Access and Forward-looking charges

Distribution Connected Users' Access to Transmission Network

SCR Access Subgroup

6 March 2020

Document Control

Version Control

Version	Issue Date	Author	Comments
V12	5 Feb 20	SCR Access Subgroup	Moved to template for subgroup review and sign off
V14	26 Feb 20	SCR Access Subgroup	Shared with Delivery Group for review

Authorities

Version	Issue Date	Authorisation	Comments
V14	6 March 20	Delivery Group	Signed-off for publication following Delivery Group

Related Documents

Reference 1	Electricity Industry Access and Forward-Looking Charging Review - Significant Code Review launch statement and decision on the wider review – Ofgem publication
Reference 2	

Distribution

Contents

List of Figures

1 Executive summary

1.1 This paper sets out initial options for how distribution generation (DG) could have formal access to the transmission system. Today, only users with a direct agreement with the Electricity System Operator (ESO) have formal access to use the transmission system.

1.2 In the future there are a variety of policy questions which need to be answered to provide clarity on **who** transmission access could be giving in the future e.g. is there a minimum capacity for DG having access to transmission.

1.3 The paper considers **how** access to the transmission system could be given, at the extremes ranging from every user having a direct contract with the ESO to the existing National Terms of Connection (NTC) being updated to state that users have both transmission and distribution access.

2 Introduction

2.1 This paper is split into two parts, firstly how access is defined today both from the contractual arrangements in place today which set out a user's right to use the network, however another important perspective is the way in which electricity flows on the system. Secondly it considers options for the future.

3 Part 1: How are distribution connected users' access to the transmission system defined today?

Distribution connected Generators (users)

3.1 Access to the transmission system for the vast majority of distribution connected generators, including storage export, is not defined. The exceptions are large embedded users (100MW National Grid Electricity Transmission, 30MW SP Transmission, 10MW Scottish Hydro Electricity Transmission) and any distribution connected users who opt to have a Bilateral Embedded Generator Agreement (BEGA) with the Electricity System Operator (ESO).

3.2 Embedded Generators can currently be categorised into three different sizes, Small, Medium & Large. An embedded generator is categorised by its size and the relevant transmission network area in which it is connected. These elements drive the requirement for these users to have explicit transmission access as set out in the table below. For a more detailed table, please see annex 1.

Figure 1: Current contractual rights

Registered output (MW)	NGET Transmission Area		SPT Transmission Area		SHET Transmission Area	
	Size	Transmission Access	Size	Transmission Access	Size	Transmission Access
0 ≤ output < 10	Small	No	Small	No	Small	No
10 ≤ output < 30	Small	No	Small	No	Large	Yes
30 ≤ output < 50	Small	No	Large	No	Large	Yes
50 ≤ output < 100	Medium	No	Large	Yes	Large	Yes
100MW and over	Large	Yes	Large	Yes	Large	Yes

3.3 In addition to the above, where a user does not have a requirement to have explicit transmission access, there are two types of bilateral agreement that a user can enter into with the ESO to receive formal access - Bilateral Connection Agreements (BCA) for direct transmission connected users and BEGA for embedded generators.

3.4 Where generators are exempt from having a generation licence, they are defined as one of the following:

- Embedded Exemptible Small Power Station (EESPS)
- Embedded Exemptible Medium Power Station (EEMPS)
- Embedded Exemptible Large Power Station (EELPS)

3.5 The owner/operator of a 'large' embedded generator, i.e. which is 10/30/100MW or above (depending on network location), must enter into a BEGA with the ESO. The owner/operator of an EELPS however has the choice to enter into a BEGA or Bilateral Embedded Licence Exemptible Large Power Station Agreement (BELLA) with the ESO. Owner/Operators of EESPS are not required to enter into an agreement with the ESO, however the arrangements do not prevent EESPSs from requesting an agreement with the ESO.

