

Regulation of transmission connecting non-GB generation to the GB electricity transmission system

Consultation

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Overview:

This document is a consultation on the licensing framework and potential regulatory arrangements for transmission assets connecting generation from outside of Great Britain (GB) to the GB electricity transmission system. It explains the principles for the development of transmission assets across the system and sets out options for the regulatory treatment of these assets. It also explores some of the issues and practical considerations associated with these connections.

We seek input from stakeholders on the specific questions set out in this consultation – in particular on options for regulatory treatment and related issues. This consultation will inform our view on the treatment of non-GB connections, including possible GB-Ireland connections, and will feed into our wider work as part of the Integrated Transmission Planning and Regulation (ITPR) project.

Context

The UK government is currently considering the options for trading renewable energy with other EU Member States as set out in the EU Renewable Energy Directive¹. There are however a number of issues to be resolved before renewables trading can be realised and non-GB generation can contribute to UK 2020 targets². In this context, a Memorandum of Understanding (MoU) has been signed between the UK and Irish governments in order to explore the possibility of renewables trading between the two countries. This would see Irish renewable generation connecting directly to the GB transmission network. Decisions remain to be made by the UK Government about whether trading could be used to help meet 2020 targets and how it would work, including detail around the appropriate renewable support mechanism for non-GB generation. However, progress is being made towards concluding an Inter Governmental Agreement with Ireland in 2014.

Associated documents

Ofgem – Integrated Transmission Planning and Regulation (ITPR) Project: Emerging Thinking, June 2013

<https://www.ofgem.gov.uk/ofgem-publications/52728/itpremergingthinkingconsultation.pdf>

Renewable Energy Directive

<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=Oj:L:2009:140:0016:0062:en:PDF>

DECC – Call for Evidence on Renewables Trading, April 2012

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42929/5140-call-for-evidence-on-renewable-energy-trading.pdf

DECC – Response to Call for Evidence, June 2013

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/210404/130627_Response_to_Call_for_Evidence_on_Renewable_Energy_Trading_Final.pdf

The Promotion of the Use of Energy from Renewable Sources Regulations 2011

http://www.legislation.gov.uk/uksi/2011/243/pdfs/uksi_20110243_en.pdf

¹ Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

² The UK Government has set legally binding targets for renewable energy. More information can be found at: <https://www.gov.uk/government/organisations/department-of-energy-climate-change>

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Executive Summary

The exclusive connection of non-GB renewable electricity generation directly to the GB transmission system is unprecedented. Developing the treatment and arrangements for such projects poses new regulatory and operational challenges.

Ofgem's role is to establish how the GB elements of transmission connecting non-GB generation ("non-GB connections") could be regulated, including licensing and operation. In particular we must ensure that the regulatory approach is in the interest of existing and future GB consumers. This includes ensuring consumers are not exposed to undue costs or risks, encouraging efficient development of the electricity networks, and supporting investment in generation needed to decarbonise our supplies and support security of supply in an efficient manner. In addition, we consider that as far as possible there should be a level playing field for generators, regardless of location, including for non-GB generation.

Under GB legislation, non-GB connections can only be awarded an interconnector licence – and not an onshore or offshore transmission licence. In determining the licensing and regulation that should apply, the arrangements in the non-GB state³ hosting the generation also need to be taken into account.

There are a number of different ways that non-GB connections could be designed and configured. These configurations could take the form of point-to-point connections or could be developed to incorporate different elements of network use – including market-to-market interconnection or GB network reinforcement. The regulatory arrangements should support flexibility in configuration where benefits can be identified and are in the interest of consumers.

This consultation sets out the following options for the regulatory treatment of non-GB connections:

- application of an interconnector licence with exemption(s) (if exemptions are sought and granted);
- application of a regulated Cap and Floor model, similar to the Cap and Floor that is currently being developed for project NEMO; and
- development of a regulated revenue model with a fixed revenue.

These options range from what is available now to options that we could potentially be applied to non-GB connections. Should there be merit in exploring options that would require legislative change, government would need to take this forward and this may therefore take longer to develop.

³ "State" refers to any country, EU Member State or territory

In addition to the challenges around asset configuration, licensing across states and applying the most appropriate overall regulatory approach, there are a number of other related issues to be considered. We seek input from stakeholders on these issues, including:

- the way in which capacity on the interconnector is allocated when generation is connected – how capacity could be reserved, how access for renewables could be ensured and how capacity could be shared;
- the interactions with the GB network – implications of the interconnector being treated as a GB network user and being operated independently of the GB system; and
- how costs are recovered, including for any associated GB network reinforcement and how costs are appropriately allocated between the GB and non-GB network users.

We are mindful of tight timescales for non-GB generation projects that could seek, subject to decisions from government, to contribute to the UK's 2020 renewables targets. We are therefore seeking to understand how different options could support potential Irish and other possible non-GB connections under the current legislative framework. We also envisage that we may need to take forward a solution for this type of project ahead of other options we may take forward under the Integrated Transmission Planning and Regulation (ITPR) project. This would be subject to wider UK government decisions to support such projects, including the current investigation of renewables trading with Ireland, investors' timescales and engagement with the relevant authorities in non-GB states.

Subject to government plans for Irish-UK renewables trading, and ongoing discussions with NRAs, we aim to provide further clarity in spring 2014 on the appropriate regulatory route(s) for non-GB connections for projects that Government is looking to support to contribute to 2020 renewables targets. The progress of options for non-GB connections is clearly linked to our wider work on approaches to future interconnection investment under ITPR. Further detail and timing of this work is set out in the ITPR open letter also published today. As part of that work we will also consider the approach for potential non-GB connections that could come forward beyond the 2020 timeframe.

1. Introduction

Chapter Summary

This chapter sets out the factors driving the potential connection of electricity generators from outside of GB directly to the GB system. It explains the context, purpose and structure of this document and the next steps we plan to take.

Question box

Question 1: What are the key milestones for the delivery of non-GB generation and connections pre-2020? How does the decision on the regulation and licensing of non-GB connection fit into this timeline?

Question 2: From the perspective of a non-GB project developer, how does the decision on the regulatory arrangements interact with Government decisions on renewable support (such as the award of a Contract for Difference (CfD)⁴)?

Question 3: Are there other factors that Ofgem should be aware of relating to the timing and development of non-GB connections?

Electricity transmission to support renewable energy trading

1.1. The EU Renewable Energy Directive⁵ sets out national targets for the use of energy from renewable sources that each Member State is required to achieve by 2020.⁶ The Directive also provides for 'flexibility mechanisms' that allow Member States to trade renewable energy as a means of minimising the costs of meeting renewables targets or addressing any anticipated surplus or deficit in reaching national targets.

1.2. The UK government is exploring the possibility of trading renewable energy with other EU Member States. Following a call for evidence, the Department for Energy and Climate Change (DECC) indicated in June 2013 that it considers proposals for renewables trading hold promise and it is developing its final preferred policy position. DECC is focusing on physical trading, involving the export of electricity generated from renewable sources in one state directly into the electricity system of another. Electricity transmission infrastructure would be needed to support this.

⁴ <https://www.gov.uk/government/news/new-energy-infrastructure-investment-to-fuel-recovery>

⁵ Directive 2009/28/EC on the promotion of the use of energy from renewable sources: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=Oj:L:2009:140:0016:0062:en:PDF>

⁶ Transposed into GB law by Statutory Instrument: The Promotion of the Use of Energy from Renewable Sources Regulations 2011, SI No. 243/2011. This SI also transposes Articles 3(2), 13(5), 14 and 16(4) of Directive. http://www.legislation.gov.uk/ukxi/2011/243/pdfs/ukxi_20110243_en.pdf

1.3. Ofgem's role in relation to this work is to establish how the GB elements of transmission connecting non-GB generation, hereinafter referred to as "non-GB connections" may be licensed, regulated and operated. We note however that this forms only part of the overall approach for non-GB connections and renewables trading with decisions also to be taken by Government and relevant National Regulatory Authorities (NRA). Our analysis has focussed on the treatment of these projects within our legislative framework.

Transmission to support trading between Ireland and the UK

1.4. In this context, in January 2013 the UK and Irish governments signed a Memorandum of Understanding (MoU) to evaluate the case for trading renewables between the two countries. The trading would involve the physical export of electricity from renewable sources from Ireland to the UK⁷. The MoU work programme covers 4 areas covering:

- costs and benefits of renewable energy trading for the UK and Ireland;
- renewable and low carbon support mechanisms;
- connecting electricity lines; and
- what an Inter-Governmental Agreement might cover.

1.5. Depending on the outcome and the analysis of the work programme under the MoU, an Inter-Governmental Agreement to trade could be signed in 2014.

