



DELIBERATION NO. 2019-089

Deliberation by the French Energy Regulatory Commission of 25 April 2019 adopting the joint decision on cross-border cost allocation for the Celtic Interconnector project

Present: Jean-François CARENCO, president, Christine CHAUVET, Catherine EDWIGE, and Jean-Laurent LASTELLE, commissioners.

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The present deliberation is taken in accordance with the provisions of Regulation (EU) No. 347/2013 of the European Parliament and of the Council of 17 April 2013, on guidelines for trans-European energy infrastructure. Pursuant to Article 12 of the Regulation, its purpose is to establish a decision of cross-border cost allocation for the Celtic electricity transmission infrastructure project, between France and Ireland. This is at the request of the French and Irish transmission system operators (TSOs) and project promoters, *Réseau de Transport d'Electricité* (RTE) and Eirgrid. This joint decision by the French Energy Regulatory Commission (CRE) and the Irish Commission for Regulation of Utilities (CRU) is based in particular on the cost-benefit analysis of the project undertaken by RTE and Eirgrid.

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1. CONTEXT

1.1 European framework for the development of interconnections

1.1.1 Regulation (EU) No. 347/2013

Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure ("the Regulation") aims to foster the interconnection of European energy networks. It introduces in particular the notion of the project of common interest (PCI), which, in the electricity sector, can involve transmission and storage infrastructures or smart grids. The European Commission sees these projects as contributing to the implementation of priority corridors for the construction of the internal energy market.

The list of PCIs is established by the European Commission based on proposals by the regional groups of each priority corridor.¹ This list is updated every two years. The Celtic project was identified as PCI in 2013, 2015 and 2017 (No. 1.6). It is a candidate for inclusion in the next PCI list, which will be adopted in 2019.

Amongst the measures aiming at supporting the implementation of PCIs, the Regulation provides funding mechanisms to address the commercial viability issues of projects where these prevent investment decision-making. Thus, Article 12 of the Regulation states that, following the request by the project promoters and based on a cost-benefit analysis for the concerned countries, the competent national regulatory authorities (NRAs) shall take coordinated decisions on the allocation of investment costs within six months after the receipt of the final investment request. This decision gives the possibility to seek financial assistance from the European Union (EU) under Article 14 of the Regulation.

The Regulation also states that the project promoters must include in their investment request a cost-benefit analysis consistent with the methodology developed by the European Network of Transmission System Operators (ENTSO-E). The second version of this methodology ("CBA 2.0 methodology") was approved by the European Commission in September 2018.²

1.1.2 Recommendation by ACER No. 5/2015

The Agency for the Cooperation of Energy Regulators (ACER) published a recommendation on 18 December 2015³ outlining the good practices for the treatment of investment requests within the framework of the Regulation. It recommends in particular that the allocation of costs should differ from what would be *a priori* borne by the project promoters if the net impact of the project would be negative for one of the hosting countries.

1.2 French legal framework

Pursuant to the provisions of Articles L.341-2 and L.341-3 of the French Energy Code, the CRE has the competence to establish the tariffs for accessing the public electricity transmission network (*Tarif d'Utilisation du Réseau Public d'Electricité* - TURPE). These tariffs are set in order to cover all the costs borne by RTE, insofar as these costs correspond to those of an efficient transmission system operator.

1.3 Schedule

Following the preliminary studies, RTE and Eirgrid submitted a first investment request to the CRE and the CRU in September 2018. At the request of the NRAs, they supplemented their investment request with additional elements. The file was deemed complete by the NRAs on 20 November 2018, date on which the six-month delay has started, as stated by the Regulation.

Based on the investment request analysis, and following exchanges between the CRE and the CRU, the two NRAs both launched public consultations between 20 December 2018 and 15 February 2019.⁴ Six stakeholders (EDF, Engie, Board Gáis Energy, A.N.O.D.E, UFE and *Co-entreprise de Transport d'Electricité*) and four private individuals answered to CRE's consultation. The non-confidential elements of these answers are published on CRE's website at the same time as this deliberation. Overall, in their answers, the respondents share CRE's preliminary analyses. They consider that, beyond the economic interest, the interest of the project lies in maintaining a link between the Irish market and the rest of the European Union. They expressed their concerns about the risks related to the project

¹ The States belonging to a priority corridor constitute a regional group entrusted with the selection of the projects of common interest, in which the representatives of the Member States, of national regulatory bodies and of grid operators participate, together with the European Commission, the EU Agency for the Cooperation of Energy Regulators (ACER) and the European Network of Transmission System Operators (ENTSO-E).

