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Dear Emmanouela,

Cap and Floor Regime for Future Subsea Interconnectors

Thank you for allowing us the opportunity to comment on the proposed changes to the regulatory regime for interconnectors. We welcome Ofgem's decision to review and revise its approach to interconnectors, and we broadly support the "cap and floor" approach and the principles underlying it. One of the interesting features of the cap and floor concept is that by suitable selection of the design parameters it is possible to replicate virtually every other approach to interconnector regulation. As a result these design parameters take on great importance, and so we welcome Ofgem's decision to consult on these in some detail.

In formulating our response we have been guided by a number of key principles:

i) The regulatory regime should seek to incentivise construction of the optimum interconnection capacity between markets. Since many of the benefits of interconnector trading are not captured in congestion rents, any mechanism for rewarding interconnector developers which relies solely on congestion rents as an indicator of interconnector viability will tend to result in too little interconnection being built. As the integration of European markets progresses this is likely to be an increasing issue.

ii) The transmission sector in Britain, as elsewhere, is faced with the need to dramatically increase the rate at which it invests – from a few £100m pa a few years ago, to billions of pounds a year over the next decade. Being able to attract funding from equity investors and debt providers is, therefore, crucial. Regardless of its other merits, a regulatory regime that is not attractive to investors – or which only attracts investment from incumbent transmission owners – will be a failure as few if any new interconnectors will be built, and the benefits of interconnection for consumers will be lost.

iii) We fully support Ofgem's intention to structure the new interconnector regulatory regime so as to open up the sector to new entrants. We believe that this is essential for the full development of interconnectors as it will help to bring in innovative new concepts, to bring in the capital required, and to reduce the cost of capital – as has already happened with OFTOs. We have a number of suggestions regarding how to achieve this.

iv) We were pleased to see that, whilst the development of the process for cap/floor regulatory approvals is understandably at an earlier stage of development than the regime itself, Ofgem understands the importance to

project developers of a suitably structured process. We were also pleased by the decision in principle to treat projects on a case-by-case basis: we believe this to be essential given the variation in arrangements at the other end of the interconnector. Of particular importance to developers will be to ensure that the regulatory approvals needed for their project – including approval of the key financial parameters – will be in place before they incur the very significant development expenses associated with new interconnector projects.

Our response to your detailed questions is attached

We would appreciate an opportunity to meet, set out our position in more detail and discuss any questions you may have.

Yours sincerely,

Sean Kelly
Director

Question 3.1: Do you agree with principles of the regulated regime we have identified?

The consultation paper sets out Ofgem's five principles:

i) Developers should be exposed to the market's valuation of interconnector capacity.
ii) Consumers should be protected from excessive developer returns.
iii) Developer returns should be commensurate with their risks.
iv) Regulatory treatment of developers should be coordinated between Ofgem and the regulator at the other end of the link.
v) Regulatory treatment should allow third party developers

We will deal with each of these in turn:

Developers should be exposed to the market's valuation of interconnector capacity

We presume that by "market valuation" you mean the revenue that the interconnector can obtain through application (probably by third parties) of the congestion management mechanisms allowed under the forthcoming Network Code[1].

Whilst this may be a reasonable approach for NEMO, and we can understand the advantages of such an arrangement in terms of ensuring that developers are incentivised to bring forward the projects least likely to require financial support, we believe it may lead to suboptimal results for consumers in the long run.

In particular:

i) This approach is likely to incentivise developers to pursue links with a lower capacity than might be optimal in order to ensure an adequate level of congestion.

ii) This approach may lead to projects that show a net socio-economic benefit but which lack sufficient congestion revenues not being pursued – with the ultimate result being higher costs to consumers. In paragraph 6.2 you note that this may become an increasingly serious problem as more interconnectors are built and price differences between countries are eroded ("as the extent of interconnection increases between GB and other markets, prices may converge and it may be appropriate to evolve towards a fully regulated approach..."). However we think it likely that such phenomenon will appear in the shorter term and an appropriate policy framework should be in place to deal with such situations.

iii) This approach relies on there being competition between interconnector owners/developers. If this is not present (e.g. because of legal constraints at the non-British end of the link) then the monopoly developer may well be incentivised to not progress beyond a single connection between the

[1] We note that this revenue stream might not be a true reflection of market value given that it arises from the application of congestion management mechanisms that will ultimately be chosen to meet European public-policy ends rather than for the discovery of market value.

countries in question, given that a second project would adversely affect the congestion rents being extracted by the first link.