1.6. Both Ofgem and the Commission for Energy Regulation in Ireland (the Irish regulator, CER), as the national bodies responsible for regulating electricity transmission, have a role in contributing to the workstream on connecting electricity lines. Ofgem is not involved directly in the other workstreams. These are being led and progressed by the UK and Irish governments.

1.7. This consultation responds to the need to look closely at the licensing and regulatory arrangements for non-GB connections – focussing on the arrangements that are available now but also setting out arrangements that could be considered in the future (some of which would require legislative change and could only be taken forward by government). We are working closely with the CER on our role here.

⁷ Text of the MoU can be found here: <https://www.gov.uk/government/news/energy-trading-creates-opportunities-for-ireland-uk-davey-rabbitte>

The treatment of non-GB connections in the future

1.8. The need to look at non-GB connections now is driven by the possibility of renewables trading and possible government support for non-GB generation in advance of 2020 (including GB-Ireland connections). However, we are aware of the possibility that there may be other direct and exclusively connected generators⁸ from other states in the future, driven by similar European or national objectives to decarbonise or trade cross-border. We are open to meeting with potential project developers to discuss their projects and would welcome information on the timelines involved for making investment decisions.

1.9. The ITPR project is taking a holistic look at the regulation and development of the whole GB transmission system, onshore, offshore and cross-border. In parallel to this consultation we have also published an ITPR open letter which sets out our work plan for looking at the future approach to planning and delivery of new interconnector investment in GB. Our consideration of non-GB connections will also feed into our wider work on ITPR.

This document

1.10. This document explores and seeks views on how licensing and regulation could potentially apply to non-GB connections. With regard to these connections, it sets out:

- principles of transmission regulation (chapter 2);
- legal classification and licensing (chapter 3);
- asset configurations (chapter 4);
- Existing and potential regulatory options (chapter 5); and
- Other regulatory issues (chapter 6).

1.11. We present these areas for open discussion and consideration by stakeholders. We welcome input from stakeholders on how the existing arrangements would apply to non-GB connections, any potential challenges this creates and the additional possible options presented. We seek views on the application of these potential options to non-GB connections generally and in relation

⁸ Non-GB generators connected via a single point to point line, and exclusively used for the export of electricity from those generators onto the GB transmission system. – “direct and exclusive connections”.

to the treatment of projects government is looking to support in advance of 2020 (for example GB-Ireland connections).

1.12. The existing and possible future options presented in this document represent a range of regulatory options for non-GB connections. Should the UK government decide to pursue renewables trading, we expect non-GB generation could contribute to 2020 renewables targets. We are mindful of the timing implications of implementing possible options and have therefore started by considering the options that could be progressed without significant change to the existing arrangements. We have then gone on to consider possible options that could be applied subject to further development and decisions on their appropriate application, to non-GB connections. Finally, should there be merit in exploring additional options that would require legislative change, government would be required to take this forward. We seek input from stakeholders to help us understand the merits of the different regulatory routes and the implications these may have for project milestones and progress to 2020.

Our next steps

1.13. Over the coming months, we will consider further the application of the existing and potential future options for non-GB connections – as presented in this paper. This will include an assessment of what can be achieved under the current legislative framework and will feed into the work being carried out under the MoU on UK-Irish renewables trading. Subject to overall progress under the MoU, and more widely, government progress on renewables trading, we aim to provide further clarity on the appropriate regulatory route for non-GB connections in spring 2014. This will focus on the arrangements for projects the government is looking to support in advance of 2020 and includes GB-Irish trading projects).

1.14. Should the UK government decide to explore import of generation from other states as part of a longer-term strategy (ie post-2020), we will need to consider our approach alongside our system planning and delivery work under ITPR. We may, for example, determine that a different approach better serves the interest of consumers in the long-term.

2. Principles of transmission regulation

Chapter Summary

This chapter sets out the principles we consider relevant for decisions on the regulatory treatment of non-GB connections. We will take these principles into account when assessing the merits of the existing and potential options that are presented in this document.

Question box

Question 4: Do you agree these are appropriate principles to take into account in relation to non-GB connections?

Question 5: Are there other principles that we should also we consider?

2.1. Ofgem’s work includes regulating the GB activities of companies that build, own and operate our energy networks. In the context of electricity transmission, activities on parts of the network onshore, offshore and cross-border are subject to different regulatory arrangements.⁹ They are designed to operate most effectively in different contexts. The Authority’s principal objective is to protect the interests of existing and future consumers in relation to electricity conveyed by distribution or transmission systems.¹⁰ The interests of consumers are their interests taken as a whole, including their interests in the reduction of greenhouse gases, in the security of the supply of electricity to them, and the fulfilment by the Authority, when carrying out its functions as designated regulatory authority for GB, of specified objectives set out in EU legislation.¹¹ We consider the following principles useful in assessing options for regulatory treatment of non-GB connections in the context of our duties.

2.2. Please note that the discussion of principles of regulation in this chapter is not intended to be an exhaustive discussion of Ofgem’s duties and factors to be considered when exercising its functions.

⁹ A full description of the different arrangements for electricity transmission can be found in appendix 3 of our Emerging Thinking on the ITPR project. <https://www.ofgem.gov.uk/ofgem-publications/52728/itpremergingthinkingconsultation.pdf>

¹⁰ A full description of Ofgem’s powers and duties can be found on our website: <https://www.ofgem.gov.uk/publications-and-updates/powers-and-duties-gema>

¹¹ Predominantly the ‘Third Package’ - a package of legislation for electricity and gas markets adopted by the European Commission in 2007. More information is available on the Commission’s website: http://ec.europa.eu/energy/gas_electricity/legislation/third_legislative_package_en.htm

Protecting consumers from exposure to undue costs or risks

2.3. The regulatory framework should seek to allocate costs and risks to industry parties in a way that mitigates them most effectively and drives efficient decisions. GB consumers should only face costs or risks where the potential benefit to them is clear.

2.4. The GB onshore and offshore electricity transmission network arrangements ensure that the costs and risks of developing those transmission networks are appropriately shared between network companies, generators and GB consumers. When a generator applies to connect to the transmission system, it may be required to provide a pre-commissioning user commitment.¹² User commitment arrangements place liabilities on users in order to financially secure the cost of local and wider investment works triggered. The arrangements protect network users, and ultimately consumers in case the project is cancelled and the assets cannot be reused. Following connection, generation owners face transmission charges that reflect the cost of local reinforcements and wider network investment needed to connect them to the network.¹³

2.5. There are also mechanisms whereby Ofgem applies specific scrutiny to investments where significant costs and/or stranding risks will be borne by GB consumers. Onshore, this is achieved through scrutiny of the transmission owners' (TOs) business plans as part of price control reviews and the Strategic Wider Works process¹⁴. Offshore, we are introducing a gateway process whereby Ofgem will provide its view on the case for undertaking additional investment in offshore transmission assets where this would provide wider network benefit.

2.6. These mechanisms ensure that even where consumers pay charges that underwrite the costs of network assets their actual exposure is limited to the efficient level. If GB consumers provide any underwriting of non-GB connections, we would expect mechanisms to be put in place to ensure that appropriate costs, benefits and risks are allocated to the relevant non-GB generators.

Promoting efficient capital and operational network costs

2.7. It is important that the regulatory framework also provides effective incentives to those constructing, owning and operating network assets to make cost-effective decisions over time.

¹² User commitment arrangements differ between generators already connected (post-commissioning) and those expected to connect to the network (pre-commissioning)

¹³ It should be noted however that interconnectors are not subject to TNUoS (transmission network use of system) charges.

¹⁴ The TIRG and TII processes were designed to support renewable generation triggered reinforcement works. Where investment could not be adequately forecasted ahead of setting the price controls, mechanisms such as the Strategic Wider Works process assess costs for particular projects.

2.8. For onshore transmission owners, we set allowed costs in the RIIO price control following scrutiny of TO business plans. The new RIIO framework¹⁵ also provides strong incentives for TOs to seek efficiencies in how they deliver transmission investment. Under the offshore regime, where offshore generators choose to develop the transmission assets for their projects¹⁶ they are incentivised to minimise costs, which will be reflected back on them in the future as transmission charges. We also undertake a cost assessment to inform the amount of money they receive from the OFTO when they transfer the completed assets. We will also undertake a cost assessment to inform the setting of a regulated floor under the Cap and Floor regime for the NEMO interconnector.¹⁷

Promoting efficient and coordinated development of the network

2.9. Regulatory arrangements also promote efficient and coordinated development of the network. We have been reviewing the arrangements for the GB network in this respect through our ITPR project. Significant investment is being made in the electricity network to support changes in the generation mix as the electricity system decarbonises. New sources of generation and in some cases their intermittency, are driving network expansion and increased complexity in its operation. Given the scale of change, it is vital that network development is coordinated and efficient.