BEGA

3.6 The BEGA is available to embedded generators that require access to the transmission system which may be driven by them being large and licensed or if the user would like to access transmission markets. A BEGA agreement will provide the embedded generator with Transmission Entry Capacity (TEC), the maximum permitted capacity they are allowed to export onto the transmission system. The BEGA will also give the embedded generator rights to operate in the Balancing Mechanism. The BEGA however does require the embedded generator to be a signatory to the CUSC, BSC and Grid Code. Generators with a BEGA over 100MW will pay TNUoS.

BELLA

3.7 The BELLA is available to embedded generators who do not require a licence, this generally means that 'large' users smaller than 100MW in Scotland have BELLAs (as in England and Wales a licence exemption would be required). BELLA parties would not be expected to comply with the majority of the CUSC provisions, or to be BSC Parties, but would instead appoint another BSC party to be responsible for their output. As a result, they do not have any explicit transmission access rights to the transmission system and currently don't pay TNUoS.

BCA

3.8 All directly transmission connected generators are required to enter into an agreement with the ESO regardless of their size. Their agreement will provide them with explicit transmission access rights subject to the T&Cs of the BCA.

3.9 The trial commonly referred to as "Appendix G" provides the DNOs with a defined capacity limit within which the reinforcement or technical conditions will be known which will determine how much generation can be connected with the specified reinforcement/technical condition solution. This process allows embedded generation to be contracted to connect to the relevant DNO networks without individual assessment of every connection. When required, the limit and technical conditions will be reviewed and updated following assessment by the TO and ESO. In some instances, this assessment may determine that works will be required at the GSP and/or the transmission system. The assessment of the impact of embedded generation will include consideration by the DNO of whether a reverse power flow is triggered at the T/D boundary and whether additional work is required on the transmission system as a result of its connection. In

circumstances where either of these conditions are likely to occur a Modification Application will be submitted by the DNO to the ESO. Whilst this process does allow for the concept of Developer Capacity to be considered, it doesn't provide rights in the same way as TEC. It does allow the capacity of the embedded generation project in question to be considered when assessing their impact on the transmission system. This does not provide any explicit transmission access rights in the contract between the DNO and the ESO.

IDNO connected users

3.10 Generators connected to IDNOs are subject to the NTC in the same way as DNO connected generators; for larger generators the IDNO may put in place a customer specific connection agreement. The NTC captures the rights of the generator to use the IDNO's network and the generator has no rights to use the DNO's network; the rights to use the DNO's network are held by the IDNO. The generator has no explicit contractual access to the transmission system unless it has a BEGA, as is the case with any connection to a DNO network. An IDNO connected user would contract directly with the ESO to receive a BEGA.

3.11 The Statement of Works/Appendix G process differs for IDNOs depending on how they are connected to the network. If the IDNO has direct connection to the National Electricity Transmission System (NETS) (i.e. just like a DNO) then it is exactly the same processes or contractual agreements. If the IDNO is 'nested' within a DNO then the IDNO would apply to the DNO who applies to the ESO via the Appendix G process. Therefore the ESO and IDNO would have no direct contractual relationship.

3.12 The obligations on, and rights of, IDNOs to use DNO's network are governed by Section 2B of the Distribution Connection and Use of System Agreement (DCUSA), including the arrangements for IDNO/DNO Bilateral Connection Agreements (BCAs) in Clause 38. The IDNO BCAs should not be confused with ESO BCAs. The IDNOs BCA would incorporate any capacity requirements for export across the boundary from generators on the IDNO site. The boundary of the IDNO with the DNO will not normally be metered.

