

# **AQUIND Interconnector: Request for Exemption**

**Questions 2.a-d in relation to condition (f) from Article 63(1), regarding the financial aspects linked to the project**

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# 2 Justification for AQUIND’s discount rate (2.a) and the revenue sharing threshold (2.d)

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AQUIND is in the process of engaging with lenders and investors as part of the project financing strategy. As the regulatory arrangements for the project are still subject to a regulatory decision, concluding these discussions depends on that decision. Nevertheless, based on the previous round of engagement [REDACTED] and now including [REDACTED], AQUIND can provide a more detailed analysis of the estimated rates of return as well as our proposals for an appropriate rate of return for the project and the threshold point at which it would be commercially sustainable to commence revenue sharing. Since the question regarding the assumed rate of return is closely related to the question regarding the revenue sharing threshold, we have combined the answers to both questions here.

The cost of capital inputs, used in the AQUIND financial model (Exhibit 3), are indicative and based on the assessment of the possible parameters. These inputs provide a starting point for the financial model to consider the potential project financing costs.

[REDACTED]

- ▶ [REDACTED]
- ▶ [REDACTED]

In the following paragraphs we explain the figures presented in the original AQUIND financial model. However, in light of the questions from the NRAs, we also explain, in reference to the updated AQUIND financial model, our position on the appropriate discount rate, attached to this submission.

[REDACTED]

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<sup>2</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

In connection with the above, the cost of equity for either the Exempt Portion or a regulated portion of the project will be higher compared to IFA2. To understand this point it is important to note that the equity risk to IFA2 under the GB Cap and Floor regime is consolidated within the overall equity risk of the entire National Grid Ventures portfolio as a whole. Within France, the cost of capital is supported by a specific IFA2 tariff decision, including a notional level of gearing. Neither National Grid nor RTE raised any project-specific debt and our understanding is that IFA2 was balance sheet financed by both companies, underpinned by each TSO's entire regulated asset base. In contrast, AQUIND will not obtain any form of regulated tariff support in France or the security of long-term capacity allocation. In addition, under the GB Cap and Floor regime, returns on equity are neither guaranteed nor supported.

In addition, while regulators typically assess regulated projects using an estimate of Weighted Average Cost of Capital (WACC), a WACC-based approach needs some adjustment when used in the project finance setting. [REDACTED]

[REDACTED]

We will consider a number of available precedents from Ofgem and CRE establishing rates of returns for other energy infrastructure projects. It will help to set up relevant benchmarks before proposing a sharing mechanism.

To stress once more, AQUIND will not be subject to any regulatory underwriting in France and therefore French network users do not face any financing costs, while France benefits as exports via AQUIND increase the benefits to French producers, and indirectly to French consumers, as well as tax revenues directly from AQUIND.

## 2.1 Comparable examples of required rate of return

According to Art 63(1)(b) of Regulation (EC) 2019/943, the role of the exemption is to enable an investment to take place, but the project risks are "*such that the investment would not take place unless an exemption is granted*". In assessing this request, it is important to note that for AQUIND, there is no alternative investment regime that is available to AQUIND in France and indeed on the basis of current French legislation, the project would only be possible on the basis of an exemption pursuant to Article 63 (1)(b) and Deliberation 29 March 2012.

A key feature of an interconnector project is that, while the capital costs of the project are reasonably certain, the extent of the revenues that the project might earn from the sale of capacity over its 40-

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<sup>3</sup> Ofgem (2018), Final Project Assessment of the IFA2 interconnector to France, available here <https://www.ofgem.gov.uk/publications-and-updates/final-project-assessment-ifa2-interconnector-france>, p. 31.

year useful life or even the 25-year exemption period is still uncertain. Moreover, to a very large degree, the extent of the revenues earned depends on factors completely outside the control of the investor, such as the evolution of the generation capital stock in GB and Continental Europe, fuel prices, demand, policy changes etc over a very long period of time. Therefore, the overall likely rate of return of a proposed interconnector project is uncertain.<sup>4</sup>

A key point to note is that these uncertainties exist regardless of the regulatory regime in place. The main impact of the regulatory regime is simply to assign the risks between different classes of stakeholders. Under the French IFA2-style regulated regime, the risks sit largely with French grid users, whereas the investor is guaranteed a (nearly) fixed return on the assets. Under a GB Cap and Floor regime, risk is shared between grid users and the investor. Under an exempt route the investor bears all of the risks.

Respectively, regulated interconnectors have low investment risk and exempt interconnector have high investment risk. As investors require a return that is commensurate with the risks they are exposed to, it follows that an exempt interconnector would require a higher return than regulated interconnector. This is the case for AQUIND.