2.10. For the onshore and offshore networks, the National Electricity Transmission System Operator (NETSO) has a key role to ensure that connections are made in a timely manner whilst also taking into account wider system needs and the technical rules underpinning the planning of transmission infrastructure. The TOs also have a key role in the connection offer process, providing the NETSO with the preferred option for connections to their network. For assets offshore, we have been considering the framework for network expansion given the increased potential for coordination between offshore connections to provide for more economic and efficient network development.

2.11. For non-GB connections, the physical location of the transmission assets and their cross-border nature mean that in principle they could provide an efficient way to support market integration as well as connecting non-GB generation.

¹⁵ <https://www.ofgem.gov.uk/network-regulation-%e2%80%93-riio-model/riio-t1-price-control>

¹⁶ 'Generator build' is a model for the construction of offshore transmission assets. For more information please see the offshore webpage:

<https://www.ofgem.gov.uk/electricity/transmission-networks/offshore-transmission>

¹⁷ NEMO consultation document page on website:

<https://www.ofgem.gov.uk/electricity/transmission-networks/electricity-interconnectors>

Supporting investment in low carbon electricity generation

2.12. Ofgem’s principal objective to protect existing and future consumers includes consumer interest around security of supply and greenhouse gas reductions. In this context, we consider it is important that the regulatory framework ensures that new generation, including low carbon sources can be connected to the network in a timely manner and that network regulation supports generators’ investment decisions appropriately. Integration between national markets, supported through network infrastructure between transmission systems, can also support security of supply.

3. Legal classification and licensing

Chapter Summary

This chapter sets out our initial interpretation of the licensing arrangements that are applicable to non-GB connections.

Question box

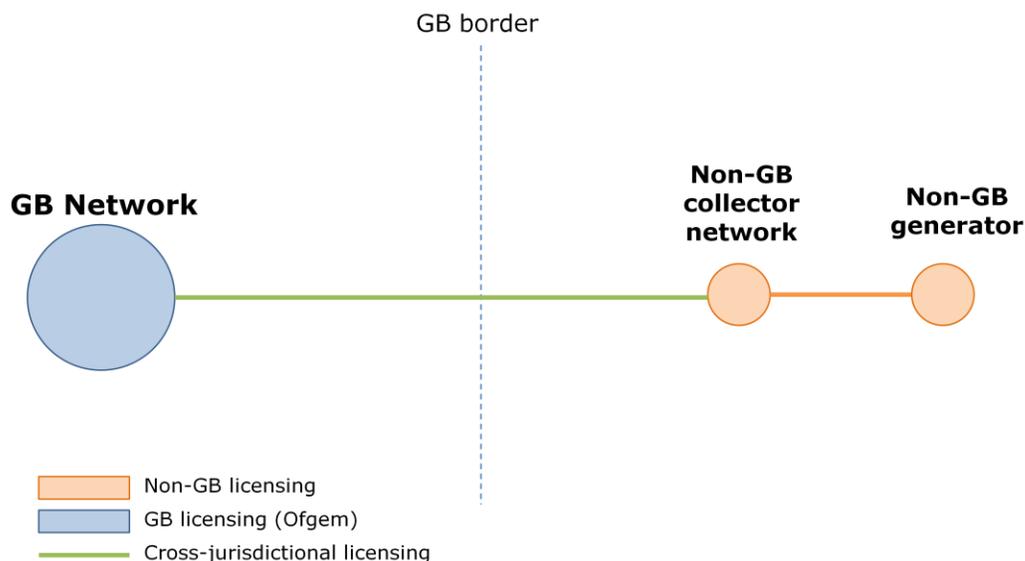
Question 6: We invite views on our interpretation of the different asset definitions/boundaries and interpretation of the legislation provided in this chapter. What implications does this have for the regulatory options presented in the next chapter?

Question 7: We are interested in views from stakeholders on what impact alternative interpretations would have on potential projects? Please provide detail where possible.

Question 8: We seek input from stakeholders on how generation licensing for non-GB generation could ensure appropriate safeguards for the export of renewables to the GB transmission system?

3.1. We highlight in the following chapter that there are different potential asset configurations for non-GB connections. For the purposes of licensing arrangements in GB, the assets can typically be broken down into separate parts, and a licence may be required in respect of activity involving each of the separate parts. The licensing and regulation of operating an asset that crosses the jurisdictional boundary and connects to the GB transmission system is the focus of this document.

Figure 3.1 Licensable activities



GB Law

3.2. Under section 4(3E) of the Electricity Act 1989 (the Act), an interconnector is defined as:

“so much of an electrical line or other electrical plant” as –

- (a) is situated at a place within the jurisdiction of Great Britain; and*
- (b) subsists wholly or primarily for the purposes of the conveyance of electricity (whether in both directions or in only one) between Great Britain and a place within the jurisdiction of another country or territory.”*

3.3. This includes a line that connects the GB system directly to the non-GB generator, or to the main transmission system of another state. We therefore consider that the interconnector licence is the appropriate licence in GB for a non-GB connection.¹⁸

3.4. Under the Act, interconnection is a separately licensable activity from other transmission activities. Parties participating in the cross-border transmission of electricity cannot therefore be awarded a transmission licence other than the interconnector licence and it is not possible to apply the onshore or offshore regulatory arrangements (either through the current RIIO price control for TOs, or the OFTO regime) to interconnectors, including non-GB connections.

EU Law

3.5. Interconnection in the EU is subject to requirements set out in relevant European legislation. In particular Regulation (EC) No. 714/2009 (the Electricity Regulation) and Directive 2009/72/EC (the Electricity Directive), part of the Third Package legislation, contain provisions applicable to interconnectors.¹⁹

3.6. Under Article 2(1) of the Electricity Regulation, interconnection is defined as follows:

“a transmission line which crosses or spans a border between Member States and which connects the national transmission systems of the Member States”.

¹⁸ Whilst we recognise that from a functional perspective these assets may look more like offshore transmission owner (OFTO) assets, such assets would not fall within the definition of offshore transmission as set out in the Act.

¹⁹ Note that these provisions form part of the GB Electricity interconnector licence.

3.7. In addition, the Electricity Regulation imposes requirements on interconnectors with respect to general congestion management (Article 16) and in particular the use of interconnector revenues (Article 16(6)).

3.8. The Regulation also provides a route by which new interconnectors may be exempted from the requirements of Article 16(6) of the Electricity Regulation along with the following provisions of the Electricity Directive:

- Article 9: Unbundling of transmission systems and transmission system operators;
- Article 32: Third Party Access;
- Article 37(6) and (10): Approval of Tariffs.

3.9. Article 17 of the Electricity Regulation sets out the conditions for the award of exemptions from these provisions.

3.10. Our preliminary view is that assets connecting non-GB generation to the GB electricity transmission system fall within the definition of interconnection in the Electricity Regulation.²⁰ This would mean that, where relevant, the provisions of the Electricity Regulation (and the Electricity Directive) that apply to interconnection – including the possibility to apply for an exemption – also apply to these assets.

3.11. It is important to note, however, that whilst Ofgem has a decision making role on the application of these provisions for non-GB connections, the input and decision of the NRA of the other Member State involved is also critical. This is true for decisions regarding all cross-border assets including non-GB connections. For example, a decision on the request for an exemption would require Ofgem to work jointly with the corresponding NRA, with any exemption decision ultimately subject to approval by the European Commission.

3.12. We welcome views on the interpretation of the legislation provided in this consultation and its implication for the regulatory options presented in the next chapter.

3.13. We also seek views on the potential outcome where further consideration of these issues, for example where discussion with the European Commission leads to the conclusion that direct and exclusive connections do not fall under the definition of interconnection under the Electricity Regulation. We are interested in views from

²⁰ This paragraph addresses connections where the other “state” concerned is an EU Member State/EEA state. The treatment of connections with non-EU/EEA states would need to be considered on a case by case basis.

stakeholders on what effect this would have on the project? Please provide detail where possible.

Arrangements in other states

3.14. Typically, and for conventional market-to-market interconnectors, the award of an interconnector licence in GB is mirrored by the award of a licence by the relevant licensing authority (typically the NRA) of the non-GB state to which it is connected. This results in the interconnector owner/operator holding a separate licence for the activity of interconnection on both sides of the link. This cross-jurisdictional arrangement requires regulatory decisions from the NRAs at either end of the link. This typically includes decisions regarding interconnector operation, access and charging.

3.15. The licensing arrangements in the non-GB states (including the state to which the interconnector is connected) are outside Ofgem's remit, but may need to be taken into account in consideration of the licensing of activity within Ofgem's jurisdiction. Licensing and regulatory arrangements can differ between states – for example, interconnection in mainland Europe is typically developed as part of the regulated monopoly of the domestic transmission system operator (TSO); this is not the case in GB. Regulation of non-GB connections, as with other interconnectors, will therefore require close engagement between NRAs. Prospective project developers will also need to engage with the regulatory authorities in both states.