3.13 For an IDNO boundary with a DNO, the IDNO has no explicit contractual right to use the transmission system.

Generators connected to private networks

3.14 The Arrangements on private networks, where the private network is connected to a DNO, generally fall into three categories:

- Boundary meters only – where the only settlement meters are at the boundary with the DNO. The individual customers on the site may have private/non-settlement meters. The boundary is governed by the NTC or a connection agreement with the DNO.
- Full settlement – where each of the customers on the private network have settlement meters and there are no settlement meters at the boundary with the DNO. The boundary with the DNO would be governed by a connection agreement between the site's owner and operator. The individual customer's use of the private network is not covered by the NTC. The individual customers have no access to the DNO or transmission systems.
- Difference metering – where some of the customers on the private network have settlement meters and others do not. There are settlement meters at the boundary with the DNO. The boundary with the DNO is governed by the NTC or a connection agreement between the DNO and the site's owner or operator. The individual customer's use of the private network is not covered by the NTC. The individual customers have no access to the DNO or transmission systems.

3.15 Note, in the case of a generator connected to a private network that is connected to an IDNO network these arrangements flex, as above, however must take into account the relationship between the IDNO and the host DNO.

Connect and Manage approach at Transmission

3.16 The principles of Connect and Manage (C&M) apply equally to Distribution and Transmission connected generators (including storage) where there is a transmission constraint. When a new application is made which will have an impact on the Transmission system, the SQSS is used to assess the application, the extent to which the application affects the Transmission Network and any mitigation options to ensure any effect is within the SQSS standards. These mitigations are broadly classed in to two categories:

- Enabling Works – works that must be done before the generator can connect to ensure minimum SQSS standards are met.
- Wider Works – works that can be done after the generator has connected to bring the network in line with the full SQSS standards.

3.17 Connect & Manage guidance is available here: https://www.nationalgrideso.com/document/85911/download

Transmission connected users

3.18 A generator user, irrespective of size, receives TEC which provides them with 24/7 access to the transmission network, subject to any conditions set out in their bilateral connection agreement (BCA). These conditions may highlight system conditions where a user may not have access to the system, or may be taken off even if the system is intact, in such circumstances a user will not be held financially firm.

3.19 It is worth noting that TEC is only available to generators directly connected to the transmission system or embedded generation who has entered into a bilateral agreement with the ESO via a BEGA. Demand connected parties and DNOs do not have TEC.

How do transmission connections work?

3.20 Access is given in a Last In, First Off (LIFO) manner so any new connections to transmission or distribution networks would not affect the access right of someone connected before them. However it would reduce the connected party's future (uncontracted) options as the utilisation of the network increases.

3.21 The TO provides the most economic and efficient connection design to their network for the applicant. As transmission connection assets are TO assets, the TO has the ability to utilise these and reclassify them from sole to shared use if that would result in most economic and efficient connection for a new party.

Power flows and Access

3.22 Despite contracts being in place for distribution/transmission only or for both, current will flow across the GB system from the point of generation to demand centres in accordance with physical laws, regardless of whether the demand is on the same street or the other side of the country.

3.23 Due to the volume of distribution connected generation there are now occasions (as set out in the cost drivers report) where grid supply points (GSPs) can export, often on a regular basis, onto the transmission system highlighting the usage of the transmission system.

3.24 Outside of exporting GSPs, distribution connected generators may also participate in GB wide markets, or could have a Power Purchase Agreement (PPA) with another user in a different area of the network, meaning that there is also use of the transmission network although not necessarily explicit in their contracts. Any generator can participate in markets today either individually if over 1MW or can participate via an aggregator.

3.25 Finally, distribution connected users use the transmission and distribution systems to provide them with energy security and stability. This means that there is a mismatch between the contractual rights a user has and which assets electricity will flow through on the total system unless the customer has contractual rights via a BEGA.

4 Part 2: Key questions to consider regarding future access to transmission

What size of distributed generation is reasonable to give transmission access?

4.1 Is there a minimum size of user e.g. 1MW or minimum voltage? And could this size reduce over time as markets open up? Or is this irrelevant if the user is participating in a market either individually or via an aggregator?

4.2 For domestic solar panels, is it reasonable to expect the owner/operator to sign up to the various codes? As single micro generation installations do not need DNO/IDNO explicit consent before connection to distribution it seems appropriate to require no explicit consent or terms for access to transmission.