² <https://tyndp.entsoe.eu/Documents/TYNDP%20documents/Cost%20Benefit%20Analysis/2018-10-11-tyndp-cba-20.pdf>

³ https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Recommendations/ACER%20Recommendation%2005-2015.pdf

⁴ CRU's public consultation [CRU/18/265](#); CRE's public consultation [No. 2018-015](#). A non-confidential version of the investment request file was published along these public consultations.

(consequences of the United Kingdom's exit from the EU, commissioning of GreenLink, cost overruns, development of Irish wind power) and its possible consequences on the level of the TURPE. Fifteen stakeholders answered to CRU's public consultation (elements are available on the CRU's website).

1.4 Project description

1.4.1 Technical specifications

The Celtic project consists of a submarine high-voltage direct current power cable (HVDC) measuring approximately 500 km long and with a 700 MW capacity connecting the substation of Knockraha in Ireland to the substation of La Martyre in France. In addition to the submarine link, the project consists of the following elements for each country:

- A landfall point where the submarine cable reaches the shore;
- A land HVDC connection (underground) between the landfall point and a converter station;
- A converter station;
- An HVAC land connection (underground) between the converter station and the network connection point;
- A connection point at an existing electrical substation in the transmission system.

Celtic has a relatively low capacity (700 MW) compared to similar interconnection projects. This capacity is adapted to the size of the Irish electricity grid, in which the largest infeed today is the 500 MW EWIC interconnection. The capacity of the interconnection was determined in order to avoid major network reinforcements and changes in system operation (e.g. an increase in the level of required reserve capacities) in Ireland.

In addition, the exit of the United Kingdom from the European Union would make Celtic the sole interconnection between Ireland and the rest of the EU.

1.4.2 Project schedule

RTE and Eirgrid completed the preliminary feasibility studies in 2014, followed by a feasibility study in 2016. The project is currently in the initial design and pre-consultation phase. This phase should be completed in 2019. According to the TSO's timetable mentioned in the investment request, the detailed design and consents phase will run until 2021. The project will then be in construction from 2021, and is scheduled to be commissioned at the beginning of 2026.

2. COST-BENEFIT ANALYSIS OF THE PROJECT

The components of the project forecasted benefits assessment and of the results from the cost-benefit analysis have already been introduced in the French and Irish public consultations. In its public consultation, CRE presented notably the conjoint proposals by the TSOs (TSOs' reference case) and the analysis that the CRE has made of them.

2.1 Forecasted benefits assessment methodology

For the cost-benefit analyses for the Celtic project, the TSOs use the Best Estimate scenario (BE 2025) from TYNDP 2018 (Ten-Year Network Development Plan) to run simulations for the year 2025⁵. The analysis of the benefits for the year 2030 is based on the four following scenarios:

- Sustainable Transition (ST) of the TYNDP 2018 ;
- Distributed Generation (DG) of the TYNDP 2018 ;
- European Commission (EuCo) of the TYNDP 2018 ;
- Vision 1 of the TYNDP 2016.

The CRE deems that the three scenarios of the TYNDP 2018 (ST, DG and EuCo), completed by scenario V1 of the TYNDP 2016, are visions that frame different potential futures for the European electricity system.

Furthermore, the CRE noted in its public consultation that the hypotheses of the TYNDP regarding interconnection capacities only assumed an interconnection capacity of 500 MW between Ireland and Great Britain, corresponding

⁵ The project's benefits are computed only from 2026, which corresponds to the planned commissioning date of the project. The BE 2025 scenario is used to interpolate the results between 2025 and 2030.

to the interconnection currently available between the two countries. However, the GreenLink project (between Ireland and Great Britain), with a capacity of 500 MW, is included in the list of PCIs and has recently been declared justified by public interest by the CRU⁶. Most of the answers to the French public consultation share CRE's analysis, according to which GreenLink should be considered in the hypotheses of the reference scenario: consequently the interconnection capacity between Ireland and Great Britain would be 1000 MW by 2030.