3.16. Under the Third Package NRAs are required to work together and cooperate in regard to cross-border issues.²¹ Ofgem has already started discussions with the Irish NRA – CER, around potential non-GB connections.

Assets wholly located in the non-GB state

3.17. The decision as to how generation and any potential associated 'collector network'²² located outside of GB should be licensed sits with the appropriate regulator in that state. However, we recognise that their treatment may need to reflect some GB system requirements, for example around system safety and operation, given their direct connection to the GB system. Furthermore, where renewables subsidies are awarded from the UK government, some oversight will be required. Ofgem will therefore work with relevant NRAs in the treatment of such assets.

²¹ Article 37 of the Electricity Directive.

²² This term is used to describe the assets linking the generation assets together and connect them to the last onshore substation before transmission through the cross-border transmission line (the asset we have described as the "non-GB connection" in this consultation). These assets could be low or high voltage lines.

3.18. Through their licence, non-GB generators should be subject to certain standards and requirements to ensure the safe operation of the transmission system. It follows that such standards should, where possible, be equivalent to those placed on GB generators connected to the same system. They should also reflect requirements for safe operation in the non-GB state. As projects develop, we will ensure close engagement with the relevant NRA on the treatment of generators.

4. Asset configuration

Chapter Summary

This chapter sets out possible configurations for non-GB connections. This includes configurations that could incorporate the transmission of electricity for other purposes, such as market integration or for GB network flows. These possibilities are set out in this chapter to help inform the options that are presented in this document.

Question box

Question 9: Are non-GB connections deliverable by 2020 via direct and exclusive connections?

Question 10: What are the technology challenges of delivering direct and exclusive connections? What are the technology challenges of delivering multi-purpose assets?

Question 11: What are the potential benefits and challenges of enabling flexibility for a non-GB connection to also be used for a) market-to-market trading; and b) GB network reinforcement? What are the implications for investment certainty?

4.1. Engagement with stakeholders to date has highlighted that non-GB connections could develop under a range of asset configurations – from more basic direct and exclusive connections to different degrees of coordination and asset use. The overall capacity of non-GB generation that is supported, along with the location and size of the transmission assets will drive the optimal overall transmission configuration. We also recognise that these configurations may be project specific. The benefit of different asset configuration options, and the extent to which these are in the interest of consumers, need to be taken into account when considering the arrangements for non-GB connections.

4.2. We have therefore set out in this chapter a sample of asset configurations that could form part of non-GB connections (we recognise that these decisions are subject to further discussion with relevant parties, including project developers, Governments, NRAs, TOs and NETSOs). We recognise the challenges presented by more complicated asset configuration options and therefore seek input from stakeholders on the information set out in this chapter, and implications for the existing and potential regulatory options set out in chapter 5. We also note that the analysis in this chapter is a simplification of potential asset configurations. Further detail on the practical challenges of different asset configurations is therefore welcome.

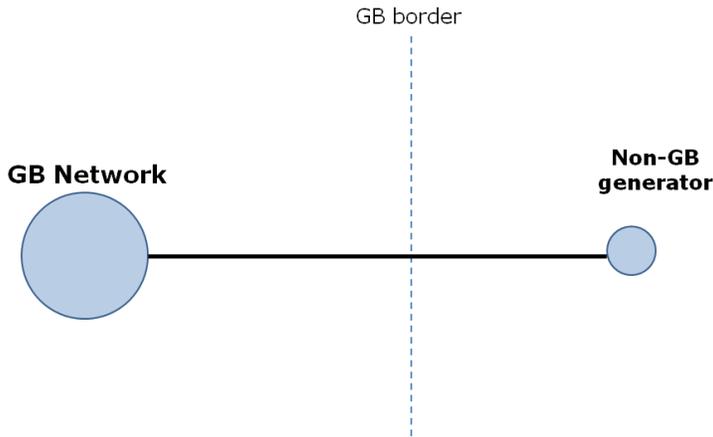
Direct and exclusive connection

4.3. In its simplest form, a connection from a non-GB generator (or group of generators) to the GB transmission system would connect directly to GB, ie via a single point to point line, and exclusively be used for the export of electricity from



those generators onto the GB transmission system – “direct and exclusive connections”.

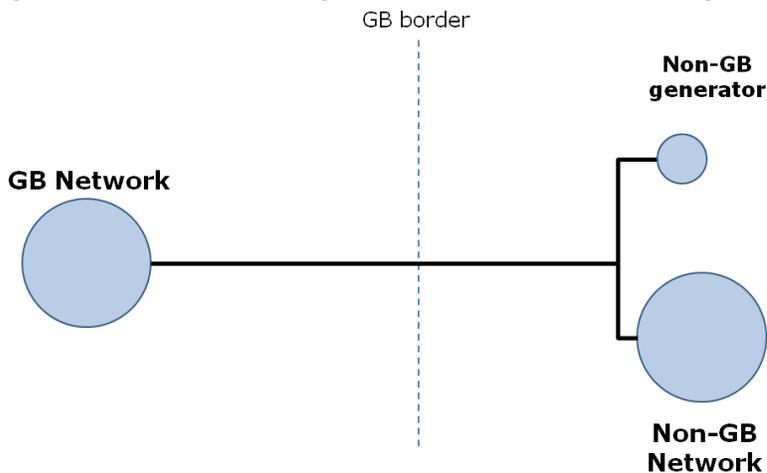
Figure 4.1: Basic asset configuration²³



Potential for market to market integration

4.4. Discussions to date have highlighted that these direct and exclusive connections could also potentially fulfil other purposes. Such purposes could include providing a connection between the electricity markets of the respective states, ie transporting electricity between the main GB network and the main transmission network in the state where the generator is located (“market-to-market interconnection”).

Figure 4.2: Asset configuration with market integration



²³ For simplicity the diagrams in this chapter do not include collector network(s).

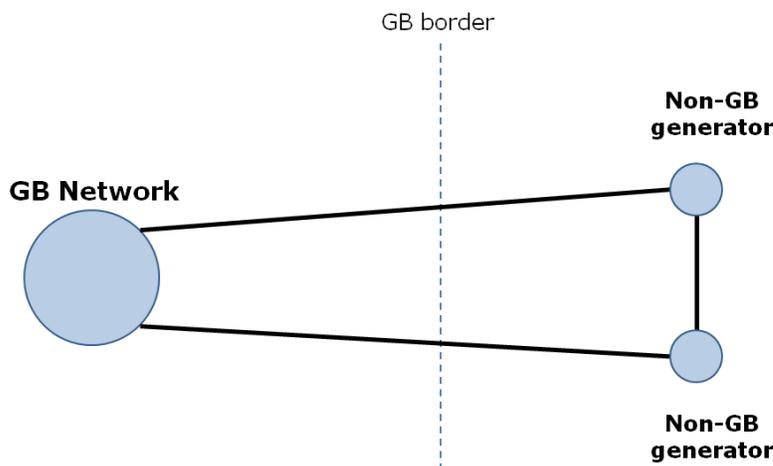
4.5. Greater cross-border capacity could provide benefits to the states at both ends of the link. It has the potential to enhance security of supply, increase competition and provide additional system services (such as cross-border balancing and reserve). Overall, this could also align with European energy policy goals and contribute towards the completion of the single EU Energy Market.

4.6. One possible scenario is that the asset configuration could begin as a basic direct and exclusive connection but then evolve into one with market integration at some point in the future if a link is constructed to the non-GB. This could require some investment in the capability of the original cross border transmission assets beyond that needed just for the direct and exclusive connection of the non-GB generation to facilitate the later market integration. We are interested in the technical and operational challenges of this approach.

Potential for GB network flows

4.7. The impact that non-GB connections will have on the GB transmission system will depend on the size and location of the generation capacity and connection. The import of significant electricity from renewables onto the GB system would signal onshore reinforcements creating costs for the NETSO, TOs and ultimately GB consumers. Effectively reinforcing the GB transmission system through the coordination of non-GB connections could provide a possible route for electricity to flow across internal GB system boundaries (similar to a GB bootstrap). This would only be the case where the GB NETSO had access to the non-GB connection assets or network of assets.

Figure 4.3: Asset configuration with GB network flows



4.8. Linking one or more non-GB connections to provide a route for GB network flows could bring GB network benefits. It is possible that more costly or time-consuming network build or upgrades elsewhere on the GB network could be avoided. There could also be potential benefits to the non-GB generators. Allowing for additional GB network flows could allow for the connection of additional

generation capacity in shorter time frames and/or with reduced network charges, reflecting the best interests of consumers.