4.3 Could a principle be introduced instead such as users which have a significant impact on the transmission system require access? How would you define significant? What would the impact of this principle be around the country e.g. in Scotland this may result in very small users being classed as having a significant impact? How would this be managed? Would a user be able to determine this by themselves when assessing what charges they will pay?

Do all connected distributed generators need transmission access if the GSP doesn't export?

4.4 If a GSP never exports, should the users connected to it need transmission access / charges? What other markets / services are the generators connected at distribution participating in (see question below)? If they are participating in different markets and therefore they are using the transmission system, then should the distributed generation still not require transmission access / pay charges if the GSP isn't exporting? Do they need a transmission connection for system resilience? Is their position increasing overall flows on the transmission network?

4.5 What happens when one generator comes along and flips the GSP between import and export? Or this flips backwards and forwards?

Do distributed generators need transmission access if they have a direct PPA with local demand and therefore aren't "using" the transmission system?

4.6 If all of a user's energy is contracted to be used locally and they aren't participating in any other markets or requiring system stability (i.e. the user can black start themselves), do they require transmission access? It feels like no, however how is this tracked and managed if contracts change e.g. a user then contracts 90% of its energy with local demand and 10% with demand in a different DNO area? What if the contract is only short term?

4.7 All demand pays TNUoS today so is it right to say that all generators don't?

Why shouldn't all users pay TNUoS?

4.8 If a user has an impact on the transmission system, should everyone pay to contribute towards that? If a user values transmission for any reason, should there not be a contribution required?

4.9 If demand users all pay for transmission, why should generators not when they also require to use it?

Options for what level of DG could have transmission access

4.10 Based on the questions above, there are various options for which DG (if any) should have explicit access to the transmission system. These are:

- All DG have access, or
- All DG over a certain size e.g. 1MW have formal access, or
- All DG over a certain voltage, or
- All DG who participate in markets, or
- All DG except if you are a licence-exempt supplier, or
- Behind the meter generators, where the site doesn't export, do not require access, all other DG does, or
- No DG should have formal transmission access.

How could a DG's access to transmission be defined in the future?

4.11 The table below sets out options for change for distributed generation, there are ongoing BSC mods looking at behind the meter generation.

Option	What would this look like?	Benefits	Risks and Issues	Key considerations	Charging considerations
Do nothing	Keep arrangements as they are today. If DG want explicit access to the transmission system, they can apply for a BEGA to have TEC.	No change required	Complex for users as they have to understand various different contracts and access rights. For DG without a BEGA, they should have developer capacity (a bundle of MW which don't have TEC that the ESO assesses for impacts on the transmission system), however this doesn't provide explicit access to transmission. They cannot access transmission markets and their access isn't actively managed at transmission unless they are part of a virtual lead party. To have a BEGA users have to install equipment to have access to Balancing Mechanism (BM). Note wider access may reduce these requirements. The management of transmission access at GSP sites (whether shared or single user) is negatively impacted where finite transmission capacity is shared between users with explicit access rights and DNOs who do not. A current example being where transmission connections with explicit TEC are sought to be made through GSP tertiary windings or low voltage transmission busbars, and as a result reduce spare transmission reverse power flow capacity that remains	Distribution network implications of unfettered access to transmission.	Should all DG that impact on the transmission system contribute towards the costs they drive? Current arrangements appear inconsistent between those that pay (those with BEGA agreements) and those that do not.