The cost-benefit analysis performed by the transmission system operators takes the following parameters into account:

- Socio-economic well-being (SEW) ;
- The cost of power losses ;
- The benefits in terms of security of supply (SoS) ;
- Investment expenditure (CAPEX) ;
- Operating and maintenance costs (OPEX).

The costs and benefits taken into account by the TSOs are consistent overall with the CBA 2.0 methodology developed by ENTSO-E. Nevertheless, the TSOs have attempted to quantify the benefits in terms of security of supply using an experimental methodology tested by the ENTSO-E for the TYNDP 2018.

Finally, the TSOs have reduced the operating costs and benefits (SEW, losses, security of supply) by 5 % to reflect the projected interconnection availability rate, estimated at 95% by the TSOs.

2.2 Benefits analysis

2.2.1 Monetised benefits

Production costs savings, which include the benefits of reducing greenhouse gas emissions and lowering the amount of curtailed renewable production, represent the main benefits from the project.

The following table shows the forecasted costs savings provided by the Celtic project (SEW), the losses generated by the project on the European network, and the estimated gains associated with the security of supply, in the reference case of the TSOs (i.e. without the commissioning of GreenLink).

Scenario	BE 2025	ST 2030	DG 2030	EuCo 2030	V1 2030
SEW Europe (M€/year)	47	91	82	76	66
Losses Europe (M€/year)	-17	-22	-22	-26	-29
Total gains associated with the security of supply (M€/year)	32	42	38	24	25

TABLE 1 : ESTIMATION BY THE TSOs OF THE SEW, THE LOSSES AND THE BENEFITS IN TERMS OF SECURITY OF SUPPLY IN THEIR REFERENCE SCENARIO

2.2.2 Non-monetised benefits

Among the benefits of an electricity transmission project, some indicators are complex to monetise and are generally quantified in their typical physic units. In their investment request, the TSOs have suggested indicators of Renewable Energy Sources (RES) integration and CO₂ reduction. These indicators highlight the interest of the project at the European level and are given in the following table:

⁶ <https://www.cru.ie/wp-content/uploads/2018/10/CRU18216-Greenlink-determination-paper-1.pdf>

Scenario	ST 2030	DG 2030	EuCo 2030	V1 2030	Average
RES integration (GWh/year)	840	840	810	688	795
CO ₂ reduction (kt/year)	455	155	525	65	300

TABLE 2 : ESTIMATION OF THE BENEFITS IN TERMS OF RES INTEGRATION AND CO₂ REDUCTION IN THE TSOs REFERENCE SCENARIO

2.3 Costs analysis

The investment costs communicated by RTE and Eirgrid are estimated at 930M€, with an uncertainty margin of -110 /+140M€. The CRE notes that the margin of uncertainty for the CAPEX provided by the TSOs is consequent. However, it is mainly due to uncertainties regarding prices emerging from the procurement process, and therefore cannot be removed before the call for tenders, that is after the approval of the investment request by the regulators.

Nevertheless, the CRE estimates that the project presents a significant risk of cost overruns regarding its technical characteristics and the elements provided by the TSOs. In its public consultation, the CRU declares having done a benchmark of the different cost items suggesting that the investment costs could exceed the estimation of the TSOs by 20%.

The operating and maintenance costs are estimated at 8.4M€ per year by the TSOs, which are not subject to comments from the CRE.

2.4 Project NPV calculation

The TSOs' investment request contains a cost-benefit analysis for the project at the European level⁷. This analysis considers capital expenditures, operating and maintenance costs, the cost of power losses, the savings on fuel costs for electricity generation and the assumed benefits in terms of improved security of supply.

The following table summarises the results obtained at the European level, in the TSOs' reference scenario:

Scenario	ST	DG	EuCo	V1	Average
NPV ⁸ (without SoS)	-105	-200	-295	-420	-255
NPV (TSOs proposition with SoS)	350	220	-15	-130	106

TABLE 3 : PROJECT NPV ACCORDING TO THE REFERENCE SCENARIO OF THE TSOs

The project thus exhibits significant benefits for the European Union and its internal energy market, including non-monetised positive externalities, in particular regarding the integration of renewable energy sources and the CO₂ emissions reduction.