4.9. The development of such a configuration is likely to require some investment in the capability of the non-GB connection beyond that which would be required if they were connecting through a simple point-to-point connection to the GB network. In addition, the non-GB generation projects may be phased over time, with one of the non-GB generator projects being constructed before the other. In such a scenario there may be a need for some anticipatory investment in the transmission assets constructed for the first project as, at the point of investment decision, there may not be a firm commitment from the second non-GB generator project that it will be going ahead.

Exploring the benefits of different configurations

4.10. There will be alternative options for configuration of non-GB connections, depending on the project. We have highlighted what we have identified to date as the main features, however different or more complex configurations may be possible. As noted above, configurations may also not be fixed from the outset – for example market integration could exist before a generator connection or vice versa.

4.11. We consider it important that the benefits of different configurations are explored as non-GB connections are developed. There may or may not be benefits of more complex configurations for specific projects and this would need to be evaluated. For example, the impacts on consumers of configurations changing at a future date, such as introducing market integration where a basic asset configuration already exists, would need to be considered.

4.12. Where there are significant potential benefits from a particular configuration, it is clear that the regulatory and licensing arrangements should seek to support this flexibility.

4.13. If regulatory arrangements are to provide flexibility in use, we recognise that this introduces additional challenges. These include complexity in coordinated design, operation, access and in ensuring there is enough certainty so that projects are financeable and can progress. We have reflected on these challenges in the following chapters that discuss the existing and potential regulatory options and issues.

4.14. Finally, whilst we recognise that there may be potential benefits of coordination of non-GB connections, we also acknowledge that there are difficulties in achieving coordination in the short-term (detail on specific areas is provided in Chapter 6). This suggests there may be a need to consider scenarios that involve direct and exclusive connections in the short-term, particularly for projects looking to deliver by 2020. We would welcome stakeholders' views on the benefits and challenges of more complex asset configurations.

5. Existing and potential regulatory options for application to non-GB connections

Chapter Summary

This chapter sets out existing and potential regulatory options for non-GB generation connections. These options range from the existing route of an interconnector licence with exemption(s) to options that would provide consumer underwriting and could take more time to implement. We seek views from stakeholders, including project developers, on the merit of the interconnector licence with exemption(s) option and seek views on the application of the other potential options set out. We seek input on the impact these options would have on projects from an investment, operational and timing perspective.

Question box

Question 12: Is the interconnector licence with exemptions(s), as currently available, a feasible option for non-GB connections? If not, what are the key challenges of applying this route to non-GB connections? How could these challenges be addressed?

Question 13: Under this route would an exemption (under Article 17 of the Electricity Regulation) be required? If so, which provisions would you seek exemption from? How would your project be affected if exemptions could not be applied for?

Question 14: Given that an application of the regulated Cap and Floor or fixed revenue model would take time to implement for non-GB connections, should these still be explored further?

Question 15: If so, what are the main challenges and benefits of applying a regulated Cap and Floor or fixed revenue model to non-GB connections? How could these be addressed?

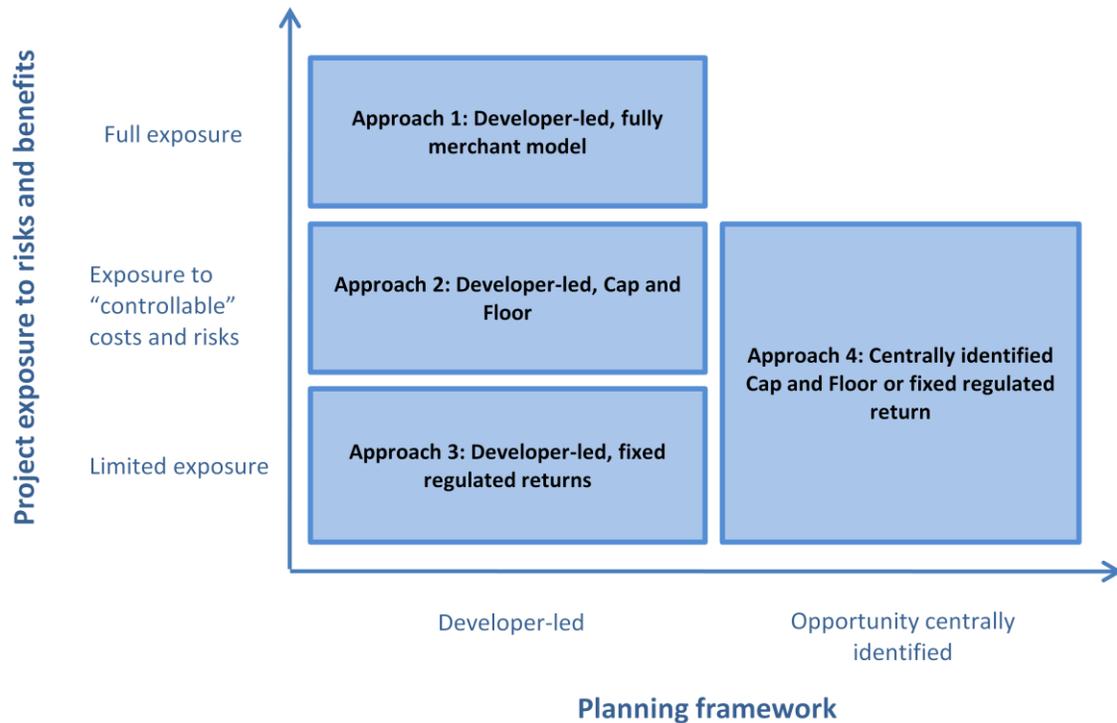
5.1. As explained in chapter 3, cross-border transmission assets connecting non-GB renewable generation directly to the GB national electricity transmission system can be licensed as interconnectors under the Act.

5.2. In our ITPR Emerging Thinking consultation (June 2013)²⁴ we presented initial analysis on regulatory approaches to interconnector investment, focusing on the

²⁴ <https://www.ofgem.gov.uk/ofgem-publications/52728/itpremergingthinkingconsultation.pdf>

identification of the investment opportunity and the allocation of risks between developers and consumers in delivering that investment. A summary of the spectrum of options we presented in our emerging thinking is set out in Figure 5.1 below.

Figure 5.1: Approaches for delivery of future interconnection as set out in ITPR Emerging Thinking consultation (June 2013)



5.3. At present, the interconnector licence with exemption(s) is available to new interconnector projects and therefore to non-GB connections (we note however that this would be subject to an exemption being granted). We have therefore set out below a possible application of this model, to help think through any potential challenges that this may present for non-GB connections. This is an initial analysis and we welcome views from stakeholders to help to fully understand the details of this approach.

5.4. We have also set out potential options that could, subject to future decisions on their appropriate application, be applied to non-GB connections. Whilst we are still assessing the merits of these different approaches as part of our work under ITPR,

we have set out below initial analysis on their potential application to non-GB connections. These options are based on those presented in the ITPR Emerging Thinking consultation and highlighted in Figure 5.1. We also seek views on the potential application of these options to non-GB connections, in particular given the potential timeframes for implementation. Finally, we welcome views on whether there is merit in exploring additional options that could require legislative change, which would be subject to government decision.

5.5. Our ITPR Emerging Thinking consultation acknowledged that decisions for the regulatory treatment of non-GB connections may need to be progressed ahead of our wider work on ITPR. We aim to provide further clarity in spring 2014 on the appropriate regulatory route for non-GB connections for projects that Government are looking to support to contribute to 2020 renewables targets. This will be alongside a consultation on our thinking on the appropriate regime for future investment in interconnection more generally. Details of our wider work on interconnector investment through ITPR are set out in the ITPR open letter also published today.

Interconnector licence with exemption (no consumer underwriting)

5.6. Under this approach, which is the status quo for interconnector investment in GB, developers typically identify opportunities for interconnector investment based on commercial decisions about the opportunity for price arbitrage between markets. There is no underwriting from consumers. This approach therefore removes the risk of consumers facing the cost of stranded assets, placing the risk with developers, and limiting the cost burden to consumers as long as the commercial arrangements surrounding the interconnector are fully cost reflective.

5.7. Under this model, the developer typically seeks to ensure that it has access to the revenue that was expected at the time of the investment decision and may therefore seek exemptions from certain provisions under EU legislation, including Third Party Access, Use of Revenues or Unbundling provisions (via the process set out in Article 17 of the Electricity Regulation). Such protection can be provided under certain circumstances through which form part of the GB Electricity interconnector licence. This approach is available under the existing regulatory framework for interconnector investment. The application of this approach for non-GB generation connections would however require further investigation and the resulting impacts would need to be assessed if we progress this option with project developers. Whilst this option would not involve any regulatory underwriting of the transmission assets, any UK Government renewable support to the non-GB generator (such as through the CfD) would contain an element of consumer funding.