			available for future export need from the distribution network or other GSP users. Reverse power flows at GSPs increasingly require more active network management by DNOs. The absence of explicit DNO access rights results in lack of clarity against which power flows can be managed. Different charging & access arrangements across transmission and distribution do not support a level playing field and fail to provide effective signals about where DG drives costs and new capacity is needed.		
DNOs have transmission access rights and manage on DG's behalf	DNOs apply for TEC from the ESO / this is initially assigned per GSP. The DNOs can then manage which DG customers can use that TEC.	DNO has control of DG relationship and access rights. Could lead to more efficient use of the network capacity. Can provide a better signal for DNO / TO investment if DNOs are actively managing the TEC.	TEC is held by the DNO which cannot be used by other parties - for example if a transmission user comes along, there may be no TEC available for them if the DNO is holding some in anticipation of future DG, skewing the future queue process. This might be the case if the DNO holds TEC in anticipation for people connecting but a connectee doesn't come along simultaneously. DNO would be paying for TEC even if it hadn't been taken up by DG. This may come at a cost to consumers if excess TEC is passed through to DUoS. DNO would need to actively manage their TEC position and apply to increase / decrease as needed. This would result in greater forecasting required at each GSP and physical notifications being provided to the ESO.	The introduction of DNO TEC would necessitate further work on how the contractual and operational relationship between ESO / DNOs / directly connected IDNOs / DG is managed. There may need to be a way to temporarily transfer TEC between connection points if the DNO reconfigures their network. E.g. GSP A has 200MW of TEC and GSP B has 100MW of TEC. The DNO may need to have the ability to move 50MW from A to B by reconfiguring their network. This could have a significant impact on network planning such as ETYS and NOA. Need to work out if/how BM access would work and how this	If DNOs have TEC, they would be required to be charged (some form of) TNUoS, which could result in more complex ESO/other charging processes than today. DNOs would recover these charges via suppliers or directly from DG. Revised processes/charging arrangements would require to be developed if DNOs recover directly from DG.

			To do this, a strong relationship would be required between DNOs and generation customers to understand their access requirements.	links to Wider Access. Mainly due to TEC requiring a BMU, and a BMU requiring PNs. How will the DNO manage a BM Unit for each GSP, along with the associated forecasting, dispatch and imbalance settlement requirements? This is a consideration as today, you have to have TEC to participate in markets, and the DNOs are not market participants today so the definition / liabilities associated with TEC and BM participation may need to be considered. How this would work at an infrastructure GSP.	
Suppliers have access right and manage on their customers' behalf	Supplier's apply for TEC from the ESO, and they manage it on behalf of their DG customers.	Suppliers may have a stronger relationship with their customers and therefore may be better placed to manage their requirements	Suppliers are often frequently changed therefore providing no consistency for users on their access right. In recent history a few suppliers have also ceased trading, which could cause customers to question whether they would want to rely on their supplier for their long term access to the system (and therefore route to market). Suppliers could have customers all over the country and therefore could be difficult to forecast their future customers & therefore access requirements. A DG party may seek a higher TEC than their distribution connection is capable of, and therefore additional works may be required from the DNO which the supplier may not be aware of as they won't	How the suppliers could manage this in practice. How any associated charges would be calculated.	Suppliers would be charged TNUoS as they are today. These would include DG charges as well as demand charges.

			necessarily understand the physical capability of the network. As with DNOs managing TEC (as above), the TEC would be "held" by the supplier and therefore could not be used by others and suppliers would need to pay for it regardless of whether it was being used or not. Significant change from the status quo from a commercial agreement, data and billing perspective.		
Change 'developer capacity' to some form of TEC	DG have access to distribution based on their connection (likely to be unfirm), and developer capacity[1] gives financially firm version of TEC at transmission.	Explicit version of the process which happens today. DG could be financially firm at transmission. ESO control room could have visibility and control over more generation. Could lead to more efficient use of network capacity.	If DG are financially firm at transmission, they would need access to the BM, wider BM access may solve this by 2023 Not all DG may want to have transmission access even if they may inadvertently result in exports onto the transmission system. Transmission access may come with increased cost of compliance and general complexity for DG; would they be required to become a signatory to (and take on associated obligations of) the CUSC, BSC and Grid Code? A DG's financial firmness at transmission may be dependent upon the DNO's physical connection arrangements at the GSP. There may be circumstances in which these are not fully secure for DG.	What if someone below 1MW would like transmission access? They generally don't have developer capacity today. The scope for developer capacity may need to increase. Who receives the TEC, is it the DNO on a developers behalf or the developer directly? Clear responsibilities between DNO, ESO and developer would need to be established. Is the register of DG fully up to date and include all DG? The ESO assesses developer capacity based on the DNOs view of what is connected to their network.	If DG are financially firm and have a form of TEC via their developer capacity, does this mean they should pay TNUoS? DG in this option could be charged TNUoS via the DNO (if they hold the access right) or via suppliers if DG themselves hold the access right.