2.5 Conclusions on the cost-benefit analysis

The cost-benefit analysis performed by the TSOs indicates that the Celtic project brings significant benefits to the European Union, notably in the scenarios presenting a sustainable economic growth and where the objectives in terms of European energy policy are met. The NPV of the project reaches 350M€ at the European level in the ST scenario and taking into account security of supply.

Some positive non-monetised externalities should also be taken into account at the European level. The project allows for the integration of an additional 795 GWh a year of RES, on average over the four scenarios, in 2030. The

⁷ i.e. the perimeter including the countries where the TSOs are members of the ENTSO-E (member states of the European Union, as well as Albania, Bosnia-Herzegovina, Island, Montenegro, Republic of Macedonia, Norway, Serbia and Switzerland).

⁸ Net Present Value

substitution between the different categories of fuel enabled by the project leads to an average CO₂ emissions reduction of 331 k-tonnes a year.

However, the results are quite different among the scenarios : the sensitivity analyses highlight the downward impact on the project's profitability of some elements, such as the 500 MW increase in the interconnection level between Ireland and Great Britain, a reduced development of wind production in Ireland, a reduction of the projections for 2030 of the fuel and CO₂ prices compared to TYNDP assumptions, or an availability rate for the interconnection lower than the estimation by the TSOs (95%).

The economic interest of the project presented by the TSOs seems to be very sensitive to the generated value in terms of security of supply for the countries concerned. Yet, methodologically, due to the relative over-capacity aspect of the TYNDP scenarios, the calculation of the economic value of the security of supply by the TSOs consists mainly in re-adapting the generation fleets in the different countries in order to comply with the security of supply national criteria. Consequently, the savings in fuel costs and the security of supply benefits are estimated based on different assumptions. This raises the question of whether it is relevant to add both these benefits.

Thus, the CRE expresses a certain number of concerns regarding the methodology used by the TSOs, given that the results may reach very significant values. As a comparison, the CRU has mandated consultants to analyse the benefits of the Celtic project without modifying the generation fleets in the scenarios. This analysis resulted in a negligible value for the security of supply. Besides, the respondents to the French public consultation have overall shared the analysis of the CRE on the subject.

The same respondents have also shared the concern of the CRE regarding the risks of costs overrun. In a context of strong competition regarding interconnections and connections, the purchase price of the cables and the tariffs of the laying operations (notably the use of vessels able to conduct such operations) are susceptible to be higher than the TSOs estimation. Moreover, there are significant operational risks due to the length of the subsea cable.

In conclusion, the project exhibits a strong economic and environmental interest, despite the important risks. Besides, these benefits, and notably the positive non-monetized externalities, go widely beyond France and Ireland. The project also exhibits a strong political interest, which is the willingness to establish a direct physical link between the Irish power grid and the one of the rest of the EU, in a context of decision made by the United Kingdom to leave the EU and of solidarity between the member states of the Union.

3. PROJECT'S CROSS-BORDER COST ALLOCATION

3.1 Investment costs sharing between RTE and Eirgrid

In their investment request, the TSOs proposed to bear an equal share of the project's investment costs, based on their geographical repartition. Nonetheless, the evaluation of the project highlights an unbalanced distribution of gross benefits⁹ between France and Ireland in all scenarios, which leads to very contrasting net impacts (in terms of NPV) between the two countries. The French NPV is thus negative in all scenarios (between -250M€ and -120M€) without taking into account the security of supply benefits as monetised by the TSOs, and negative in two out of the four scenarios when taking into account this evaluation (-83M€ on average of the four scenarios in this case).

In order to ensure a balance between the net impact of the project in France and Ireland, CRE and CRU agreed to apply a cost allocation proportional to the gross benefits of the project for both countries.

The table below presents the assessment of the repartition of the gross profits of the project between France and Ireland according to the different scenarios modelled by the TSOs (as well as with and without taking into account the security of supply benefits as computed by the TSOs), and under the assumption that the GreenLink project between Ireland and Great Britain will be commissioned.

⁹ Gross benefits: total NPV of the project excluding the CAPEX but including OPEX, impact on domestic losses and congestion rent, the later being split 50/50.