5.8. Under this approach we would anticipate a private commercial arrangement between the interconnector operator and the generator for access to the interconnector capacity for the export of renewable energy. Ofgem would not typically be involved in these commercial arrangements however there would likely be a role for Ofgem in approving access arrangements and for ensuring compliance with legislation relevant for all interconnector owners/operators. Any arrangements

such as this would require careful consideration of the capacity allocation arrangements and compliance with relevant European Network Codes – this is explored further in chapter 6.

5.9. It is important to point out that the decisions to award an exemption from certain provisions under Article 17 would be made on a case by case basis and would be based on the information provided to Ofgem and the other involved NRA, and be subject to the views of the other relevant NRA and the European Commission. The Electricity Regulation sets out specific conditions which must be met in order for an exemption to be awarded under Article 17. To be clear, by including this option in this consultation document we are not providing any view on whether or not an exemption would be granted.

5.10. We have noted in our recent work on interconnection investment (such as through our consultations on the Cap and Floor design for project NEMO), that it has proven increasingly difficult to realise interconnector investment under the merchant exempt framework. Exemption applications for interconnectors used to connect generation directly have not been pursued before. The exact application of an exemption process for non-GB connections would therefore need to be explored further, including with the European Commission, as the projects progress.

5.11. As an initial critique of this option, we recognise that it may be challenging to support more complex asset configurations under this approach.²⁵ In a scenario where there may be benefits in including additional capacity in the non-GB connection to provide reinforcement for the GB network, consideration would be needed of if and how the interconnector owner would sell capacity to the GB system operator – the NETSO role is explored further in Chapter 6.

5.12. In addition, under this option, there is not a clear process for how wider network needs might be identified. Non-GB generators or other potential third party developers of the interconnectors do not have a sufficiently wide and detailed view of the network to undertake such work, and there is not a clearly defined role for the GB NETSO or TOs to contribute to interconnector asset design beyond determining the appropriate interface point and timing of connection with the GB system.

²⁵ Our work on offshore coordination policy for example, has highlighted the challenges where offshore generation developers are developing transmission links where it may be beneficial for them to incorporate additional capacity to provide wider network benefit. Developers have been reluctant to take such additional capacity forward without clarity on how they will be able to recover the costs of that investment.

Regulated revenue model: Cap and Floor on revenues

5.13. We are currently developing the regulated Cap and Floor model for application to the GB-Belgium interconnector, project NEMO. This is a joint project with the Belgian regulator (CREG). Although the Cap and Floor is currently only applicable to project NEMO, we are considering the application of this or other appropriate models for further interconnection projects under the ITPR project. Whilst the merits of applying this model are currently being considered, we have set out here some of the specific issues that could arise from the possible application of a Cap and Floor model to non-GB connections.

5.14. The Cap and Floor that has been developed for project NEMO is a developer-led approach, though a cap and floor approach could also be developed where the opportunity for interconnector projects is centrally identified. This could help provide a more coordinated view of necessary developments. As there is currently no central party responsible for interconnector planning, such an option would likely have a longer lead-in time and therefore may not support generation projects looking to make investment decisions in the short-term.

5.15. The Cap and Floor regime has been designed to apply to conventional market-to-market interconnection that is able to generate revenue through the sale of interconnector capacity. This capacity is valued based on the trading opportunities, or price arbitrage, across the connection. This creates the potential for upside benefit for consumers if revenues are above the cap, as excess revenues are returned to consumers, but consumers would be exposed to additional costs if interconnector revenues are consistently below the floor.

5.16. For direct and exclusively connected assets, price arbitrage would not drive revenues for the transmission asset, as there is potentially only one generator capable of using the interconnector. As a result the Cap and Floor could not be transferred directly to such a situation. Instead, adjustments would be necessary to the Cap and Floor approach being developed for NEMO and we consider there could be a number of challenges in doing so while continuing to meet the principles we set out in chapter 2.

5.17. For example, variable interconnector revenues could potentially be replaced by payments from the generator to the interconnector for access to the interconnector capacity – this could for example be through a private commercial arrangement between the interconnector owner and generator. If the Cap and Floor were applied to these revenues then it would mean that the Floor would be providing consumer underwriting for the interconnector owner against the possibility of its private commercial arrangement with the generator failing. This would raise questions around cost allocation – should it be fully underwritten by GB consumers, whether the generator should be exposed to similar commitments that GB generators would face in such a scenario and the extent to which generators would be treated on a level playing field. Cost allocation issues are discussed in more detail in Chapter 6.

5.18. Consideration would also be needed of whether the interconnector owner of a direct and exclusively connected asset would be adequately incentivised under a Cap and Floor approach to ensure an efficient design and minimise costs. In large part, this efficiency may need to be driven through the private commercial negotiation between the interconnector owner and the non-GB generator. We would need to consider whether that negotiation, combined with the introduction of appropriate incentives and a cost assessment process, could provide sufficient consumer protection given that they would be exposed to costs if the interconnector owner's revenues were below the Floor. As discussed further in this chapter, as part of the regulated revenue model, under the onshore and offshore regimes there are additional mechanisms to ensure consumer protection where there is consumer underwriting and the TOs do not face market exposure.

5.19. An application of a Cap and Floor model would also not be directly transferrable to non-GB connections in a scenario where there may be benefits in including additional capacity in the non-GB connections to provide wider capacity for the GB network. If this option were to be explored further, consideration would be needed of whether adjustments could be made to the Cap and Floor approach to support such an eventuality, including the issues discussed in paragraphs 5.12 and 5.13 above.

5.20. In a scenario where a direct and exclusive connection develops to include market-to-market interconnectors then it is easier to see how a Cap and Floor approach could potentially apply to the market-to-market aspect. However, consideration of the following areas would be required:

- how these uses could be combined with the adjustments that would be needed to the Cap and Floor given the existence of a directly connected generator.
- alternatively, there may be a need to consider a "hybrid" approach that combines a Cap and Floor for the market-to-market element with one of the other models for the direct-connect element.
- how the Cap and Floor model could work if it is planned that the link will only evolve to include market-to-market integration at a later date.

Regulated revenue model: Fixed revenue

5.21. This is a regulated model whereby a fixed revenue would be provided. The asset owner's revenue would not depend on congestion income, and so they are protected from market exposure. A fixed revenue, underwritten by GB consumers, could reduce the overall project risks for the asset owner and potentially expose consumers more to the risk of higher costs or stranded assets.

5.22. Under this model it is likely that revenues would be paid to the interconnector owner by the NETSO, which in turn would be underwritten by consumers. We

consider that appropriate costs and risks would need to be targeted back to the non-GB generator to avoid consumers facing undue costs. This would also ensure that the developers of the non-GB generation take into account the cost of connecting to the network when making their investment decision. Cost allocation issues are discussed further in Chapter 6.

5.23. The fixed revenue model is employed for both onshore TOs and OFTOs in GB. Onshore, the three incumbent monopoly TO plan, build and maintain the network in their geographic area²⁶, based on generation and interconnector developers' connection requests and future scenarios modelling. This centralised approach supports coordination of network development. Offshore, to date, planning has largely been developer-led with developers able to choose the "generator build"²⁷ model where generators develop and construct the offshore transmission assets needed to connect their project before transferring them to an OFTO selected via a tender. However, there is an increasing role for the NETSO and onshore TO to support coordination in offshore transmission network development.

5.24. In the context of non-GB connections, as highlighted earlier in this chapter, there is currently no defined role for these parties to include wider system requirements in the design of interconnector assets. This may be desirable to ensure that the assets being developed represent efficient and economic approach given that they will be fully underwritten by consumers. However, introducing such roles could add to the lead-in time for this option.

5.25. The lack of market exposure for the asset owner under this model would mean it would need to be accompanied by incentives to ensure consumers' interests are protected and risks are appropriately apportioned. For onshore networks, the RIIO price control framework achieves this, through Ofgem scrutiny of the firms' business plans and a comprehensive incentive framework. Offshore, tendering is used to identify the party to be awarded a transmission licence to own and operate the transmission assets and so competition ensures a cost-effective outcome for consumers. The OFTO also faces a financial incentive in their regulated revenue to maximise the availability of its assets. In addition, offshore developers face incentives to minimise the costs that they will be exposed to through transmission charging, and this is also reinforced by an Ofgem cost assessment.

5.26. A non-GB connection with fixed revenue could in theory follow similar arrangements to those in place onshore or offshore in GB. An alternative option could be for a fixed revenue to be provided either to the developers of the non-GB generation (should an unbundling exemption be granted) or to a third party that they reach a private arrangement with. However, selection of the most appropriate party

²⁶ These are National Grid Electricity Transmission for England and Wales, Scottish Power Transmission Ltd in central and southern Scotland and Scottish Hydro Electric Transmission Plc in northern Scotland.

