



Making a positive difference
for energy consumers

FAB Link Limited and
stakeholders

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Dear stakeholders,

Decision on our needs case review of the FAB Link interconnector

The purpose of this letter is to inform FAB Link Limited (FLL), the licensee authorised to participate in the operation of the FAB Link interconnector (FAB Link), and wider stakeholders of the outcome of our decision to revisit aspects of the needs case for the FAB Link interconnector. Following our review of the socio-economic benefits and wider impacts of FAB Link, we have concluded that FAB Link is likely still in the interest of current and future GB consumers. FAB Link will therefore conditionally retain its cap and floor regime in principle, provided that the project meets specified requirements.

Uncertainties remain around the timing of FAB Link's planned connection date and currently there is no agreed pathway towards a regulatory solution for the project in France. It is important that our cap and floor projects can demonstrate progression and are incentivised to do so. We have therefore decided that this decision is conditional on FLL presenting to us, by the end of July 2022, a clear pathway to progress regulatory approvals in France. If this requirement is not met, then we may need to perform further analysis to determine whether FAB Link remains in the interest of consumers.

In addition, following this assessment, we consider it appropriate to amend the Initial Project Assessment (IPA) condition for FAB Link related to the duration of delay to the project's connection date that we would deem material. Given the remaining uncertainties on project timings, we are unable to confirm an appropriate extension for FAB Link at this stage. We will revisit this IPA condition, alongside consideration of whether the conditionality of this decision has been met, after July 2022.

Background and context

The cap and floor regime provides interconnector developers with consumer underwriting at the floor; it is therefore important that we ensure that those projects awarded a cap and floor regime are likely to provide benefits for current and future GB consumers.

At the IPA stage for cap and floor Window 1 interconnectors in 2015,¹ we assessed the potential impacts of FAB Link, amongst other applicants, on electricity markets and cross-border trade, on the GB electricity network, and in line with long-term strategic and sustainability indicators. We determined that FAB Link was likely in the interests of GB consumers and the project was subsequently awarded a cap and floor regime in principle.

In our July 2015 Window 1 IPA decision, we specified that our decision was "*contingent on progress generally in line with the timelines, cost estimates and commercial arrangements provided in the project submissions*". Where information submitted to us before our Final Project Assessment (FPA) decision indicates that these conditions are not met, we advised that we may choose to revisit the analysis and outcome of the IPA "*in order to confirm whether or not the project continues to be in consumers' interests and should continue to be granted a cap and floor arrangement.*"

In September 2020, we notified FLL that one of these conditions had not been met; specifically we had come to a view that the latest planned connection date was materially delayed from the basis on which the project was assessed at the IPA stage. We subsequently decided it was appropriate to revisit aspects of the needs case for FAB Link.

Basis of our decision to revisit the needs case

To be eligible for assessment in Window 1, projects required a connection date by the end of 2020, and we then set the cap and floor regime start date for Window 1 projects as 1 January 2021 (or earlier where applicable). We specified in our Window 1 decision that "*material changes would include any prospective delays in project delivery of more than 24 months*", which means a connection date beyond the end of 2022. Subsequently, in our cap and floor Window 1 update letter in June 2017,² we recognised that there are several external pressures on the delivery of interconnector projects, and we extended the period of delay that we would not deem material by a further year, extending the backstop date to the end of 2023. We confirmed that we "*may revisit our IPA analysis*" in respect of any

¹ Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors - https://www.ofgem.gov.uk/sites/default/files/docs/2015/07/ipa_decision_july_2015_0.pdf

² Cap and floor regime: An update on 'Window 1' interconnector projects - https://www.ofgem.gov.uk/system/files/docs/2017/06/w1_update_letter_-_19jun2017_-_final.pdf

project failing to connect within this timeframe. We reiterated this position in a further update letter published in October 2018.³

The Q1 2020 quarterly report submitted to Ofgem by FLL stated that the expected connection date for FAB Link was 2025; this was confirmed through further bilateral discussion. Furthermore, we have been made aware through ongoing discussions with FLL that the expected commissioning date has slipped further.

This connection date is beyond the end of 2023, and we therefore considered there to be a material delay to the project, in line with our policy and conditions set out above. This meant that the project's IPA conditions had not been met. We therefore decided to use our discretion, under the IPA conditions, to revisit aspects of the needs case for FAB Link to confirm whether the project continues to be in consumers' interests and should continue to be granted a cap and floor regime in principle. Specifically, we decided to update our socio-economic modelling analysis, as this was the aspect of the needs case most directly impacted by project delays.

Approach to the needs case review

At IPA stage, our decision to award FLL a cap and floor regime in principle was based on an assessment of the potential impacts of FAB Link on electricity markets and cross-border trade, on the GB electricity network, and in line with long-term strategic and sustainability indicators. Specifically, we noted the complementarity of the French energy mix, primarily nuclear electricity generation, with the thermal and wind-based GB market. In addition, we noted that the project could potentially enable the connection of future tidal resources around Alderney.