Our overall conclusion is that, as a regulatory principle, maximising the benefits for electricity consumers should take precedence over exposing interconnector developers to congestion rents.

Furthermore, if interconnector developers are to have an exposure to congestion rents then we would advise that:

i) Ofgem should have the flexibility to set cap and floor value that are close together, reducing interconnector owners' exposure to congestion rents in cases where this is necessary to avoid incentives to under-invest.

ii) Ofgem should consider how to ensure competition in situations where legal constraints at the non-British end may otherwise prevent it.

Consumers should be protected from the cost implications of excessive returns or market power that might accrue to interconnector owners

We agree that interconnector owners should not be allowed to exploit the market power that may result from owning scarce international transmission capacity. In addition to the direct negative impact on consumers we also note that such owners would be incentivised not to invest in further capacity themselves (as this would reduce their congestion rents) and to seek to block or delay investment by others[2].

Developers should be able to earn returns that are commensurate with the levels of risk they are exposed to under the regulatory framework

We agree with the principle that returns should be commensurate with risk – and with the implication that the existence of regulatory limits on returns (and other regulatory risks and limitations) justifies the introduction of a floor on returns or income.

We also agree that a cap & floor regime will reduce investors' cost of capital relative to purely merchant projects, and so allow economically viable projects that would not otherwise have been built to go ahead. This will help to meet governments' long term strategic goals.

Regulatory treatment of developers should be coordinated between NRAs at either end of the shared asset

We agree that the NRAs at either end of a project need to act in a co-ordinated manner. As you point out these approaches may not be identical: for instance each country might have its own position on appropriate levels of risk and return and might set different caps and floors, or one country may chose to provide a fixed rate of return, or it could treat its side of the interconnector as an integral part of the transmission system rather than as a British-style stand-alone asset.

[2] For instance this might be achieved by proposing their own project that would eliminate the need for additional capacity, but then not actively pursuing it.

Regulatory treatment should allow third party developers and should be impartial and unbiased between TSOs and non-TSO[3] developers, existing and future developers

We agree with this principle. As we have already noted above, it is important that there is real completion between interconnector developers if the regime's aims are to be achieved. Furthermore, given the very high levels of capital expenditure being envisaged in non-interconnector transmission over the next 10-15 years, incumbent transmission companies may not be in position to fund the construction of new interconnectors – making it essential that "non-TSO developers" are accommodated.

An important implication of this principle is that the regulatory regime should accommodate the financing methods that are likely to be used by new entrants, which may differ from the approaches that would traditionally have been employed by the incumbent interconnector owners. We discuss this further in our responses to subsequent questions.

Opening up the development of interconnectors to more parties means that the regulatory regime needs to include a mechanism to distinguish between rival projects in situations where both proposals are viable in isolation, but the combination of both proposals is not viable. Whilst in some cases it may be possible to allow several rival projects to go through the full development process with the first project to start construction ultimately winning and deterring the others, this will not always be desirable since:

i) The project that wins may have lower benefits for consumers (e.g. it may be a smaller link, especially if this smaller size allows more rapid development).

ii) Considerable financial and human resources may be wasted on developing projects that don't go ahead. Furthermore permitting authorities may not be willing the countenance granting permits for two rival projects, especially where, as is often the case, cables run through environmentally protected areas.

iii) Developers – particularly new entrants – may be reluctant to come forward if they feel that they may be required to invest heavily in project development only for the project to ultimately be built by an incumbent. Indeed the threat of competitive projects may be used by incumbents to deter new entrants.