Scenario			ST	DG	EuCo	V1
With security of supply	TSOs' reference case	Ireland	64%	62%	81%	73%
		France	36%	38%	19%	27%
	Sensitivity with GreenLink's commissioning	Ireland	56%	60%	66%	58%
		France	44%	40%	34%	42%
Without security of supply	TSOs' reference case	Ireland	71%	69%	76%	67%
		France	29%	31%	24%	33%
	Sensitivity with GreenLink's commissioning	Ireland	64%	75%	66%	55%
		France	36%	25%	34%	45%

TABLE 4: REPARTITION OF THE PROJECT'S GROSS BENEFITS (WITH AND WITHOUT GREENLINK'S COMMISSIONING)

The CRE's and the CRE's analyses highlight a very variable distribution of the project's gross benefits depending on the scenarios: between 50% and 80% of the benefits are located in Ireland (and symmetrically 50% to 20% in France).

Taking into account these analyses as well as the various risk factors affecting the value of the project, the CRE and the CRU agreed that Eirgrid would bear 65% of the estimated costs of the project (which amount to €930 million), and RTE 35%.

3.2 Operational costs sharing between RTE and Eirgrid

In their investment request, Eirgrid and RTE propose to share the operational and maintenance costs equally between France and Ireland. The CRE and the CRU do not object to this.

3.3 Sharing of potential costs overruns

The project investment cost estimation by RTE and Eirgrid amounts to 930M€, with an uncertainty range of [-110 ; +140]M€. However, the CRU's assessment highlights a risk of cost overruns, which could go up to 20% of the TSOs' estimate.

Subject to the terms and conditions regarding the obtention and sharing of the European subsidy that would be requested by the TSOs under the Connecting Europe Facility (CEF), the CRE and the CRU have agreed that the project's potential costs overruns will be shared equally between Eirgrid and RTE.

Furthermore, RTE and Eirgrid shall submit periodic cost estimate reviews to their respective NRAs (not less than every six months or as requested by the NRAs) and in addition, report to both NRAs on any material changes in cost estimate without delay. Excluding project development activities, the TSOs shall not commit any significant expenses until procurement of the infrastructure is complete and the overall cost of the main supply contracts (including cables) is known. Moreover, should the cost of these contracts materially exceed the estimated costs (i.e. by 20% compared to the initial assessment) or should the total costs of the project be reviewed significantly upwards (i.e. by 20% compared to the initial assessment), the CRU and the CRE agree to consult with the project parties and to review this decision in order to reconsider the opportunity to invest in the project and/or the cross-border cost allocation (CBCA) decision regarding cost overruns.

As stated by article 12(5) of the Regulation, NRAs will pay particular attention to the efficiency of the costs incurred by the TSOs. Thus, pursuant to the conditions set by the tariff "TURPE 5¹⁰", which provides for an incentive regulatory mechanism for major interconnection projects, the CRE plans to set the parameters of this regulation for the Celtic project, in particular with regard to incentives on cost efficiency.

¹⁰ CRE's deliberation of 17 November 2016

3.4 Sharing of interconnection revenues

The CRE and the CRU have agreed on an equal repartition of interconnection revenues (including the congestion rent) between Eirgrid and RTE.

4. EU FINANCIAL ASSISTANCE REQUEST

Pursuant to the provisions of Article 12(4) of the Regulation, the cross-border cost allocation decision should take into account “*the possible need for financial support*” of the project.

Article 14(2) of the Regulation also sets the conditions that the PCIs must meet in order to be eligible to the European Union financial assistance. In addition to a CBCA decision, the project must meet two requirements:

- The cost-benefit analysis should provide evidence regarding “*the existence of significant positive externalities, such as security of supply, solidarity or innovation*” ;
- The project assessment should show that the project is “*commercially not viable according to the business plan and other assessments carried out, notably by possible investors or creditors or the national regulatory authority.*”

The CRU and the CRE consider that the Celtic project meets these conditions and is eligible to financial assistance from the European Union, as demonstrated below.

4.1 Positive externalities generated by the Celtic project

In addition to the eligibility criterion set by the Regulation, Article 4 of Regulation (EU) No. 1316/2013 sets the criteria of market integration, sustainability and security of supply as objectives for the CEF when assessing grant requests.

The CRE considers that the Celtic project creates significant positive externalities, in particular regarding solidarity and security of supply, and contributes to the EU energy and climate objectives, including market integration and sustainability. These externalities do not benefit only the hosting countries, but also the European Union as a whole. Furthermore, they represent a benefit for society but are not of a financial nature such as to compensate for the missing revenues and the lack of commercial viability demonstrated below.