[1] Only if seen as affected the Tx system, generally seen as being above 1MW

Everyone has a BEGA with the ESO	All DG customers when applying for a connection at distribution, are required to also sign a BEGA	Similar process to that which exists today Would improve ESO visibility of generation on the system Could lead to more efficient use of network capacity	Impractical for ALL DG to have a contractual relationship with the ESO. Appropriate thresholds would need to be developed. Significant increase in the volume of contracts with the ESO May be confusing to the customer of why two contracts are required Unlikely to work for smaller DG BEGA compliance comes with increased cost of compliance and general complexity for DG; would they be required to become a signatory to (and take on associated obligations of) the CUSC, BSC and Grid Code?	What is the lower level where a BEGA wouldn't be needed? Could this create a market distortion with parties having multiple smaller projects to ensure they are below the threshold?	Charges would be as they are today, with the ESO charging users with a BEGA directly. This would have a significant impact on billing as the number of users being billed would increase significantly
Keep the contractual arrangements the same, update NTC/DNO BCA to confirm transmission access for certain EG, remove £0 floor on EET[2]	No BEGAs required, in the same way Suppliers include NTC in their terms and conditions with consumers, DNOs include a Clause granting use of transmission system in the NTC (bigger change) or connection charge for EG of a certain size (e.g. 1MW), artificial £0 floor removed from	Minimal change Cost-reflective charging and ensures no un-due cross-subsidisation between users Optional access for generation	If in NTC, everyone has right to use – manageability problem at scale, e.g. could have optional UoS clause (i.e. if you want to play in markets yourself or as part of aggregated load, you accept you are using transmission and therefore need to ensure you/your aggregator have the right CUSC agreements in place) – DNO effectively gatekeeper, passing over sites which want to play in markets? Changes would be required to commercial agreements	What would changes look like across all contracts?	Charges are likely to remain as they are today, with the supplier charging TNUoS to users

[2] Embedded export tariff

	embedded export tariff so EG is paid or pays TNUoS based on its location, managed through supplier per today				

Figure 2: Options for change for distributed generation

Initial assessment against the guiding principles

4.12 This is based on the information provided above. Green = supports principle, amber = partially supports principle, red = does not support principle

	Arrangements support efficient use and development of the energy system	**Arrangements reflect the needs of users as appropriate for an essential service**	**Any changes are practical and proportionate**	**Comments**
Do nothing				Arrangements have worked today, however are quite complicated for users to understand.
DNOs have transmission access right and manage on DG's behalf				Can support users to have formal access to the transmission system, however there would be a significant change for DNOs to undertake this role as by holding TEC, they would become a BMU and need to provide Physical Notices (PNs). If project MARI is implemented, this may be required on a minute by minute auction basis.
Suppliers have access right and manage on their customers' behalf				Suppliers may not understand the network constraints in different areas of the country therefore may not drive efficient use of the system, however they are likely to understand their users' needs well. This would be a step change from the current arrangements to date for suppliers to take on this role.
Change 'developer capacity' to some form of TEC				The process is undertaken today so would be simple to do, and minimises requirements on users. It may not however be suitable for small generators as they wouldn't be included in the system analysis.
Everyone has a BEGA with the ESO				Would provide visibility of all generators which could support use of the system, however this would place significant obligations on all users, which isn't necessarily appropriate for smaller users and would significantly increase contracts with the ESO. This may also have repercussions on DSO model development.