We think that to deal with this Ofgem should apply the following principles:

i) Where two rival projects will provide different levels of public benefit the one that gives the greater benefit should be granted a higher floor (and, in exchange, a lower cap), thus becoming more like a rate-of-return regulated project and less like a merchant project. We assume this is what is meant when you say that "the risks borne by customers would be proportionate to the benefits".

ii) The point in time at which the cap and floor are granted should be relatively early in the development process before development costs have reached high levels and new entrants are deterred.

[3] Given that Ofgem has indicated that all interconnector licence holders will be TSOs (as defined by European legislation) we assume that the term "non-TSO developers" is, in the British context, a reference to companies that are not affiliated with NETSO or the incumbent onshore TOs.

The combination of an early decision on granting a cap/floor and a high floor for projects with a strong public benefit should ensure that the developers of such projects are not deterred and that consumers benefit from the construction of the links.

Question 3.2: Are there any other principles that should underpin the new regime?

As we noted above, it is important that the regulatory regime should accommodate the financing methods that are likely to be used by new entrants. In particular we believe that most new entrants will seek to use project finance, building on the success of other project financed offshore transmission systems[4].

We believe that an additional principle should be to ensure that the regulatory regime allows interconnectors to be "bankable", i.e. an interconnector can raise the bulk (75-85%) of the funds it requires through non-recourse debt.

We note the statement in paragraph 4.7 of the consultation paper that "a very low floor, below the cost of debt, could still provide sufficient certainty to allow developers to access cheaper debt". If this is intended to suggest that the bankability and economics of a project would be only marginally impacted by a low floor then we think that this is unlikely to be correct. We expect that lenders will limit the borrowings of the interconnector to a level at which the debt service and repayment costs are around 80% of the floor revenue less operating costs. Reducing the floor will then reduce the amount of debt that can be raised, and the amount of equity required will increase correspondingly. The fall in the proportion of (cheaper) debt and the increase in (more expensive) equity will sharply increase the project's cost of capital (WACC) and hence the income level required for viability. In many cases the project will then cease to be financeable and will not be built.

Question 4.1: Is the cap and floor model the right approach to meet the principles of the new regulated investment regime for sub-sea interconnection? Are there any alternative approaches that we should be considering?

The cap and floor model is attractive because of its flexibility – by adjusting the parameters it can be tuned to provide merchant links, rate of return regulation, various incentivised arrangements, and hybrids between these structures. However the other side of this advantage is that the attractiveness of the model to developers is critically dependent on the implementation details and the parameters applied. We discuss this further in our response to subsequent questions.

Overall we believe that the cap and floor model is suitable, providing the parameters applied will allow new links to be project financed. We note paragraph 4.5 of the consultation paper which states that Ofgem "envisage setting the cap and floor at such levels that [they are only] triggered in exceptional circumstances". We believe that this is unrealistic, even before consideration is given to bankability, as

[4] Examples are the OFTOs in Britain, the Britain – Isle of Man interconnector and the Neptune and Trans-Bay HVDC links in America.

interconnectors have historically shown dramatic year-to-year volatility in the amount of congestion rents they have been able to capture.

An alternative approach that could also be considered would be for Ofgem to select companies to develop the British side of each of the interconnectors described in the ENTSO-E investment plan. The method of selecting and remunerating developers could be based on the successful OFTO model.

As noted in our response to Question 3.1 above, this alternative approach may be more desirable in certain circumstances – such as where competition between developers would otherwise be impossible.

Question 4.2: Do you see benefits in introducing a cap and floor regime with profit sharing arrangements? Do you have views on how a profit sharing approach could work?

A major advantage of profit sharing arrangements is that on projects with relatively high floors – and consequently low caps – they allow the interconnector owner to be incentivised to ensure high operational availability and efficiency of use. Without profit sharing arrangements it is possible that such projects will in many years hit either the floor or the cap, limiting the effectiveness of the incentive provided by the cap & floor concept and possibly requiring additional explicit incentives.

A simple percentage arrangement – i.e. the interconnector owner is exposed to a fixed percentage of the difference between their actual income and the "target" income represented by the midpoint between cap and floor – has the advantage of simplicity. However the particular characteristics of a project may be such that more complex approaches – where the sharing percentage varies as a function of income level – are appropriate in particular cases.