AQUIND expects to earn reasonable profits by operating the proposed interconnector. “Normal profits” have been defined for example by the UK competition authority, as *“the level of profits that an undertaking requires to provide a sufficient return to the lenders and shareholders that provide the undertaking with finance. This rate of return is referred to as the undertaking's 'cost of capital'.”*<sup>5</sup>

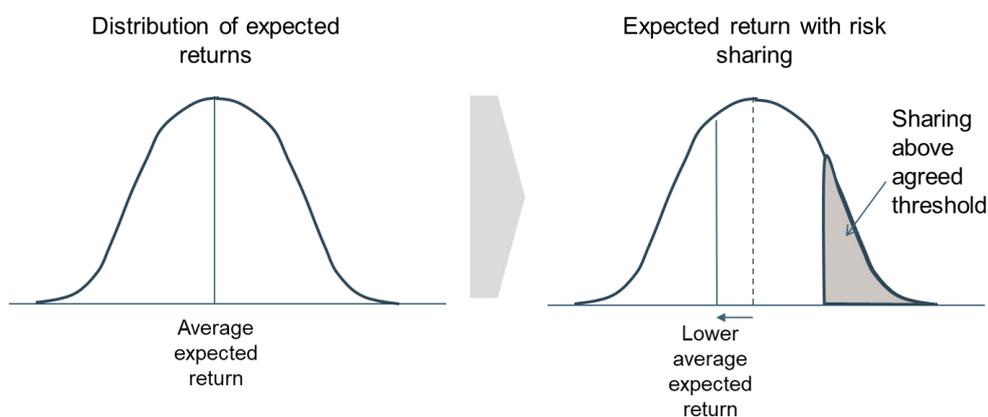
AQUIND’s Request for Exemption includes a proposal for a profit-sharing threshold. This is a voluntary proposal from AQUIND and is not technically a formal requirement of Article 63. AQUIND is not in a monopolistic situation since there are other operational and planned interconnectors on GB-French border. AQUIND will also trade on the same basis as the regulated projects IFA and IFA2. AQUIND proposes this sharing threshold to provide French network users and consumers with potential source of economic benefits in addition to social economic welfare benefits and French tax revenues, while maintaining the incentive for the project to remain operational. On the other hand, this will accordingly reduce the actual expected investor return of the project as, essentially, there is now a reduced probability of high returns to the investor, but with no change in the probability of low returns – as shown below in Figure 1.

**Figure 1. Distribution of returns**

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<sup>4</sup> Délibération de la CRE du 6 février 2020 portant décision sur la demande de dérogation de la société Pi.Sa.2 en application de l’article 63 du règlement (UE) 2019/943 du 5 juin 2019 sur le marché intérieur de l’électricité, Avis, p. 21.

<sup>5</sup> Office of Fair Trading, 2004, Assessment of conduct. Paragraph 2.9.



For the avoidance of doubt, AQUIND does not necessarily anticipate earning the levels of profit that would trigger the revenue sharing threshold over the course of the exemption period. Rather, the voluntary proposal to share such profits is intended to provide a form of ‘insurance’ mechanism in case the relevant market circumstances change significantly, such that AQUIND would earn unexpectedly high revenues. This voluntary proposal ensures that the Request for Exemption is proportional and takes into account the potential of congestion revenues being far higher than currently projected and required to provide an adequate rate of return.

Accordingly, we would respectfully suggest that it would be appropriate to start sharing profits after an initial capital investment in the Exempt Portion of the project has been paid back with an appropriate return. If this profit-sharing level is set too early in the lifecycle of the project, or aggressively, or the conditions of its operation are too onerous, investors will not invest in the project as the risks will become increasingly asymmetric. It will fail the purpose of the exemption to enable the investment to take place and the project benefits to be realised.

### 2.1.1 ElecLink’s exemption decision (2014)

AQUIND, in preparing the Request for Exemption, has considered whether any relevant precedents exist for requesting an exemption similar to that requested by AQUIND.

We believe that the closest available precedent in this instance is the ElecLink exemption decision, even though there are certain differences. Both projects were initiated without the support of national Transmission System Operators (TSOs). However, ElecLink was granted an exemption that provided the right to place long-term capacity contracts in the market, which can provide some financing certainty and effectively act as a form of commercial underwriting. In practice, these long-term contracts act as a ‘virtual floor’ on the amount of congestion revenues that ElecLink is likely to earn, and therefore create a barrier to the downside risks faced by the project investors. Also, AQUIND will be commissioned several years later than ElecLink and will be joining a more competitive market.

Further, [REDACTED]

In addition, [REDACTED]

[REDACTED]

The above demonstrates that AQUIND's downside risks of congestion revenues and costs in respect of the Exempt Portion are materially higher than ElecLink's downside risks and AQUIND's recovery of neither capital costs nor operational costs is guaranteed. The quantum of the downside risk is, in turn, a relevant factor for the investors in considering what rate of return they require in order to be willing to take on that additional risk. In expectation, investors will only be willing to take on an additional downside risk, if this is sufficiently offset by the upside potential.

[REDACTED]

## 2.1.2 IFA2 cap and floor and RAB

IFA2 was awarded the Final Project Assessment for the Cap and Floor regime in GB in 2018<sup>8</sup> and a regulated status in France in 2017.<sup>9</sup> The Cap and Floor regime was based on the following parameters, where it concerns a rate of return:

- ▶ Allowed rate of return at the floor of -0.21% (real, post-tax)
- ▶ Allowed rate of return at the cap of 8.10% (real, post-tax).