4.1.1 Solidarity and preservation of the internal electricity market

The Celtic project will be the first direct electricity link between Ireland and continental Europe. Due to its geographical situation, Ireland is interconnected with the EU electricity market only with the United Kingdom, which has activated Article 50 of the Treaty on European Union, thus expressing its will to withdraw from the EU.

In this configuration, building a physical link with the continent would be the only way of guaranteeing a direct connection between Ireland and the rest of the European internal electricity market. It will thus be beneficial for Ireland and for the internal EU market as a whole. In particular, through this interconnector, Ireland would be able to participate in the European internal electricity market and to the European security of supply and to harvest the benefits stemming from the synergies between EU countries for the achievement of the EU energy goals.

The TSOs’ analyses indicate in particular that this interconnection project will foster renewable energy integration in Ireland and help the country comply with its commitments in terms of renewable development and decarbonisation of its economy.

Celtic will ensure that Ireland remains directly connected to the EU electricity market, and will help mitigate Brexit’s negative impacts on the Irish electricity system as well as maintaining the integrity of the internal energy market. This project thus materialises EU solidarity towards Ireland in the current political context.

4.1.2 Security of supply

The project’s benefits related to the improvement of security of supply are difficult to monetise due to the lack of a robust assessment methodology. Despite such difficulties, Eirgrid and RTE attempted to quantify these benefits: according to their simulations, the benefits in terms of security of supply go largely beyond France and Ireland and could amount to 20 to 30M€ for Europe as a whole in 2030.

The CRE considers that the methodology of the TSOs lacks robustness and may overestimate the benefits of the projects in terms of security of supply. However, she recognises that the project will help diversify the French and Irish supply sources and will contribute to the security of supply of Europe as a whole.

4.1.3 Contribution to the European Union energy and climate objectives

Celtic will also contribute to the European Union energy and climate objectives, such as market integration and sustainability.

Celtic will thus be a key element for the achievement of the internal energy market. This new interconnection will indeed enhance electricity exchanges between European countries and will help reduce energy prices, to the benefit of end consumers.

This project will also contribute to the European sustainability objective, as it will help reducing the barriers to renewable energy sources development. According to the TSOs' assessment, based on the ENTSO-E methodology, the project will help integrate RES up to 840 GWh/year in 2030 (in the ST and DG scenarios, and 795 GWh/year on average of all TSOs' scenarios). It will also reduce the CO₂ emissions by 300 kT/year on average in all 2030 scenarios. Celtic will indeed contribute to the optimal use of RES between Ireland and Continental Europe.

4.2 Commercial viability

In addition to the necessity to assess the existence of significant positive externalities, the article 14(2) of the Regulation sets that the cost-benefit analysis should demonstrate that the is "commercially not viable according to the business plan and other assessments carried out, notably by possible investors or creditors or the national regulatory authority.". NRAs consider that this condition is fulfilled, as demonstrated below.

According to the business plan developed by the project promoters presented in section 7 of the investment request, the business plan of the project presents a negative financial net present value at their perimeter. They have been established at the level of the project, comparing the revenues from the offering of transmission capacity to the investment, operating and maintenance costs of the interconnection.

The economic viability analysis from a network tariff's point of view, that is considering the electric losses on the interconnection and induced on the national networks, as well as the loss of congestion revenues on other interconnectors, highlights that the congestion revenues on the Celtic cable are not sufficient to cover for the negative impacts on tariff (even without considering the depreciation and the return on the associated investment costs).

Tariff based costs and bene-fits (M€/year)	Without GreenLink		With GreenLink	
	FR	IE	FR	IE
Congestion revenues	20	4	11	-10
Losses	-15	-10	-15	-10
O&M costs	-4	-4	-4	-4
Impact on network tariffs excluding investment costs	1	-10	-8	-24
Impact on network tariffs including investment costs (65% IE/35% FR)	-27	-62	-36	-76

TABLE 5: IMPACT OF COSTS AND BENEFITS ON TARIFFS

Note: a negative value means that the network tariffs paid by grid users would increase

Without a significant grant, the project would increase the network tariffs in a proportion that would harm the project's acceptability.

Therefore, the CRE considers that the national scale is the relevant perimeter to evaluate the economic viability of the project.