²⁷ A model for the construction of offshore transmission assets. For more information see the offshore pages of Ofgem's website: <https://www.ofgem.gov.uk/electricity/transmission-networks/offshore-transmission>

through competition, as in the offshore regime, or based on existing network ownership under the RIIO price control framework, could provide efficiencies and greater protection for consumers.

5.27. Given that the regulated model with fixed revenue has not been developed to date in GB, any decision to introduce one would need careful consideration and consultation on a number of factors relating to the design and implementation to ensure that consumers' interests are protected.

5.28. Some applications of a regulated model with fixed revenue for non-GB connections could be possible under the current legislative framework. If legislative changes were required however, for example to ensure an appropriate selection process for regulated revenue, this would add to the implementation timeline and could only be taken forward by government. Under the current legislative framework it is not possible to allow existing TOs or OFTOs to also hold interconnection licences²⁸ or to extend the offshore transmission regime to cover non-GB generation. We continue to explore the merits of options that would provide a fixed revenue for non-GB connections without legislative change, and will engage closely with DECC on this matter. Given the tight timescales for the development of projects that government wish to support in advance of 2020, we note that this option may be more challenging to apply to non-GB connections in the short-term.

²⁸ Electricity Act 1989 can be found here:
<http://www.legislation.gov.uk/ukpga/1989/29/contents>

6. Other regulatory issues

Chapter Summary

This chapter sets out other regulatory challenges we have identified for connecting non-GB generation projects to the GB network. These include the areas of capacity allocation on an interconnector, interactions with the GB network and cost allocation.

Question box

Question 16: What is the appropriate mechanism for ensuring access to capacity for non-GB generation?

Question 17: What are the implications of following the current connections process for non-GB connections? Should non-GB generators be treated differently to GB based generation? Should non-GB generators be treated differently to other interconnector users? If so, please provide your reasoning.

Question 18: How would the role of the interconnector operator need to adapt if a direct-connect asset was used for additional purposes – such as a) market-to-market interconnection; or b) GB network reinforcement? Should the GB or non-GB NETSO have a role in operating these assets? If yes, what role?

Question 19: Can the existing charging/cost allocation approaches used onshore or for interconnection be applied to non-GB connections? If not why not and what alternatives are available?

Question 20: How can capacity allocation for direct and exclusive connections ensure consistency with European legislation and European Network Codes? How could this be achieved with the introduction of market-to-market connections?

Question 21: Are there other challenges we should be considering when looking at non-GB connections?

6.1. In chapters 3-5, we have discussed the challenges related to legal classifications, the configuration of the assets, and the application of different regulatory models. In this chapter we explore other remaining regulatory issues that would need to be considered. These are non-exhaustive and we seek input from stakeholders and project developers to help fully understand the options available, and to work towards appropriate solutions, where possible.

Capacity allocation and access to the interconnector

6.2. The way in which capacity is sold or 'allocated' on an interconnector is of critical interest to both the interconnector owner and interconnector users and is a fundamental building block of interconnector operation and regulation. The application of the capacity allocation and access arrangements for non-GB

connections is therefore important to ensure compliance with relevant domestic and European legislation whilst also ensuring appropriate remuneration mechanisms for the asset owner. For direct and exclusive connections, we recognise that the allocation of capacity will need to reflect the differences in asset use compared to conventional market-to-market interconnection.

6.3. As mentioned in Chapter 5, for a direct and exclusive non-GB connection the interconnector owner's revenue could rely on the sale of capacity to the non-GB generator under some models. This would present a number of challenges:

6.4. **Reservation of capacity** – We recognise the importance of firm access to the GB system in the business case for the non-GB generator and the interconnector connecting it to the GB network. It may be in the interests of both the non-GB generator and the interconnector owner/operator to allocate capacity to the non-GB generator over a long period of time, potentially up to 15 or 20 years. However, the arrangements also need to ensure compliance with relevant European Network Codes and recognise how policy is developing across Europe with respect to capacity allocation and access to interconnectors – in particular the emphasis on shorter-term trading.

6.5. We seek input from project developers to consider the possible interactions between long-term and short-term capacity allocation and put forward possible solutions.

6.6. **Access for renewables** - Under the European Renewables Directive²⁹ access to the network for electricity produced from renewable sources must be prioritised or guaranteed. How this should be interpreted to ensure non-GB renewable generators maintain appropriate access to sufficient transmission capacity on the interconnector to transmit their generation will need to be considered.

6.7. **Sharing capacity with other purposes** – As noted in chapter 3, the non-GB connection could also flow electricity between the GB and non-GB systems/markets or provide GB network reinforcement alongside direct export. The existing arrangements for capacity allocation for GB generators accessing the GB network and for interconnection are different. Multiple purposes of the same asset therefore raises the question of how capacity should be allocated. The possibilities include: auctions, as for conventional interconnectors; bilateral agreements, as could be foreseen for direct and exclusively connected assets; or transmission charging and constraint management, as for onshore/offshore transmission. There is also the question of how/whether access would be prioritised for one purpose or user over another.

6.8. Capacity allocation and access arrangements onshore, offshore and cross-border have been developed for the asset use in each case. For both direct and exclusive connections and multi-purpose assets it seems clear that a direct

²⁹ Directive 2009/28/EC

application of existing arrangements may not be appropriate (in part due to the unprecedented nature of the asset use). We note however that there is a degree of uncertainty around the overall use of non-GB connections and whether they will fulfil multiple purposes – this is in part because projects are developer-led. We also note close interactions with the work of the North Seas Countries Offshore Grid Initiative³⁰ around market and access arrangements for multi-purpose assets and seek further views on the different possible approaches for capacity allocation.

Interactions with the GB network

6.9. Interactions between the potential treatment of non-GB connections and the operating and regulatory mechanisms of the GB transmission system also need to be considered.

6.10. **The relevant user** – Both interconnectors and generators are considered users of the GB system. A starting point is to assume that a non-GB generator (whether supported through subsidy by the UK government or not) and connected via an interconnector would be treated in many ways the same as any other party that flows power through an interconnector (regardless of whether they are directly connected or not). This would mean, for example that the non-GB generator would not directly be subject to GB balancing or constraint payments from the GB NETSO or be subject to Connect and Manage³¹ – any access rights to the GB system would be provided for through the interconnector operator access arrangements with the GB NETSO.

6.11. For connection to the GB network, the prospective user (including GB generators or interconnector owners/operators) applies to the GB NETSO for a connection, and is provided with a connection offer under certain terms and timescales. Potential non-GB generators based in Ireland who could eventually connect to the GB network have already engaged in this process. Whilst the details of the connection agreements are confidential, the resulting generation connection to the GB network would be via an interconnector and they would not be users of the GB system.

6.12. **The relevant system operator** – Under the existing arrangements for interconnector operation, the GB NETSO role does not currently extend to interconnection. Existing interconnectors are operated by the interconnector operators/owners themselves. As non-GB connections will be licensed as interconnectors under the Act, a starting assumption is that the interconnector owners would also be responsible for operation of the non-GB connection assets.

6.13. A move away from the current situation where interconnectors are operated separately to the main transmission system would require careful consideration. For

³⁰ For more information on NSCOGI please see: <http://www.benelux.int/NSCOGI/>

example, this could involve the separation of ownership and operation of the interconnector asset. In addition the role of the NETSO might need to adapt if the asset configuration or use changes. The optimal role of the NETSO may therefore ultimately depend on the way that the assets are configured and used. For example, there may be more benefit in having a stronger NETSO role in operating coordinated assets (combining multiple purposes) compared to direct and exclusive connections. Any configuration that connects two transmission systems may however require a more conventional interconnector operator role – where the interconnector would be operated separately to the main transmission system. Multi-purpose assets bring into question the appropriate operation of the assets and highlight the possible need for interactions between the indicative operation roles identified above.

6.14. It should be noted that National Grid’s NETSO role does not currently extend outside of GB so we would therefore need to consider the possible options in relation to the parts of possible non-GB connections that sit outside GB with the relevant NRAs and NETSOs in other states. We seek views on this area to help inform these discussions.

Cost allocation

6.15. Interconnector capacity is allocated through the sale of capacity by the interconnector owner/operator. An alternative mechanism is used in the GB onshore network, where users across the network are subject to charges levied by the GB SO, calculated using a charging methodology.

6.16. The charging arrangements for assets onshore, offshore and cross-border are well established.³² When combining these functions for multi-purpose assets, as could be foreseen for non-GB connections in future, the interaction between these charging arrangements becomes important. The option whereby the NETSO levies charges on the non-GB generator directly is not currently possible. Furthermore, charges for access to interconnectors are not designed to capture the costs of wider network use (such as GB reinforcement). It may be worth considering whether a specific form of network charging should be introduced for non-GB connections, and what the key features of this would be. The need for a change from the existing arrangements would depend on the overall function of the asset(s) – multi-purpose or not.