The equity rate of return was determined using CAPM, based on:

- ▶ Risk-free rate of 1.6% (real, post-tax),
- ▶ Total market returns of 7.20%,
- ▶ UK RPI adjustment of 0.4%,
- ▶ Equity beta – 1.25 as calculated for the most suitable comparable – DRAX publicly traded shares subsequently adopted by Ofgem to account for the risk faced by a regulated interconnector at the cap.<sup>10</sup>

<sup>6</sup> [REDACTED]

<sup>7</sup> Délibération de la Commission de régulation de l'énergie du 6 mars 2014 portant décision sur la demande de dérogation de la société ElecLink Ltd en application de l'article 17 du règlement (CE) n° 714/2009 du 13 juillet 2009 concernant une interconnexion entre la France et la Grande-Bretagne, Annex 1, H).

<sup>8</sup> Ofgem (2018), [link](#).

<sup>9</sup> CRE (2017), Deliberation of the French Energy Regulatory Commission of 2 February 2017 forming a decision regarding the interconnector "IFA2" project. [Link](#).

<sup>10</sup> In 2014, at the time of the introduction of the Cap and Floor regime, Ofgem proposed "to fix the equity beta at 1.25 based on our assessment of risk at the cap (we consider this to be similar to the risk faced by an independent generator)". Ofgem also explained that this has been based on "the re-gearred equity beta of Drax as an independent generator". Ofgem (2014) The regulation of future electricity interconnection: Proposal to roll out a Cap and Floor regime to near-term projects.

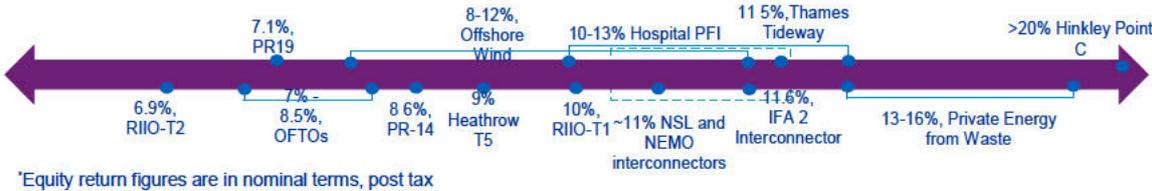
In France, IFA2 is subject to a modified RAB regime, based on TURPE5, with incentives and penalties. RTE develops the IFA2 project in partnership with NG IFA2 Ltd, a subsidiary of the GB TSO National Grid Electricity Transmission plc. An incorporated joint venture, equally owned by RTE and NG IFA2 Ltd, will perform the IFA2 interconnector's construction work. Its operation will be managed by an unincorporated joint venture between RTE and NG IFA2 Ltd. The penalties expose RTE to some extent to the delay and cost overrun risk. However, since RTE is a fully regulated business that is financed by tariffs on network users, the nature of the risks of or incentives established for it would be more notional than actual. Nevertheless, the nominal pre-tax rate of return was established at 9.7% and real post-tax – 4.6%.

**2.1.3 KPMG analysis**

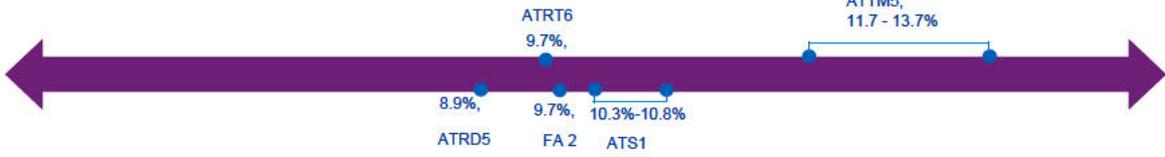
Together with the submission of the CBCA Request 2019, AQUIND submitted a report prepared by KPMG on the changes required to the Cap and Floor regime in GB and the RAB in France to enable non-TSO promoters to invest in new interconnectors (attached in Appendix C). While the report focused on regulated regimes, some of its conclusions and feedback received from a number of debt providers and equity investors remain relevant to this Request for Exemption.

We summarise here KPMG’s key conclusions as well as the sample list of equity rates of returns for various types of regulated infrastructure projects in Appendix A.

**Figure 2 Equity returns in GB regulated infrastructure projects (nominal, post-tax)**



**Figure 3. Equity return in French regulated infrastructure projects (nominal, pre-tax)**



**2.1.3.1 Structural difference**

The regulatory regime or arrangements need to take into account the structural differences between AQUIND and other TSO investors. Specially, AQUIND is not a TSO with a large balance sheet supported by regulated revenues and is in fact a single-project entity. Project finance, non-recourse debt secured by future revenues is the most viable approach to ensuring that the investment takes place. Respectively, there is a close link between the security of revenues and bankability of the project. AQUIND’s current proposed approach would secure debt in a proportion that would approximately match, or be somewhat lower than, the portion of the project covered by the cap and floor, while the Exempt Portion remains fully exposed to revenue uncertainty without long-term contracts or regulatory underwriting.



exemption. As explained in the Request for Exemption, AQUIND will pay substantial local taxes at the amount currently estimated at up to €5m a year or approximately €64m (present value at the 4% social discounting rate, in 2018 real terms) over the 25-year exemption period.<sup>12</sup> The large proportion of these taxes is based on the value of the land and “brick and mortar” part of the converter station site near Barnabos and charged irrespectively the project’s revenues and profit. Accordingly, if the project is not making sufficient revenues, the risk of paying this tax and meeting operational costs rests solely with equity investors.