It seems also necessary to take into account the impact of the different risk factors, as highlighted by the cost-benefit analysis, on the commercial viability of the project:

- Risk of investment cost overruns : investment cost overruns of 20% of the costs estimated by the TSOs could decrease the NPV by 130M€ at the European scale (65M€ for France);
- Availability of the interconnector: TSOs assume an availability rate of 95%, which might be overestimated. A lower availability rate (at a level of 70% as considered by the CRU in the sensitivity analyses presented in its public consultation) could decrease the NPV of the project up to 245M€ at the European scale (90M€ for France);
- Impact of GreenLink: the commissioning of GreenLink would affect negatively the economic interest of Celtic and could reduce the NPV by 320M€ at the European scale (60M€ for France);
- Evaluation of the contribution to security of supply: the methodology to compute the “capacity value” is likely to overestimate this contribution;
- Development of wind power in Ireland: Ireland has high ambition in terms of wind development; if the capacities estimated for 2025 in TYNDP 2018 are only met in 2030, the NPV of the project could be reduced by 55M€ at the European scale (45M€ for France);
- Evolution of the energy mix in Ireland and France and of commodity prices: scenarios EUCO and V1 lead to much lower socio-economic welfare than the two other scenarios; the difference between the more favourable scenarios and the less favourable ones is greater than 350M€ at the European scale (200 M€ for France).

Given the benefits and the externalities in terms of general EU objectives, particularly in terms of solidarity in a context of Brexit, the CRE considers that the EU grant should reflect the value of these externalities for the network users who finance the investment as well as ensure the commercial viability by reducing the cumulative potential impact of some of these risks.

4.3 Conclusion on the need for EU financing

According to the article 10(3) of Regulation (EU) No. 1316/2013, PCIs are eligible to the European Union financial assistance up to 50% of their investment costs. This rate could increase up to 75% for the projects that “provide a high degree of regional or Union-wide security of supply, strengthen the solidarity of the Union or comprise highly innovative solutions”. Considering the analysis of the externalities generated by the Celtic project, the NRAs consider that it could benefit from this provision.

The Celtic project brings positive externalities that will benefit not only to the hosting countries, but also to other stakeholders besides the hosting countries and to the European Union as a whole. These externalities, such as the EU solidarity or the contribution to reaching the European energy objectives are very substantial, especially in the context of Brexit and given the isolated situation of Ireland. They are, however, hardly quantifiable economically, or even not quantifiable for some of them.

On the other hand, given the uncertainties and risks surrounding the project, the commercial viability of the project for France and Ireland would require a substantial financial support from the European Union.

In particular, in the absence of grant, taking into account the CAPEX allocation decided by the CRE and the CRU in the present decision (that is 35% of the investment costs to be paid by RTE), the NPV at the French perimeter is negative in all the scenarios (cf. table 6 beneath).

Indeed, as exposed in its public consultation, given the progress of the GreenLink project and CRE’s lack of decision-making power on the project, the CRE considers that the cost-benefit analyses of the Celtic project should take into account the commissioning of the GreenLink project. Moreover, the CRE considers that the methodology used by the TSOs to estimate the capacity value does not present sufficient guarantees to be taken into account in the economic evaluation of the project.

Consequently, given the allocation of the costs retained between France and Ireland, the CRE had considered in its public consultation that RTE should benefit from a 165M€ minimum grant, as such an amount allows for the NPV at the French perimeter not to be negative.

Scenario	ST	DG	EuCo	V1	Average
NPV France (without SoS)	-80	-165	-155	-120	-130
Amount of grant that cancels the NPV for France ¹¹	100	205	200	155	165

TABLE 6 : NPV OF THE PROJECT AND AMOUNT OF GRANT THAT CANCELS THE NPV FOR FRANCE IN THE CASE OF A COST SHARING OF 65/35 BETWEEN EIRGRID AND RTE (AND UNDER THE HYPOTHESIS OF A 1000 MW INTERCONNECTION CAPACITY BETWEEN IRELAND AND GREAT BRITAIN)

In their contributions to the public consultation in France, stakeholders, similarly to the CRE, highlight the high risks associated with the project, which could lead to gross benefits for the French community lower than the costs at the expense of the final consumers, even if the EU grant reaches the minimum amount considered by the CRE in its public consultation (which was fixed in order for the average NPV for France over the four scenarios to be at zero).