Keep the contractual arrangements the same, update NTC/DNO BCA to confirm transmission access for certain EG, remove £0 floor on EET, BEGAs still optional for smaller DG				Would be simple to implement and is more proportionate for smaller users. Removing the EET gives a route to charge users TNUoS if required.

Figure 3: Assessment against guiding principles

How could the above work for IDNO's DG customers?

4.13 If explicit access rights to transmission or the DNO's network are necessary for IDNO connected generators, potential solutions include.

- Bilateral access agreements between IDNOs and the ESO – including provisions for connected generators. With visibility provided to the DNO for network planning.
- Tripartite access agreements between the ESO, DNO and IDNO.
- Enhanced bilateral agreements between the DNO and IDNO that includes access rights to transmission. The ESO could grant the DNO rights to allocate transmission access to IDNOs.

4.14 Useful to start thinking about this. When we develop the list of options, we will need to consider what, if any, "adaptations" we will need to make for IDNOs.

Initial views for discussion

4.15 All generators connected to the distribution system are using the transmission system this comes in various forms, including stability for all users, although their contracts may not reflect this. There are many routes which could be taken to contractualise their transmission system use, however a combination of approaches may best reflect different generators needs. For example, larger generators or generators participating in GB markets may be better placed to have a direct contract with the ESO, however as this places obligations on users, it may not be appropriate for small generators e.g. a wind turbine in a field. For these smaller users, a change to existing contracts / processes may be more suitable. All routes would allow distributed generators to be charged TNUoS in the future, if Ofgem set this as their policy direction.

5 Conclusions and Next Steps

5.1 This paper has set out initial options for how distribution generation (DG) could have formal access to the transmission system. In the future there are a variety of policy questions which need to be answered to provide clarity on who transmission access could be giving in the future e.g. is there a minimum capacity for DG having access to transmission. The paper considered how access to the transmission system could be given, at the extremes ranging from every user having a direct contract with the ESO to the existing National Terms of Connection (NTC) being updated to state that users have both transmission and distribution access.

5.2 The paper intended to set out options, rather than to conclude on the best route to take forward.

5.3 Next steps, are to understand how these different options would work in practice and to understand how they interact with charges for access rights.

Annex 1: Detailed table of current contractual rights

The table below captures the terms and agreements applicable to different sizes of generators connecting to distribution networks owned by DNOs or IDNOs. Each set of terms or agreement is evaluated in this document to determine if it creates access to the transmission system.

DG Category (from G98 and G99)	Connection voltage	Connection offer required	Terms of Network use		Grid Code compliance required	Generation licence	CUSC	BELLA	BEGA	Comments
			NTC	Site specific Connection agreement (DNO choice)						
Single Micro Generation <3.68kW	LV	No, notify and connect. – Would an agreement be required with the DNO	Yes	No	No	No	Optional	Not applicable	Optional	There is no mandatory requirement for Embedded Micro Generation to have an Agreement (BEGA) unless they wish to – it this is an optional decision but generally the economics tend to prevent these types of agreement with the ESO.
Low voltage generation >3.68kw	LV	Yes – with DNO	Yes	Yes (threshold is DNO choice)	No	No	Optional	Not applicable	Optional	There is no mandatory requirement for low voltage Generation to have an Agreement (BEGA) unless they wish to – it this is an optional decision but

										generally the economics tend to prevent these types of agreement with the ESO.
<50MW England and wales	HV or EHV	Yes with DNO – Optional with ESO	Yes	Yes	No	No	Optional	Not applicable	Optional	There is no mandatory requirement for low voltage Generation to have an Agreement (BEGA) unless they wish to – it this is an optional decision but generally the economics tend to prevent these types of agreement with the ESO.
>10MW North of Scotland	HV or EHV	Yes	Yes	Yes	Yes	No	Yes	Yes	Optional	Either a BELLA or BEGA is required although a BELLA is the more common
>30MW South of Scotland	EHV	Yes	Yes	Yes	Yes	No	Yes	Yes	Optional	Either a BELLA or BEGA is required although a BELLA is the more common
50MW - > 100 MW England and wales	EHV	Yes	Yes	Yes	No	No	Optional	Not applicable	Require either a BEGA or LEEMPS (Licence	Embedded Medium Power station - Requires either a LEEMPS (more common) or BEGA. In