In addition, the financial model shows that AQUIND will pay substantial corporate tax to the French state in the amount of €80.1m (present value at 4% social discounting rate, in 2018 real terms) in the Market Scenario. Further revenue sharing on a project that does not receive any form of support from the state is, economically, just another form of tax and both aspects of those contributions to the public by the project need to be taken into account.

### 2.3 AQUIND’s proposed profit-sharing threshold (2.d)



In response to the queries from both Ofgem and CRE, AQUIND has undertaken additional analysis to present evidence on an appropriate rate of return for this project and propose a range of mechanisms to implement profit sharing for further discussion with the NRAs.

AQUIND’s Request for Exemption includes a voluntary proposal for a profit-sharing threshold which provides a mechanism to share additional benefits with French network users when returns, for the Exempt Portion of the project, exceed the expected rate of return of the project’s investors. Although there is a precedent for the principle of profit sharing in the Eleclink exemption decision, there is little guidance in respect of the grounds of applying such thresholds to exempt interconnectors, rates of return to be taken into account and the methodology. There is currently no detailed legal framework for this type of profit sharing in European regulations in respect of electricity interconnectors and it is mentioned in the Deliberation of 29 March 2012 in passing only. Article 63 of Regulation 2019/943 does not mention such a mechanism as a direct requirement and there is little guidance in respect of its implementation.

We do not expect a profit sharing threshold to *‘be to the detriment of competition or the effective functioning of the internal market for electricity, or the efficient functioning of the regulated system to which the interconnector is linked’* as it will in fact provide a route to re-distribute profit, and therefore welfare, to French network users. This mechanism would provide French network users with access to a share of profits arising due to certain market situations, which are not currently predicted. The purpose of this mechanism is not to compensate any party for the fact of the existence of AQUIND interconnector. Accordingly, it is critical that the mechanism does not function as a cap on AQUIND’s profits or revenues. The project requires adequate incentives to remain operational (and maximise its availability) even in circumstances where its revenues are relatively higher. This has been confirmed by the NRAs in the context of Eleclink: *“The NRAs clarified to the Commission that they consider that a hard profit cap (i.e. without revenue sharing) could dampen (or remove completely) the incentives for the interconnector operation and availability when the cap is reached and that the sharing factor*

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<sup>12</sup> This assumes a social discounting rate of 4%, 25-year lifetime and tax payments of €5m in each of the years.

*provides an incentive for ElecLink to maximise link availability and continue operating should profits exceed the cap. This they consider is in the interest of European consumers.”<sup>13</sup>*

AQUIND modelling does not project revenues to exceed the profit sharing threshold of IRR █% in nominal post-tax terms under any of the modelled scenarios. This is not surprising: the threshold for sharing any profits was conceptually intended to be applied to profits which only arise in circumstances that are not currently foreseen by the developer and the regulator. Indeed, AQUIND considers that the envelope of the scenarios presented to the NRAs as part of the Request for Exemption represents a credible range of outcomes, all of which are foreseeable and not in any way exceptional.<sup>14</sup> We note however that there may be market conditions, which could result in significantly higher revenues for AQUIND over the project life resulting in sharing of additional benefits with network users in France. For example, if the capacity of other interconnector(s) is inhibited due to one reason or another or there are some other market situations either in the UK or France, which results in higher flows over the interconnector and/or higher market price for its capacity, AQUIND revenues might increase as the need for its services increases.

As discussed earlier, the level of the profit sharing threshold should properly take account of the risk AQUIND is required to take in France, where there is no alternative to the exempt regime, and as such, AQUIND faces full downside risk. Moreover, since an exemption from the third-party access rules is not requested as part of the Request for Exemption, and there will not be long-term capacity contracts, AQUIND’s congestion revenues remain fully exposed to the volatility of the short-term market in respect of the Exempt Portion. Importantly, the project should be able to attract finance on reasonable terms to cover the Exempt Portion of the project, the cost of which is expected to be commensurate with the level of risk taken.

Removing those revenues from the project completely would not be consistent with the nature of the Use of Revenue exemption and will also remove for the interconnector any economic incentive to operate (and remain available) once a threshold is achieved at the time when its capacity is specifically needed.

We acknowledge that there is a certain mutual dependence of the timing of the decision regarding the AQUIND exemption and the financing arrangements, and resulting cost of capital and project return projections. █

█ We therefore propose to consider variations on the original simple threshold. █

AQUIND has developed a set of potential scenarios how the revenue sharing threshold could be applied in respect of the Exempt Portion of AQUIND Interconnector.

█

<sup>13</sup> EC (2014), paragraph 98.