Question 4.3: Do you agree with the potential risks of the new regime identified? Are there any other risks or issues we should be taking into account?

The risks identified in the consultation paper are:

i) Incentives to (for instance) maintain the link's availability may cease if the cap or floor is reached and there is little realistic chance of returning to the intermediate area.

ii) Along with the disappearance of incentives referred to above, perverse incentives may emerge – for instance maintenance work that would otherwise not need to be undertaken for several years might be accelerated so that the costs and outages are incurred in a year where returns are already at a cap or floor.

As set out elsewhere in this consultation paper there are approaches to mitigate these risks: for instance profit sharing arrangements reduce the chance of hitting the cap or floor, applying the cap/floor to revenue rather than profit avoids perverse incentives in opex scheduling, and explicit incentives on availability can be used where the cap and floor are set very close to each other.

In our view the largest single risk of the cap/floor regime is that if the floor is set at too low a value then projects may become unfinanceable and the benefits they would bring – ultimately as a lower cost of electricity to consumers – are not realised.

Question 5.1: Do you agree with the proposed design parameters of the cap and floor mechanism? Are there any other parameters we should be taking into account when designing the cap and floor mechanism?

The list of 11 design parameters suggested appears comprehensive, and we have no additional parameters to suggest.

Question 5.2: Do you have a preference for the options presented under each parameter? Do you have a preferred combination or straw man proposal for a cap and floor design?

The various aspects of the design of the cap/floor mechanism are quite interrelated, so that choices in one aspect may impact on others. In responding to this question we have been guided in particular by the requirements of project financability. This will require a sufficient cap/floor duration and arrangements that reduce the level of risks (particularly uncontrollable risks) to a reasonable level. We present here our generic comments on each of the options presented, but note that project-specific financing requirements may need to take precedence over these generic issues.

Our "straw man" proposal would be to draw as much as possible on the efficient financial structure which has been successfully applied by OFTOs. To do this we suggest placing a cap and floor on project income, with the cap and floor being relatively close-together and equidistant from the onshore allowed rate of return. The cap and floor would be annually applied based on the discrete approach (or a combined cumulative/discrete approach – see below). The cap and floor would not vary over time or be subject to regular reviews, but might be altered in certain exceptional circumstances. A profit sharing mechanism is our preferred means of avoiding the perverse incentives that may result if the income is frequently at the cap or floor.[5]

Duration of cap/floor

There is a choice between aligning the cap/floor with (i) the time period over which debt would be repaid and equity returns would be calculated, or (ii) the life of the asset, which under RIIO-T is to be 45 years[6].

We believe that the best approach would be to align the cap/floor duration with the duration of the financing period[7] specific to each individual project, up to the 45 year

[5] Please note that elements of our proposal are intended to be taken together as a package. We are not necessarily supporting any single element in isolation.

[6] The RIIO-T regulatory regime is to be applied to a set of assets that will include offshore HVDC links of the type used for interconnectors between Britain and other countries.

[7] In general this will be the period over which the debt is expected to be repaid, plus an additional period (the "tail") so that lenders know that debt repayments can be rescheduled without the final debt

regulatory asset life allowed under RIIO-T. The key advantage of this approach is that it allows for a variety of efficient and innovative financing mechanisms, including arrangements where debt is repaid over a longer period (e.g. 40-45 years). Such longer financing periods could allow a project's floor income level to be reduced (so there is less likelihood of consumers needing the support the project), and/or they could allow projects with good socio-economic benefits that would otherwise not have gone ahead to be financed.

Cap/floor on revenues v cap/floor on returns

Applying the cap/floor to revenue is simpler, whilst a cap/floor on IRR is better at reducing investor's risks at the expense of being more complex and reducing incentives to control operating costs. A cap on accounting profits is likely to be the most complex system given that accounting profits, unlike the cash-flow based IRR, are dependent on the exact approach taken in applying financial reporting standards.