For the purposes of the current needs case review we decided that it was appropriate to focus on the impact of FAB Link on electricity markets and cross-border trade using updated socio-economic modelling. For consistency we considered it important that the modelling methodology should mirror, as far as possible, the modelling performed in the IPA analysis. This means:

- *Using scenarios and sensitivities to test a range of possible future outcomes* - We decided to use three updated scenarios that represent Base, Low, and High interconnector value cases consistent with the approach to scenarios at the IPA stage. We also chose to construct these scenarios, as far as possible, from publicly available data; specifically the National Grid Future Energy Scenarios (FES), the

³ Cap and floor regime: An update on the timing of the Final Project Assessment (FPA) for 'Window 1' interconnector projects - https://www.ofgem.gov.uk/system/files/docs/2018/10/w1_fpa_update_letter.pdf

European Network Transmission System Operators for Electricity (ENTSO-E) Ten Year Network Development Plan (TYNDP) scenarios, and BEIS fuel and carbon price forecasts. We consulted with FLL, and other parties as relevant, and subsequently created an additional Net Zero scenario, which reflected the latest decarbonisation ambitions in connecting countries, and a new Rebalanced Ambition sensitivity to test a future where decarbonisation targets are more balanced between GB and the connecting countries.

- *Using the latest available project information* – We used the latest cost information submitted by FLL as the basis of inputs into the model. FLL submitted two costs for the interconnector cable procurement, and the lower cost was used for the needs case assessment. For both costs and other project information, such as the connection date, we have consulted with FLL. For other projects in the interconnector baseline, we have used the latest information available to us.

For detailed information on the modelling approach please see the independent CBA reports from AFRY Management Consulting (then Pöyry) for our cap and floor Window 1⁴ and Window 2⁵ modelling.

In addition to updating our socio-economic modelling exercise, we also notified FLL that we were open to receiving additional evidence, such as an independent CBA or other analysis, to support the needs case for FAB Link, if available. In January 2021, FLL submitted to Ofgem a modelling study, performed by Baringa, to evaluate the socio-economic impacts of FAB Link. The results of that study have been taken in consideration in our decision-making.

Following our planned assessment of socio-economic modelling studies, we considered it appropriate to also consider the wider impacts of FAB Link as part of this needs case re-assessment. We therefore invited FLL to submit supporting information to help evaluate the impacts of FAB Link that are not captured in our modelling exercise. In April 2021, FLL provided a qualitative analysis of wider impacts of FAB Link, incorporating decarbonisation, system flexibility and security of supply. We have considered this supporting evidence in our decision.

⁴ Near-term interconnector cost-benefit analysis: independent report (Cap & Floor Window 1) - https://www.ofgem.gov.uk/sites/default/files/docs/2015/03/791_ic_cba_independentreport_final.pdf

⁵ Near-term interconnector cost-benefit analysis: independent report (Cap & Floor Window 2) - https://www.ofgem.gov.uk/system/files/docs/2018/01/near-term_interconnector_cost_and_benefit_analysis_-_independent_report_.pdf

Result of the needs case review

Ofgem AFRY welfare modelling

Our updated modelling suggests that since the IPA there has been a shift in the likely allocation of socio-economic welfare benefits for FAB Link.

At the IPA stage, FAB Link was modelled to deliver positive GB consumer welfare in all scenarios (Table 1), whilst producer welfare was negative across all scenarios, and interconnector welfare was positive in the Base case only. The resultant total welfare, which is a summation of all other welfare figures, was positive in all scenarios, though only marginally so in the Low case.

Table 1: FAB Link's social welfare impacts on GB, taken from the IPA consultation document of March 2015 (£m NPV, 2013 prices).

Welfare category	Base Case	Low Case	High Case
GB consumer welfare	2640	366	3609
GB producer welfare	-1762	-306	-2226
GB interconnector welfare	145	-43	-38
GB total welfare*	750	17	1345

**GB welfare is the sum of consumer, producer, and interconnector welfare.*

Interpretation of our updated modelling for FAB Link (Table 2) is more nuanced due to the inclusion of the additional Net Zero scenario and a Rebalanced Ambition sensitivity, which fall outside the linear progression of Low, Base, and High case scenarios of interconnector value.

In our updated modelling, there has been a shift in welfare allocation. GB consumer welfare is positive only in the Net Zero scenario, whilst GB producer welfare is positive in all modelled scenarios. Total welfare, which includes both the GB and French electricity markets, is positive in all scenarios except the Low case, whilst GB total welfare is positive in the High and Net Zero scenarios, neutral for the Base case, and negative for the Low and Rebalanced Ambition scenarios.