<sup>14</sup> To put this point differently, if the revenue forecasts in AQUIND’s modelling scenarios were already seen as “excessive”, this would be indicative of an extremely congested border with very high price differentials. In such a case the interconnector should be developed as a matter of urgency. On the other hand, if a hard cap is implemented and the interconnector achieves the cap before the end of the year, the project does not have any further incentive to operate. There will be no further upside for the project operator, but might in fact be losses from unplanned interruptions and lack of firmness.

[REDACTED]

### **2.3.4 Mechanism of operating the revenue sharing threshold**

The revenue sharing threshold can be operated based on the following principles:

- ▶ The project revenues are allocated based on the proposed allocation of costs and revenues (68% GB and 32% France)
- ▶ Revenues from the following sources to be taken into account:
  - Congestion revenues
  - GB capacity market
  - Capacity market in France
  - Provision of ancillary services in GB
  - Provision of ancillary services in France.

- ▶ [REDACTED]
- ▶ [REDACTED]

## 2.4 Impact on criteria (b) and (f) of Article 63

To address the final part of the NRAs' question (the "impact on French network users"), we have considered further the interaction between AQUIND's financing arrangements and condition b) and f) of Article 63.

In relation to condition b), it is clear that without an exemption, AQUIND will not be able to progress with the project. As set out clearly in the AQUIND Request for Exemption, there is no alternative investment regime available to AQUIND in France and current French legislation effectively prohibits non-RTE entities to operate and maintain transmission lines (including interconnectors). AQUIND therefore has no other alternative to make the investment to take place as to request exemption in respect of the portion of the project located within the territory of France.

The return available to AQUIND as part of this exemption should be proportionate to the risk faced by the project and ensure that that the investment can take place. As AQUIND will have no regulatory underwriting in France and will offer all capacity in regulated timeframes (i.e. no long-term contracts) AQUIND faces significantly greater risks than other regulated and exemption projects (such as interconnectors developed by RTE, and Eleclink). The return AQUIND is allowed to make, including limitations imposed by the relevant profit sharing threshold, should therefore exceed the return provided to other regulated projects as well as the exempt project.

In relation to conditions (f) (and (a)), AQUIND will have following effect:

- ▶ The Exemption is being requested within the limits necessary to enable the investment to take place,
- ▶ It improves competition in both energy markets as explained in the Request for Exemption,
- ▶ It increases competition among transmission capacity providers on the GB-French border, making cross-border trade of electricity more efficient,
- ▶ The resulting reduction in revenues of other interconnectors as provided to the NRAs in the file 'Additional analysis\_Impact of AQUIND on other interconnectors\_v1\_0' is not critical and exceeded by far by social economic welfare benefits for French energy producers,
- ▶ French network users will enjoy social economic welfare benefits, greater security of supply and reduction in CO2 emissions without bearing the risks and costs of the project,

- ▶ AQUIND does not request the exemption from third-party access rules, which would allow it to place capacity on the basis of long-term contracts, and will be trading on the same principles and the same level of transparency as fully regulated interconnectors IFA and IFA2. We note that this type of comparison formed sufficient grounds to grant exemption to Pi.Sa.2 interconnector,
- ▶ In the case AQUIND benefits from unusually high revenues due to one or another set of circumstances, the proposed profit sharing mechanism will ensure that such profits above certain threshold are re-distributed to network users in France.



would need to be repaid within a shorter period of time and equity investors will need to return their investments with appropriate rates of return earlier. Besides failing to enable AQUIND to attract investors, it would also make any revenue sharing completely improbable. This would be to the detriment of French and GB network users.

### 3.2 Consistency with precedent

With the requested 25-year duration of the Exemption is consistent the precedent set by the ElecLink exemption and reflects recent European regulatory practice. Here, it is important to note once more that AQUIND will take on even greater risk in respect of the Exempt Portion than ElecLink and as such there are no grounds to award a shorter exemption period. These risks for AQUIND include:

- ▶ A narrower scope of exemption than ElecLink, including a greater exposure to the uncertainty of revenues without long-term contracts,
- ▶ The lack of balance sheet and asset collocation support from GetLink and the need to rely on non-recourse project financing,
- ▶ Marine cable installation and operation, generally longer cable route and a more complicated topology of the scheme, involving two circuits.

Another recent precedent of exemption – the second exemption for Savoie-Piemont interconnector (Pi.Sa.2) also supports that position. The second exemption for that project expanded the exemption to the whole of the Italian portion of the project. The Pi.Sa.2 exemption focused on the use of revenues and unbundling exemptions and was granted for 10 years, taking into account the nature of its financing arrangements. In our view, a shorter exemption duration of only 10 years would not be appropriate for AQUIND due to the difference in the risks faced by investors, due to the different financing strategy and due to the different ownership structure.

Firstly, the exempt part of the Pi.Sa.2 project has much lower capital costs than AQUIND, around €300m, which reduces the inherent riskiness of the project. The risk profile of AQUIND’s investors is significantly different due to the size of investment, greater competition among interconnectors on the France-GB border and the need to raise non-recourse project finance debt for the tenor of up to 25 years. The lower risks faced by investors enabled a shorter exemption duration for Pi.Sa.2, but this would not be appropriate for AQUIND.

