and recommendations

Cross-border energy infrastructure development represents a key plank of Europe’s energy security strategy. The €5.85 billion Connecting Europe Facility is a critical tool for leveraging investments that will enable resource sharing across borders, increase the economic efficiency of Europe’s energy system, and connect and integrate domestic renewable electricity.

There are worrying signs, however, that much of this public funding is at risk of being squandered – or, worse still, invested in projects that actively undermine EU energy and climate goals. There is little evidence of a systemic approach to energy investment or joined-up thinking between different budget lines. As a result, there is a material risk that projects that are critical for the EU’s security, sustainability and competitiveness will be squeezed out in favour of poor-value gas projects that will subsequently become stranded assets.

This briefing has set out four key steps that the European Commission should take in its approach to the Connecting Europe Facility, in order to maximise both energy security and public value:

> **Reallocate a portion of CEF funding from transport to energy.** The critical role of energy infrastructure for EU security and competitiveness is not reflected in the current CEF budget distribution. This should be rectified in the next annual budgetary procedure.

> **Make CEF funding conditional on delivery of agreed energy efficiency commitments.** Countries that effectively manage their resources should not have to lose out on access to funding for interconnection in order to underwrite the energy profligacy of others. Priority should be given to using structural and cohesion funds to deliver on efficiency plans, where equivalent energy security outcomes can be achieved.

> **Implement an earmark for electricity projects in the Connecting Europe Facility funding allocation.** Electricity infrastructure represents the majority of investment needs to 2030 and is the foundation for future EU energy security. It is essential that electricity projects are not squeezed out of short-term funding decisions.

> **Reform economic valuation of CEF projects, using a common set of scenarios for project evaluation and EU policy decision-making.** Unless this occurs, publicly subsidised infrastructure projects will become stranded if EU policy objectives are met.
Annexe: Implementing the recommendations

Recommendation 1: The European Commission should reallocate a proportion of Connecting Europe Facility funding from transport to energy, to reflect the urgency of investments for energy security.

The overall Connecting Europe Facility budget was established in the Multiannual Financial Framework for 2014-2020, agreed in 2013, and cannot be easily reopened. However, according to the terms of the Connecting Europe Facility regulation (Recital (5) and Article 5(3)) the European Commission is able to propose transfer of appropriations between the transport telecommunications and energy sectors following the mid-term evaluation of the CEF, subject to the agreement of the European Parliament and the Council. This excludes the €11.3 billion segment of the CEF budget for transport linked to the Cohesion Fund. The mid-term evaluation should be concluded no later than 2017 (Article 27(1)).

To demonstrate a clear commitment to investing in EU energy security and to provide early signals to the market and to project developers, the European Council should agree conclusions at its October meeting that instruct the Commission to come forward with a proposal for reallocation of CEF funding from transport to energy, well in advance of the 2017 deadline.

Recommendation 2: The European Commission should cross-check prospective CEF projects against member-state delivery of Energy Efficiency Directive obligations. Where cost-effective efficiency measures could deliver comparable energy security benefits, priority should be given to utilising structural and cohesion funds to deliver on efficiency plans, ahead of allocating scarce CEF funding to projects which could then be at risk of stranding.

Final allocations of CEF funding to projects are made by the European Commission, following evaluation by the Innovation and Networks Executive Agency (INEA), and the Commission has considerable leeway in which projects are supported. All projects applying for funding must first be selected as Projects of Common Interest and must meet common eligibility criteria. The Commission Implementing Decision for the current funding call also sets out 8 award criteria against which prospective projects will be evaluated. These include, among others:

- The extent of the positive externality (such as security of supply and solidarity among Member States) provided by the action involving works.
- Priority and urgency of the action, will the project remove bottlenecks, end energy isolation and contribute to the implementation of the internal energy market.

For the 2014 CEF funding call, given the significant disparity between the scenarios used for assessing the Projects of Common Interest and scenarios that reflect Europe meeting its 2030 efficiency targets, the European Commission and INEA should cross-check all project Cost-Benefit Analyses to evaluate whether the claimed positive externalities (e.g. energy

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security benefits) would still apply in a scenario in which EU energy efficiency objectives are met (for both the 2020 and 2030 time horizons). Where the positive externalities are not present in an energy efficiency pathway, the project should not be supported under the Connecting Europe Facility, with funding reallocated to more urgent projects.

For future CEF funding calls, the Commission should issue explicit conditionality requirements in the Commission Implementing Decision, to require that member states wishing to access Connecting Europe Facility funding are either on track to meet their national energy efficiency targets under the Energy Efficiency Directive or have agreed a credible action plan to do so. This will ensure that cost-effective efficiency measures are prioritised ahead of new infrastructure investments.

Recommendation 3: The European Commission should implement an explicit earmark for electricity projects in the Connecting Europe Facility, in line with the guidance contained in the CEF regulation. The Commission should report annually on CEF allocation, including evidence on how the supported projects meet the requirement in the CEF regulation to ‘contribute to the Union's mid-term and long-term objectives in terms of decarbonisation’.

An implicit earmark for electricity is already allowed for in Recital 57 of the Connecting Europe Facility Regulation, which states:

*Based on the expected preponderance of electricity in Europe's energy system over the next two decades, it is estimated that assistance to electricity projects of common interest will account for the major part of the energy financial envelope under the CEF. While noting that this estimate will be subject to change as more information becomes available, and taking into account the need to ensure compliance with Regulation (EU) No 347/2013, the Commission should give due consideration to electricity projects, with the aim of making the major part of the financial assistance available to those projects over the period 2014 to 2020, subject to market uptake, the quality and maturity of actions proposed and their financing requirements. This aim is without prejudice to any possible re-allocation of available funding for energy projects.*

The European Commission should turn this implicit earmark into an explicit one, through issuing guidance specifying a minimum proportion of CEF funding that should be devoted to electricity projects. The guidance should also specify how the Commission intends to evaluate the requirement that “contribute to the Union's mid-term and long-term objectives in terms of decarbonisation”. The Commission should report annually on CEF funding allocation, including initial evaluation of how far these requirements have been met.

Recommendation 4: Achieving best value for EU infrastructure and efficiency funding requires a consistency of approach across project types. The economic valuation of Projects of Common Interest and prospective Connecting Europe Facility projects urgently needs reform, with a common set of scenarios used for project evaluation and EU policy decision-making. To enable transparent comparison of projects, evaluation timescales and discount rates should also be aligned between different types of energy security projects (gas pipelines, electricity lines and efficiency investments).
Currently, a different set of models, scenario assumptions and evaluation tools are used for the evaluation of gas infrastructure, electricity infrastructure, energy efficiency measures, and climate and energy policies. The 2013 regulation on Trans-European Networks for Energy, which sets out the procedures for identifying Projects of Common Interest, specifies that “the data sets used for electricity and gas respectively shall be compatible, notably with regard to assumptions on prices and volumes in each market”\(^\text{20}\); however this is not yet the case in practice.

These contrasting approaches do not currently enable a transparent comparison of options across different project types, and as a result there is no clear means for best value investment pathways to be evaluated. The European Commission should instigate an urgent review into the consistency of project valuation and economic models used for decision-making. This review should ensure that different project evaluation methodologies and scenarios are consistent not only with each other but also with EU policy targets and goals.