Table 2: Updated economic welfare analysis for FAB Link (£m NPV, 2020 prices).

Welfare category	Base Case	Low Case	High Case	Rebalanced Ambition	Net Zero
GB consumer welfare	-1,261	-480	-1,550	-98	262
GB producer welfare	1,729	703	2,187	320	380
GB interconnector welfare	-468	-609	-564	-709	-288
GB total welfare	0	-386	73	-487	354
Total welfare*	488	-263	954	191	1,331

*Total welfare is the sum of GB welfare and the equivalent welfare figure in France.

The changes in welfare allocation since the IPA are driven largely by changes in the energy landscape, as reflected in the updated scenarios. The level of ambition with respect to decarbonisation is greatly increased, most notably in GB with our legally binding net-zero target. To meet this target, our updated scenarios deploy significant growth in renewable energy generation, alongside new technologies such as carbon capture and storage. As renewable penetration begins to dominate the GB energy mix in our modelling, the wholesale price of electricity in GB falls. This means that FAB Link is modelled now predominantly as an export cable on day-ahead timeframes for Low, Base, and High interconnector scenarios. When interconnectors export from GB, this increases GB wholesale prices, which explains the shift in allocation of modelled welfare benefits from consumers to producers. For the Net Zero scenario and Rebalanced Ambition sensitivity, the import/export mix is modelled as more balanced by 2040, with a period of net import balance for Net Zero in 2035, due to the accelerated penetration of renewables in GB, before balancing in 2040.

The AFRY socio-economic market modelling outputs included a projection of FAB Link's revenues up to and including 2040. FAB Link's modelled revenues stay at or below the floor in most scenarios in 2025 and 2030, due to converging price differentials in these years. In later years, revenue streams are more nuanced and exceed the cap in the Net Zero case (2035 only) and the Base and High cases (2040). Overall, the updated economic case for FAB Link is not as strong as at the IPA stage and suggests an increased risk of consumer exposure at the floor.

It is our view that the current approach taken to socio-economic modelling is likely to underplay the socio-economic needs case of future interconnection. For example, this modelling does not consider revenue or welfare gained from intra-day trading over which we might expect additional volatility in flow direction as intermittent generation further

penetrates the capacity mix. We have explored a number of these limitations in our recent interconnector policy review workstream 2 consultation document.⁶

FLL Baringa welfare modelling

In addition to the AFRY modelling procured by Ofgem, FLL commissioned their own socio-economic analysis, performed by Baringa under the Baringa Reference Case scenario. This scenario represents Baringa’s central view on the evolution of European power markets. Under this scenario, European governments continue to pursue a balanced energy policy, attempting to meet the sometimes-competing demands of security of supply, affordability, and decarbonisation. An additional High Interconnection sensitivity was added to the Baringa Reference Case, which modelled a scenario in which a further 1.4GW of generic interconnection on the GB-France border is brought forward from 2045 to January 2025. This modelling shows significant welfare benefits from the FAB Link project, as shown in Table 3 below.

Table 3: Economic welfare analysis for FAB Link modelled by Baringa (€m NPV, 2020 prices).

Welfare distribution (€m, 2020)		FAB Reference Case (excluding FAB Capex and Opex)	FAB Sensitivity Case (excluding FAB Capex and Opex)
GB	Net producer welfare	-4,336	-4,067
	Net consumer welfare	5,705	5,536
	Net interconnector welfare	247	28
	Net social welfare	1,616	1,497
France	Net producer welfare	4,333	3,626
	Net consumer welfare	-2,727	-2,308
	Net interconnector welfare	565	-649
	Net social welfare	1,041	669
Rest of Europe	Net producer welfare	3,292	3,829
	Net consumer welfare	-2,941	-3,680
	Net interconnector welfare	-1,011	-829
	Net social welfare	-661	-680
Total Socio-economic welfare: EU27	Net social welfare	380	-11
Total Socio-economic welfare: EU27 + GB	Net social welfare	1,996	1,486
Total Socio-economic welfare: GB + FR	Net social welfare	2,657	2,166

⁶ Interconnector policy review: Working paper for Workstream 2 – socio-economic modelling - [Interconnector policy review: Working paper for Workstream 2 – socio-economic modelling | Ofgem](#)

The modelling methodology used by Baringa was broadly similar to that used by AFRY, however we note that there were some differences, including contrasting scenario data and baseline interconnector capacity assumptions, aspects of which are outlined below.

With respect to scenario data, Baringa total GB generation capacity by 2050 is forecast to reach 150GW, whereas the most conservative FES reaches 224GW. Of that generation capacity, Baringa assume significantly less renewable penetration than the FES, and the Baringa Reference Case does not meet net-zero emissions by 2050.