Secondly, [REDACTED]

[REDACTED] By contrast, AQUIND’s financing strategy relies on project finance by independent investors.

Thirdly, since the French part of Pi.Sa. is supported by RTE, there is no need to match the duration of regulatory regimes on both sides.

### 3.3 Accelerated depreciation to reduce project riskiness

In theory, the duration of the exemption might cover the entire technical lifetime of the project, which is expected to be 40 years or more. However, this is not the current practice to award regulatory regimes of such duration to electricity interconnectors.

As part of ██████████ AQUIND has been advised that that the depreciation of the project should be in line with the period of certainty of the regulated regime as opposed to 45 years normally assumed for regulated transmission infrastructure in France. This would enable faster depreciation of the project, which in turn would reduce the risk of the project.

Respectively, the shorter than 25 years duration of the exemption regime would imply a shorter depreciation period, which in turn will reduce tax payments in France.

### **3.4 Impact on condition (f)**

As explained in the Request for Exemption, AQUIND does not seek an exemption for Unbundling (Article 43, Directive 2019/944), Third Party Access (Article 6, Directive 2019/944) or the approval of charging and access rules (Article 59(7) and 60(1) of Directive 2019/944). Indeed, AQUIND envisages that all capacity will be sold through competitive, regulated products, in a way that is consistent with other interconnectors on the GB-French border and aligned with the prevailing capacity allocation legislation.

AQUIND does not consider that the duration of the exemption would be to the detriment of competition or the effective functioning of the internal market for electricity, or the efficient functioning of the regulated system, as expressed in criterion (f) of Article 63, Regulation 2019/943, for reasons explained in the Request for Exemption (Section 6.7). AQUIND does not consider that the shorter exemption period would fundamentally alter the analysis presented in respect of criterion (f), particularly because the project does not request an Exemption from third party access rules. That was a sufficient argument from the point of view of compliance with that criterion for Pi.Sa.2. The construction and operation of AQUIND Interconnector as an exempt project in France enables France to realise significant social economic welfare benefits, while not passing any costs or risk back to French network users.

To the contrary, the shorter exemption will contradict the criteria (a) and (f) of Article 63(1) of Regulation (EC) 2019/943 as it will fail to enable the investment to take place and the project benefits, including increased competition in energy markets and among transmission capacity providers, will not be realised.

## 4 Residual value (2.c)

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The potential residual value of a project after the expiration of the exemption is not a criterion for purpose of consideration of a request for exemption under Art 63 Regulation (EC) 943/2019. It is not named in Art 63(1) of the regulation and the text of that article clearly states that only the effects of the exemption itself should be considered.

With the present level of technology, an HVDC interconnector can have a technical life of around 40-45 years. In terms of the residual value at the end of the Exemption Period, the following assumptions have been made:

- ▶ First, in **accounting terms**, AQUIND has assumed that based on the conservative approach, the asset would be fully depreciated at the end of the exemption period of 25 years in line with the relevant accounting rules and the proposed duration of the Exemption. In practice, there may be some residual accounting value left such as land, but for conservativeness we have excluded that from our assessment. In accounting terms, this implies that the project would have zero residual 'book' value at the end of the Exemption Period. This is also in line with the ENTSO-E CBA guidance<sup>17</sup> which requires that no project value should be considered after 25 years.
- ▶ Second, in **economic terms**, AQUIND assumes that the asset is highly likely to remain operational at the end of the Exemption Period. AQUIND Interconnector is expected to continue to generate positive economic value to its owner and to the network users in France and GB, although there is no requirement to model that.

The quantum of the **economic** residual value of the project can be estimated by considering the likely free cash flows that AQUIND Interconnector may earn between the end of the Exemption Period and the end of its technical lifetime. This analysis covers 15 years between 2049 and 2063 (both inclusive) and assumes the following:

- ▶ Free cash flows of AQUIND Interconnector remain the same as the average earned during 2044-2048 (at €[REDACTED]m/year for the Exempt Portion). We recognise that it is extremely challenging to estimate the likely long-term revenues of a project more than 30 years ahead, but we consider that this approach is in line with the approach to estimate the terminal value of an asset in finance.
- ▶ Decommissioning costs are incurred in 2063 and are estimated to amount to [REDACTED] for the entire project in real terms.<sup>18</sup> Of this, and in line with the CAPEX evaluation, [REDACTED]m ([REDACTED]%) has been allocated to the Exempt Portion of the project.
- ▶ Finally, an average Replacement Capex ('repex') [REDACTED] is assumed to be incurred in years 2049 to 2063<sup>19</sup>. Of this, €[REDACTED]m ([REDACTED]%) has been allocated to the Exempt Portion of the project.

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<sup>17</sup> 2nd ENTSO-E Guideline For Cost Benefit Analysis of Grid Development Projects (September 2018).

<sup>18</sup> This is based on the Final Project Assessment for IFA2, which estimates DECOMMEX of £14m for the GB half of the 1GW link. [REDACTED].

<sup>19</sup> This is based on the Final Project Assessment for IFA2, which estimates REPEX of £14m for the GB half of the 1GW link. [REDACTED].