The sensitivity analyses taking into account the lower availability rates for the interconnection, the uncertainties on the costs or the evolution of the energy mix, such as the effective development of wind in Ireland, highlight the significant risks with regard to the commercial viability of the project. The materialisation of these risks could reduce the NPV of the project and thus could imply a negative NPV for France. In order to guarantee the commercial viability of the project for France and given the estimation of the impact of these different risks, presented in the section 4.2 of the present decision, the CRE considers that the grant should be increased by at least 30M€ compared to the minimum amount estimated in the public consultation, that is a total of 195M€ of grant for France. For illustrative purpose, this amount corresponds to a reduction of the interconnection’s availability rate by 15% compared to the initial scenario, this assumption being closer to the one considered by the CRU in the sensitivity analyses of its public consultation.

As a consequence, the CRE and the CRU conclude that the grant should cover at least 60% of the project’s estimated investment costs, and that this grant should be divided similarly to the investment costs, that is 35% for France, which corresponds to an amount of 195M€. Besides, if the UE financial assistance does not reach 60% of the project’s estimated investment costs, including 195M€ for France, the CRE and the CRU shall mutually agree on a review of the cost allocation decision.

Finally, the CRE and the CRU have agreed that any financial assistance from the European Union above the minimum required amount (60% of the estimated investment costs, shared 65/35 between Eirgrid and RTE) would first support the possible costs overruns (i.e. above 930M€).

¹¹ This amount of grant will be spread over time in accordance with the repartition of the investment costs so that the dicounted value of grant cancels the NPV of the project.

CRE'S DECISION

The CRE adopts the decision regarding the cross-border cost allocation request by RTE and Eirgrid, jointly drafted by the CRE and the CRU and appended to the present deliberation.

The CRE and the CRU decide that:

- The project's estimated investment costs (i.e. 930M€) will be borne at 65% by Eirgrid and at 35% by RTE;
- The potential costs overruns (i.e. above 930M€) will be shared equally between Eirgrid and RTE.

This cross-border allocation is based on a 50/50 sharing of the project's operational and maintenance costs, and of the project's revenues from congestion rents between Eirgrid and RTE.

Moreover, should the costs of the main supply contracts materially exceed the estimated costs (i.e. by 20% compared to the initial assessment) or should the total costs of the project be reviewed significantly upwards (i.e. by 20% compared to the initial assessment), the CRU and the CRE agree to consult with the project parties and to review this decision in order to reconsider the opportunity to invest in the project and/or the cross-border cost allocation decision regarding cost overruns.

In addition, the CRE and the CRU support Eirgrid and RTE's application for European financial support under the CEF. Given the positive externalities that will be generated by the project, in particular in terms of solidarity and security of supply, as well as its contribution to the achievement of the European energy objectives, the CRE and the CRU consider that the project should receive substantial financial support from the European Union, covering at least 60% of the estimated investment costs of the project (the NRAs consider that the project is eligible for a grant of up to 75% of its investment costs, as provided for in Article 10(3) of Regulation (EU) No 1316/2013). This amount should be shared in the same way as the CAPEX, i.e. 65% for Eirgrid and 35% for RTE. Should the EU financial assistance not reach 60% of project's estimated investment costs, and a minimum of 195M€ for France, the NRAs shall mutually agree on a review of the cost allocation decision.

At last, the CRE and the CRU decide that, if the European financial support exceeds the required minimum amount (60% of the estimated investment costs, shared 65/35 between Eirgrid and RTE), the surplus shall be ring-fenced in priority to cover any potential costs overruns (i.e. above 930M€).

Insofar as costs correspond to those of an efficient transmission system operator, those effectively borne by RTE under the conditions set out in the present cost allocation decision and after deducting financial aid from the European Union will be included in the network operator's tariff, pursuant to the applicable tariff rate rules. The CRE will also define the parameters of the incentive regulation regime applicable to the Celtic project in compliance with the conditions set by the TURPE 5¹² tariff.

The present deliberation will be forwarded to the CRU. It will also be notified to RTE and ACER.

The present deliberation will be published in the *Journal officiel de la République française* and sent to the Minister of State, the Minister for the Ecological and Inclusive Transition.

Paris, 25 April 2019.

For the Energy Regulatory Commission,
the Président,

Jean-François CARENCO

¹² CRE's deliberation of 17 November 2016