Interconnector capacity assumptions in the Baringa model are based on an economic test of the profitability of each project on each border over the assumed project lifetime. Where the price differentials, and resulting revenue, for a new interconnector are sufficiently large, they take this as a market signal for new investment. On the GB-France border, the Baringa Reference Case assumes the addition of 1GW of interconnection in 2021, 1GW in 2022, 1.4GW in 2025, and 1.4GW in 2045, which is brought forward to 2025 in their high interconnection scenario. This contrasts with the AFRY modelling whereby we assume that all cap and floor projects go ahead by 2025, meaning that total interconnector capacities are greater in all modelled years. Due to a revenue cannibalisation effect, we would thereby expect interconnector welfare to be greater under the Baringa assumptions.

The result of these differences is a significantly different set of wholesale price differentials, which are the main driver of socio-economic welfare. The Baringa scenarios output GB-France wholesale price differentials that remain stable at about €5/MWh, over the modelled period. This contrasts with the AFRY wholesale prices, which show GB prices falling beneath French prices from ca. 2028 across scenarios. This is driven by the high renewable buildout in GB, which is not as prevalent in the Baringa scenarios. The result of these differentials is GB-France interconnectors that predominantly import to GB on day-ahead timeframes in the Baringa modelling, having the effect of lowering GB prices, which is positive for GB consumers.

Wider impacts

It is important to recognise the limitations of any modelling approaches and to use resulting conclusions proportionally in our decision-making process. The modelling approach used in this needs case reassessment considers socio-economic effects, which are primarily driven by variations in wholesale prices between connecting countries. We think that the role of interconnection in the energy system is changing and that it is appropriate to consider the wider impacts of interconnection, specifically decarbonisation, flexibility, and system operability.

In their supporting submissions FLL highlighted a BEIS⁷ study performed by Aurora to show that increased interconnection results in decreased carbon levels. FLL also highlighted the TYNDP 2020⁸ analysis showing societal monetary gain from an interconnector-driven reduction in carbon emissions.

Furthermore, FLL pointed to another BEIS report⁹ to highlight the positive effect of interconnection on system flexibility and ultimately the annual total system cost. The study modelled 4 scenarios (high demand, low demand, high demand + Hydrogen, low demand + Hydrogen). In all modelled scenarios, interconnection reduces the annual system cost, with a greater degree of interconnection resulting in a greater saving.

Our view on the needs case for FAB Link

On the balance of evidence discussed above, it is our view that FAB Link will likely continue to have an overall positive impact on current and future consumers in GB. On this basis we have decided that the project should retain its cap and floor regime in principle.

We consulted with FLL on the outputs of the socio-economic modelling exercise and our interpretation of the results presented in this document prior to taking this decision. We consider this as a sufficient level of consultation given FLL's circumstances, however we will continue to consider consultation requirements for similar decisions in the future, based on project-specific context.

Decision to extend the connection date requirement

As already set out in this letter, the IPA conditions, upon which FLL's cap and floor regime in principle is conditional, state that we consider delays to the project's connection date beyond the end of 2023 as material. FLL is unable to meet this condition and that is the basis upon which we decided to revisit the needs case for the project.

The purpose of this IPA condition is to incentivise the timely delivery, and therefore the realisation of benefits, of interconnectors under the cap and floor regime. We consider that such an incentive remains appropriate. As FLL is unable to satisfy the existing IPA condition, it is therefore appropriate to amend this condition related to the duration of delay to the project's connection date that we would deem material.

At present there remains significant uncertainty over the next steps for FAB Link to progress towards operation, most notably due to uncertainty on the regulatory pathway in

⁷ [The impact of interconnectors on decarbonisation](#)

⁸ [TYNDP 2020 Project Collection](#)

⁹ [Modelling-2050-Electricity-System-Analysis](#)

France. We are therefore currently unable to make an informed decision on the deliverability of the project nor an appropriate extension to the connection date IPA condition.

This decision is therefore conditional on FLL presenting to us, by the end of July 2022, a clear pathway to progress regulatory approvals in France. As a minimum, we expect to see evidence of direct engagement between the FAB project developers and CRE, and of next steps towards seeking the necessary regulatory approvals in France.

Our decision and next steps

We have decided to conditionally approve the needs case re-assessment for the FAB Link interconnector. This means that FLL retains its cap and floor regime in principle for the FAB Link interconnector project, as awarded in our IPA decision of 2015. The current decision is conditional on FLL presenting to us, by the end of July 2022, a clear pathway to progress regulatory approvals in France. If such progress is not demonstrated, then we may need to reanalyse FAB Link to determine whether it remains in the interest of present and future consumers.

After July, updated project timelines will enable us to make an informed decision on the deliverability of the project and on any amendments that may be required to the conditions set out in our 2015 IPA decision for FLL.

If you have any questions on the content of this letter, please contact Alexander Graham at cap.floor@ofgem.gov.uk.

Kind regards,



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