In principle we prefer revenue based caps, as they result in the interconnector owner, rather than the consumer, being financially responsible for risks that should be within their control[8]. If, however, it is necessary for interconnectors to take substantial market risks (which are beyond their control) then an approach based on IRR caps and floors could be a viable means of reducing overall risks to a tolerable level.

How often is the cap/floor applied

We believe that annually applying the cap/floor would not lead to a particular burden on the regulator, especially if the cap is based primarily on revenue and little examination of operating costs is required. Annual application of the cap/floor would also reduce risks for investors and lenders and seems consistent with both regulatory reporting requirements and with the annual activity envisaged for onshore transmission owners under RIIO-T.

Cumulative v discrete treatment of each cap/floor application period

The cumulative treatment, presumably in conjunction with an IRR-based cap/floor[9] should reduce the risk that the project returns move outside the cap or floor range, particularly in later years.

However the discrete approach would appear to be better from the point of view of insuring project bankability, as it will guarantee that a certain level of revenue is always available to service debt. This might not be the case with the cumulative approach if a "bad year" were to follow an extended period of good performance.

For this reason we prefer the discrete approach, or an approach where both a cumulative cap/floor and a discrete cap/floor are applied: the cumulative cap and floor are used so that early excess revenue will be "paid back" if project performance

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repayments falling outside the period covered by the cap/floor. For some financial structures equity return periods may also need to be taken into account.

[8] Various uncontrollable costs such as business rates, losses, cost associated with Network Code requirement for "firmness" or tariffs on interconnector flows such as BSUoS should be pass-though.

[9] The IRR-based approach seems better suited to analysis of an extended period of performance thanks to its inclusion of the time value of money.

subsequently improves dramatically (and vice versa), while the discrete cap/floor (which takes precedence) ensures financability.

Cap/floor resets

In order to ensure that the project is financeable the regulatory risk needs to be suitably managed, and we believe that this can best be achieved through ex-ante establishment of fixed cap and floor levels. In this context we note the success of the OFTO regime where the regulatory parameters are set ex-ante for an extended period.

As with OFTOs, however, the interconnector regime should include “exceptional events” and “income adjusting events” in order to protect investors from extreme circumstances beyond their control.

It is not clear from the consultation paper exactly when the ex-ante determination of the cap and floor would be undertaken. We would recommend that the cap and floor should be set at a relatively early stage in the project development process as otherwise it will be difficult to justify speculative investment of project development costs given the ultimately modest returns available from interconnector projects.

Cap/floor fixed or variable over time

There is an argument that the cap and floor should converge over time, so that the project eventually transitions to a rate of return regulation model. This would reduce our concern that interconnector owners might be incentivised to maintain congestion. It would also seem more consistent with EU legislation and the preferences of the European Commission.

In contrast the financing needs of the project may require a different sculpting of cap/floor levels, reflecting the changing levels of debt service and debt repayment over time.

Given the contradictory pressures described above, we are inclined to prefer the simplicity of a flat cap/floor profile.

How is rate of return calculated?

Rate of return can be calculated on the basis of accounting profits and balance sheet assets, or from cashflows. Cashflows are simpler to measure, as they are not subject to complex financial reporting rules, and cashflow-based returns are more closely aligned with the aims of investors.

For these reasons we prefer that rate of return calculations are based on cashflow.

Wide v narrow gap between cap and floor

Our preference is for a narrow gap between cap and floor since a narrow gap implies a higher floor (and a lower cap), and – as we have explained earlier – a higher floor will allow the project to be financed at a lower cost of capital. This will enable the construction of viable projects that would not go ahead with a wide cap/floor, thus maximising benefits to the consumer.

Whilst we note the advantages of a wide range (e.g. the probability of hitting the cap and floor are reduced), such advantages will be purely academic if the project cannot be financed and so isn't built.

Symmetric v asymmetric cap/floor

The cap/floor may be "symmetric" (where the project's expected rate of return lies exactly in the middle between the returns associated with the cap and those associated with the floor) or "asymmetric" (where the cap is more likely to be hit than the floor or vice versa). We prefer the symmetric approach, which seems to be fairer, but we note that in practice determining a project's expected return will be difficult as the value will depend on numerous inputs and assumptions, along with a detailed economic analysis.