Based on these calculations (summarised in the variant Exhibit 3, tab 'Residual Value', rows 13 and 18), and discounting these values to 2019, AQUIND estimates the NPV of the economic residual value to be around ██████m for the whole project and ██████m the Exempt Portion.

There is a third perspective, in addition to the accounting and economic residual value, that could be taken, which is the residual value in terms of the socio-economic welfare benefits to France. To estimate this value, we have rolled forward the average of the last 5 years of the estimate socio-economic benefits in France to the remaining 15 years of the project's technical life (i.e. 2049 to 2063, both inclusive). On this basis, we estimate that the residual socio-economic welfare benefits of €442-1,023m across the three main scenarios in NPV terms. We provide a full breakdown of the CBA impact in E (see the last three columns, and the penultimate row, including AQUIND, in Table 5).

The Request for Exemption does not provide a view as to whether AQUIND, or another party, may be able to retain the economic value generated by the project after the initial Exemption Period has expired. This would depend on the regulatory arrangements in place, as discussed in response to the separate question on this matter. For the purposes of the Request for Exemption, this means that AQUIND will seek to fully recover the upfront investment costs of the project during the Exemption Period.

AQUIND considers that the residual economic (or socio-economic welfare) value of the project is highly uncertain at this point in time and it might range from zero value (for example, if the project is forced to stop operating after the Exemption Period expires) through to positive values (if the estimates indicated above materialise). It, however, appears extremely unlikely that the residual value in economic (or socio-economic welfare) terms could be negative. As a result, AQUIND considers that:

- ▶ First, there are no adverse impacts of the project on Criterion (b) or (f); and
- ▶ Second, it appears most appropriate that the NRAs do not take any residual economic value into account when evaluating the merits of the Request for Exemption. This would also be in line with the ENTSO-E CBA guidance referred to earlier.

Finally, the value of the project after the expiration of the Exemption and cap and floor will not be taken into account by project investors as there is no certainty and no regulatory guidance what regime will be available after that. AQUIND considers that, by construction, the residual value of the project after the expiry of the Exemption Period should not have any bearing on the evaluation of the merits of the Request for Exemption.



## Appendix A Rates of return on UK and French regulated infrastructure

KPMG Analysis - Summary of UK and French returns							
Asset	Equity Returns (real-post-tax)	Inflation	Equity Returns (nominal post-tax)	Assumed gearing	"Reasonable" rate of return	Source	Link
<b>GB Non-interconnector assets</b>							
OFTOs	3.9%-5.3%	3.00%	8-12%	66%	Effectively, supported through Contracts for Difference		
Thames Tideway	8.30%	3.00%	11.50%	65%	Exposed to capex, delay and financing risks, as well as the First of a Kind risk.		
Hinkley Point C	6.30%	2.50%			CfD guarantees the strike price for electricity at £92.50/MWh in 2012 prices. Exposed to capex and delay risk.		
	17.10%	2.50%	>20%	65%			
Offshore wind farms	5.4%-9.4%	2.40%					
Heathrow T5	6.00%	2.80%	9%	25%	RAB model with exposure to the demand risk		
Energy from Waste	9.7%-12.6%	3.00%	13-16%	70%	Availability, supply, counterparty and change in law risks, but can rely on long-term power-purchase agreements		
Hospital PFIs	6.8%-9.7%	3.00%	10-13%	90%	High certainty of revenues streams, low risk of delays, incentive mechanisms		
<b>GB Interconnector assets</b>							

NEMO interconnector (GB part)	8.10%	2.90%	11.20%		Assuming revenue and cost sharing 50/50		
NSL interconnector (GB part)	8.00%	2.70%	10.90%		Assuming revenue and cost sharing 50/50		
IFA2 interconnector (GB part)	8.10%	3.20%	11.60%		Assuming revenue and cost sharing 50/50		
BritNed					Returns that exceed 1 %point above the IRR are capped.	BritNed vs ABB (2018)	<a href="#">Link</a>
England-Scotland "interconnector"					10% real rate of return on upgrade assets "was reasonable"	Ofgem (2004) Transmission price controls and BETTA. Final proposals and impact assessment. ¶13.9.	<a href="#">Link</a>
<b>FR Non-interconnector assets*</b>							
ATRD5 (gas distribution)	4.50%	1.33%	5.89%	50%	Limited construction risk		
ART6 (gas transmission)	4.80%	1.47%	6.34%	50%	Limited construction risk		
ATS1 (gas storage)	5.1%-5.4%	1.55%	9.06%	50%	Very limited cost and volume risk, but exposure to capacity sales		
ATM5 (LNG terminal)	6.1%-7.4%	1.47%	8.98%	50%	Limited construction risk, delay risk		
<b>FR Interconnector assets</b>							
IFA2 interconnector (FR part)	4.60%	1.65%	6.33%	60%	Some construction, availability risk, delay risk. Linked to TURPE5 with incentives as well as penalties.		
* French post-tax returns are based on 34.4% tax rate applicable at that moment.							