6.17. In addition to how costs would be recovered, how costs might need to be shared across the GB and non-GB network users/consumers also requires investigation. Where a basic configuration exists which involves only direct and exclusive connections to the GB network with GB government support, the CfD would likely cover the cost of the link and therefore the link would essentially be paid for by

³² For further information on National Grid’s work on transmission charging, including offshore integrated charging, please see the Transmission Charging Methodologies Forum (TCMF) pages of National Grid’s website: <http://www2.nationalgrid.com/UK/Industry-information/System-charges/Electricity-transmission/Methodology-forum/>

GB consumers. Where market integration is also present, there is a case for spreading the allocation of costs and benefits over two markets and two sets of consumers.

Appendices

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Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter heading and which are replicated below.

1.3. Responses should be received by 17 January 2014 and should be sent to:

- Matthew Grant
- European Electricity Transmission
- 9 Millbank, London
- 0207 901 7000
- ITPRMailbox@ofgem.gov.uk

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. Any questions on this document should, in the first instance, be directed to:

- Matthew Grant (matthew.grant@ofgem.gov.uk);
- Hazel Gulliver (hazel.gulliver@ofgem.gov.uk); or
- David Henderson (david.henderson@ofgem.gov.uk).

Chapter 1

Question 1: What are the key milestones for the delivery of non-GB generation and connections pre-2020? How does the decision on the regulation and licensing of non-GB connection fit into this timeline?

Question 2: From the perspective of a non-GB project developer, how does the decision on the regulatory arrangements interact with Government decisions on renewable support (such as the award of a Contract for Difference (CfD)³³)?

Question 3: Are there other factors that Ofgem should be aware of relating to the timing and development of non-GB connections?

Chapter 2

Question 4: Do you agree these are appropriate principles to take into account in relation to non-GB connections?

Question 5: Are there other principles that we should also we consider?

Chapter 3

Question 6: We invite views on our interpretation of the different asset definitions/boundaries and interpretation of the legislation provided in this chapter. What implications does this have for the regulatory options presented in the next chapter?

Question 7: We are interested in views from stakeholders on what impact alternative interpretations would have on potential projects? Please provide detail where possible.

Question 8: We seek input from stakeholders on how generation licensing for non-GB generation could ensure appropriate safeguards for the export of renewables to the GB transmission system?

Chapter 4

Question 9: Are non-GB connections deliverable by 2020 via direct and exclusive connections?

Question 10: What are the technology challenges of delivering direct and exclusive connections? What are the technology challenges of delivering multi-purpose assets?

³³ <https://www.gov.uk/government/news/new-energy-infrastructure-investment-to-fuel-recovery>

Question 11: What are the potential benefits and challenges of enabling flexibility for a non-GB connection to also be used for a) market-to-market trading; and b) GB network reinforcement? What are the implications for investment certainty?

Chapter 5

Question 12: Is the interconnector licence with exemptions(s), as currently available, a feasible option for non-GB connections? If not, what are the key challenges of applying this route to non-GB connections? How could these challenges be addressed?

Question 13: Under this route would an exemption (under Article 17 of the Electricity Regulation) be required? If so, which provisions would you seek exemption from? How would your project be affected if exemptions could not be applied for?

Question 14: Given that an application of the regulated Cap and Floor or fixed revenue model would take time to implement for non-GB connections, should these still be explored further?

Question 15: If so, what are the main challenges and benefits of applying a regulated Cap and Floor or fixed revenue model to non-GB connections? How could these be addressed?

Chapter 6

Question 16: What is the appropriate mechanism for ensuring access to capacity for non-GB generation?

Question 17: What are the implications of following the current connections process for non-GB connections? Should non-GB generators be treated differently to GB based generation? Should non-GB generators be treated differently to other interconnector users? If so, please provide your reasoning.

Question 18: How would the role of the interconnector operator need to adapt if a direct-connect asset was used for additional purposes – such as a) market-to-market interconnection; or b) GB network reinforcement? Should the GB or non-GB NETSO have a role in operating these assets? If yes, what role?

Question 19: Can the existing charging/cost allocation approaches used onshore or for interconnection be applied to non-GB connections? If not why not and what alternatives are available?

Question 20: How can capacity allocation for direct and exclusive connections ensure consistency with European legislation and European Network Codes? How could this be achieved with the introduction of market-to-market connections?

Question 21: Are there other challenges we should be considering when looking at non-GB connections?

Appendix 2 - Glossary

2020 Targets

The EU Renewables Directive mandates a target of a 20% share of energy consumed coming from renewable sources by 2020. The 20% target is translated into individual targets for each Member State. The target set for the UK is 15%.

A

Anticipatory investment

Capital expenditure that supports anticipated future network requirements.

The Authority

The Gas and Electricity Markets Authority (GEMA), established under section 1 of the Utilities Act 2000.

C

Cap and Floor

Developer (market) led approach whereby interconnector owner profits cannot exceed a "cap" and are guaranteed not to fall below the "floor" with developer returns commensurate with level of risk they are exposed to.

CER

The Irish regulator for electricity and gas: the Commission for Energy Regulation.

Contract for Difference (CfD)

A subsidy mechanism for electricity generation being developed by the United Kingdom government. A generator is paid the difference between a measure of the cost of investing in a particular low-carbon technology (the strike price) and a measure of the average market price for electricity (the reference price).

CREG

The Belgian regulator for electricity and gas: Commission de régulation de l'électricité et du gaz, Commissie voor de Regulering van de Elektriciteit en het gas.

D

DECC

The Department of Energy and Climate Change.

E

EU

The European Union.

EU Renewables Directive (Directive 2009/28/EC)

A Directive mandating levels of renewable energy use within the European Union.

F

[Flexibility Mechanisms](#)

The EU Renewables Directive allows for some flexibility in meeting renewable energy targets through 'flexibility mechanisms' designed to allow those Member States with lower renewable generation potential or higher costs to partially fulfil their renewables targets in or with other countries.

G

[GB](#)

Great Britain.

I

[ITPR](#)

Ofgem's Integrated Transmission Planning and Regulation project.

M

[MoU](#)

Memorandum of understanding

[Multiple Purpose Project \(MPP\) or Multi-purpose asset](#)

A project that features a combination of onshore, offshore and cross-border transmission network. For example, a project that combines connection of offshore generation with interconnection to a different market, or a project that uses oversizing of a generation connection offshore to accommodate network reinforcements to relieve constraints in the onshore network

N

[National Electricity Transmission System Operator \(NETSO\)](#)

An entity that undertakes real time electricity system operation and system balancing. National Grid Electricity Transmission Plc. (NGET) is the GB NETSO, a role which covers onshore and offshore networks.

[NGET](#)

National Grid Electricity Transmission plc, the electricity transmission licensee in England & Wales.

[Non-GB connections](#)

Electricity transmission assets that connect a generator outside of Great Britain to the GB electricity transmission system.

[Non-GB generator or generation](#)

A generator or generation that is located outside of Great Britain.

[Non-GB state](#)

Any country, EU Member State or territory outside of Great Britain

NRA

National Regulatory Authority in the European Union.

O

Offshore transmission

Offshore transmission is defined in the Electricity Act 1989 as 'the transmission within an area of offshore waters of electricity generated by a generating station in such an area'.

Ofgem

Office of Gas and Electricity Markets.

OFTO

Offshore Transmission Owner

P

Project NEMO

The proposed electricity interconnector between Belgium and Great Britain.

R

Renewables Trading

The trading of renewable energy between EU Member States under the flexibility mechanisms in the EU Renewable Energy Directive.

RIIO (Revenue = Incentives + Innovation + Outputs)

The RIIO price control model is the price control framework applied to onshore transmission and distribution of gas and electricity.

T

Third Package

The term 'Third Package' refers to a package of European legislation. In reference to electricity it includes: Directive 2009/72/EC concerning common rules for the internal market in electricity; Regulation (EC) No 714/2009 on conditions for access to the network for cross-border exchanges in electricity; and Regulation (EC) No 713/2009 establishing an Agency for the Cooperation of Energy Regulators.

TNUoS

Transmission Network Use of System (charge).

Transmission Owner (TO)

An owner of a high-voltage transmission network or asset.

Transmission System Operator (TSO)

An entity in charge of operating transmission facilities either for electricity or gas. It is used in this document to refer to a model where the entity is both a transmission owner (TO) and a system operator (SO).



Regulation of transmission connecting non-GB generation to the GB electricity transmission system

U

UK

The United Kingdom.

Appendix 3 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

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