Our recommendation would be to set the cap and floor as follows:

i) The floor should be set by reference to the financing requirements of the project's debt and equity providers[10].

ii) The cap is then set as far above the rate of return granted to onshore TOs for similar assets as the floor has been set below the onshore TO's return[11]. (Symmetry principle).

Sharing of revenues

As noted previously we support the sharing of revenue variations between customers and the interconnector owner when revenues are in the range between cap and floor.

This approach makes it less likely that the cap and floor will be hit, potentially creating perverse incentives. It also means less volatility of returns for investors and greater alignment of interests between investors and consumers.

We recommend that, once cap and floor values have been chosen, an appropriate sharing factor then be calculated to ensure that the cap and floor are only occasionally reached given the expected level of revenue volatility.

Question 5.3: Do you think additional incentives should be introduced to encourage desirable outcomes under the regime?

Rather than adding explicit performance or availability incentives to the regime our preferred approach to avoiding the issues that may occur when revenues hit the cap or floor is to use the revenue sharing approach set out above.

Only in cases where the cap and floor are very close would it be appropriate to provide an explicit availability incentive. Whilst the OFTO incentive is an example of

[10] For instance the floor could be set to meet banks' usual debt service cover ratio requirements given a debt/equity ratio based on the levels seen for efficient financing of transmission infrastructure (e.g. OFTOs)

[11] So if the financing of the project required an income equating to 5% return, and the onshore TO's received 6%, the cap would be set to 7%.

this it is very complex and extremely harsh (e.g. the OFTO can lose more than 6 months of revenue for a 3 month outage). Whilst this may be justified when transmission unavailability has a severe impact on a connected generator, it is excessive for interconnection and it seems appropriate to cap the impact of any interconnector availability incentive at a much lower level.

Question 6.1: Do you agree with Ofgem's intention to use the cap and floor regime for future sub-sea DC interconnection in GB?

We agree with Ofgem's intention to use the cap and floor regime for future sub-sea HVDC links, although we note the importance of the detailed choice of parameters – and these parameters need to be chosen with due consideration of the impact on a project's bankability.

Question 6.2: Are there any key issues we should be taking into account when developing the process for evaluating new projects?

We view the key issues to be addressed in developing the project evaluation process as follows:

i) Timing. It is very important for project developers that they can obtain certainty regarding the regulatory treatment of their project before they move to the phase of development where they must commit significant sums to, for instance, engineering design, seabed surveys, land purchase and EIA. As a result the regulatory evaluation process should be undertaken at an early stage with approvals that – if necessary – include conditions (e.g. maximum capital cost). The cap/floor will be granted providing these conditions are satisfied once development is complete.

ii) It is important to recognise that, because of the differences between the economic justifications for projects, along with the differences between the regulatory jurisdictions at the non-British end of the interconnectors, there will not be a single "one size fits all" solution. We fully agree, therefore, with Ofgem's proposal to "discuss the cap and floor levels on a case by case basis, in order to ensure that the specifics of each project are taken into account."

iii) Any process for evaluating projects will need to address situations where there are two or more competing projects. We support the concept set out in the consultation paper that where there are two projects with of "the same size and route" they would each receive caps and floors set at the same revenue level – an arrangement that would have the affect of incentivising the cheaper project. In addition, and perhaps this is implied by the consultation paper[12], where two competing project have different public benefits[13] the project with the greater benefit should be rewarded with a higher floor return, incentivising its construction.

[12] Paragraph 6.2: a competing project "would not get a higher absolute cap (unless other benefits justified this)".

[13] For instance one project may be larger, be capable of earlier delivery or offer other benefits such as the connection of renewable generation.

iv) In cases where it is difficult for interconnector developers to demonstrate potential income levels to investors using analytical tools alone, it may be appropriate for some of the capacity to be sold to traders prior to the start of construction in order to “market test” the demand for capacity. This will also help to demonstrate the need for the project to regulators in cases where project evaluation has proved difficult.