**Appendix B**

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**Appendix C**



# **Appendix D Exhibit 3. Aquind Financial Model Updated September 2020**

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## Appendix E CBA calculations 2049-2063

Table 5 shows the CBA assuming that the project life extends to 2063 (an additional 15 years from the original CBA). We show the results compared to the original CBA and the difference in results. The analysis assumes that the welfare from AQUIND for the period 2049-2063 is equal to the average of the benefit over the last 5 years of the original CBA (2043-2048).

Table 5 CBA impact of extending forecasting period to 2063

€m NPV @ 4.0%, real 2018		Original CBA			CBA extension (+15 years)			Difference (i.e. implied 'residual benefits' of AQUIND)		
		Market Scenario	Low Commodities	High Commodities /Renewables	Market Scenario	Low Commodities	High Commodities /Renewables	Market Scenario	Low Commodities	High Commodities /Renewables
<b>GB welfare</b>	Net producer welfare	-€ 2,136	-€ 3,842	-€ 3,068	-€ 1,406	-€ 4,428	-€ 2,655	€ 730	-€ 587	€ 413
	Net consumer welfare	€ 2,275	€ 4,032	€ 3,826	€ 1,757	€ 4,711	€ 3,814	-€ 517	€ 679	-€ 11
	Net interconnector welfare	-€ 1,088	-€ 770	-€ 1,265	-€ 1,476	-€ 947	-€ 1,772	-€ 388	-€ 177	-€ 507
	<b>Net social welfare</b>	<b>-€ 949</b>	<b>-€ 580</b>	<b>-€ 507</b>	<b>-€ 1,125</b>	<b>-€ 664</b>	<b>-€ 613</b>	<b>-€ 176</b>	<b>-€ 85</b>	<b>-€ 106</b>
<b>French welfare</b>	Net producer welfare	€ 4,418	€ 8,220	€ 2,023	€ 3,788	€ 9,279	€ 457	-€ 629	€ 1,059	-€ 1,566
	Net consumer welfare	-€ 2,092	-€ 5,735	-€ 598	-€ 864	-€ 6,455	€ 1,112	€ 1,228	-€ 720	€ 1,711
	Net interconnector welfare	-€ 1,392	-€ 1,453	-€ 1,353	-€ 1,761	-€ 1,709	-€ 1,814	-€ 369	-€ 255	-€ 461
	<b>Net social welfare</b>	<b>€ 934</b>	<b>€ 1,032</b>	<b>€ 72</b>	<b>€ 1,164</b>	<b>€ 1,115</b>	<b>-€ 245</b>	<b>€ 230</b>	<b>€ 84</b>	<b>-€ 317</b>
<b>Impact on other European Countries</b>	Net producer welfare	€ 2,506	€ 5,070	-€ 3,040	€ 1,713	€ 6,025	-€ 5,963	-€ 793	€ 955	-€ 2,923
	Net consumer welfare	-€ 1,040	-€ 4,627	€ 4,858	€ 529	-€ 5,407	€ 8,887	€ 1,569	-€ 780	€ 4,029
	Net interconnector welfare	-€ 1,064	-€ 1,078	-€ 878	-€ 1,395	-€ 1,244	-€ 1,162	-€ 331	-€ 165	-€ 285
	<b>Net social welfare</b>	<b>€ 403</b>	<b>-€ 635</b>	<b>€ 941</b>	<b>€ 847</b>	<b>-€ 621</b>	<b>€ 1,764</b>	<b>€ 444</b>	<b>€ 14</b>	<b>€ 823</b>
<b>AQUIND</b>	Revenues	██████	██████	██████	██████	██████	██████	██████	██████	██████
	Costs	-€ 1,305	-€ 1,305	-€ 1,305	-€ 1,653	-€ 1,653	-€ 1,653	-€ 348	-€ 348	-€ 348
	<b>Net AQUIND welfare</b>	██████	██████	██████	██████	██████	██████	██████	██████	██████
<b>Variation in Grid losses</b>	FR losses	-€ 23	-€ 52	-€ 29	-€ 30	-€ 65	-€ 50	-€ 7	-€ 13	-€ 21
	GB losses	-€ 165	-€ 158	-€ 108	-€ 212	-€ 189	-€ 180	-€ 47	-€ 32	-€ 71
	<b>Total losses</b>	<b>-€ 188</b>	<b>-€ 210</b>	<b>-€ 137</b>	<b>-€ 242</b>	<b>-€ 254</b>	<b>-€ 230</b>	<b>-€ 54</b>	<b>-€ 44</b>	<b>-€ 93</b>
<b>Security of Supply (EENS)</b>	<b>Total</b>	€ 222	€ 543	€ 99	€ 397	€ 1,006	€ 203	€ 175	€ 462	€ 103
<b>Total European Welfare</b>	<b>Including AQUIND</b>	██████	██████	██████	██████	██████	██████	██████	██████	██████
<b>Total European Welfare</b>	<b>Excluding AQUIND</b>	<b>€ 421</b>	<b>€ 151</b>	<b>€ 468</b>	<b>€ 1,041</b>	<b>€ 582</b>	<b>€ 879</b>	<b>€ 620</b>	<b>€ 431</b>	<b>€ 412</b>