									Exempt Embedded Medium Power Station)	the case of a LEEMPS there is no agreement with the ESO.
100MW or larger	EHV	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Mandatory requirement to have a BEGA

Figure 4: Detailed table of current contractual rights

Annex 2: Product Description

Title	**2F: Identify and assess the options for how distribution-connected users access to the transmission network could be defined**
Objective	To identify and assess the options for how distribution-connected users' access to the transmission network could be defined.
Acceptance criteria	A note that identifies: • Quantitative evidence of distribution-connected generators or demand having an impact at transmission (e.g. costs or benefits). A note that describes current arrangements for distribution-connected generators to obtain access to the transmission network • Identify current distribution-connected users' access to the transmission network (e.g. BEGA and all other distribution-connected users), compared with transmission-connected users' access to the transmission network. The note should cover both distribution connected demand and generation. • Identifies current approach for charging for distribution-connected users' access to the transmission network (e.g. connection costs for BEGA/BELLA/all other distribution-connected users), compared with transmission-connected users charges for access to the transmission network. The note should cover both distribution connected demand and generation. A note that identifies the options for improving the clarity of distribution-connected users' access to the transmission system. The options should consider how arrangements would apply to IDNO-connected users. A note that assesses the options for improving the clarity of distribution-connected users access to the transmission system, against the following criteria: • How practical and proportionate are the options? • What is the impact of the options of the development of the efficient use and development of network capacity? • To what extent do options reflect the needs of consumers? Should the options apply to small users?
High-level timescales (Secretariat to develop detailed project plan).	• Initial draft by end of October • Completion by end of November
Dependencies - takes input from	The current arrangements should be informed by Access report on the "Current approach to the Design and Operation of the Electricity Transmission" and the Monitoring and Enforcement note.
Dependencies - provides input to	
Which DG members should be involved?	ESO and EDs

Ofgem Lead	Andrew Malley/Stephen Perry
Internal or external	External, this should be a joint piece of work between TNUoS sub-group (e.g. NG ESO) and Access sub-group.
Any comments on methodology used	Initial thinking on options for improving clarity of distribution-connected users to the transmission network. There are several options to consider: • Clearly defined access (E.g. D-TEC) agreed directly with NG ESO (with specific charges) • Clearly defined access to the transmission network agreed with Electricity Distributor (with specific charges). • No clearly defined transmission access, implicit access agreed as part of distribution connection process. For options all options we need to consider the rights and responsibilities associated with access (e.g. charging, applicability of C+M, etc.). We also need to consider the impact on current arrangements (e.g. BEGA and BELLAs). The transmission arrangements for Distributed Generation Review considered options to improve clarity.[3]
Other comments	The assessment should be against each of the guiding principles: • Arrangements support efficient use and development of network capacity • Arrangements reflect the needs of consumers as appropriate for an essential service • Any changes are practical and proportionate.

[3] https://www.ofgem.gov.uk/sites/default/files/docs/2007/07/070723_final_tadg_working_group_report.pdf https://www.ofgem.gov.uk/sites/default/files/docs/2006/06/14425-ofgem102.pdf

Annex 3: Contractual Terms

National Terms of Connection (NTC)

The NTC is put in place automatically when a customer who has a contract with a supplier is energised. The NTC set out the terms for the customer's use of the distributor's network and apply whether the customer is connected to a DNO or IDNO.

Connection Agreement

A connection agreement is an agreement between the owner/occupier and the DNO. The connection agreement will typically set out the necessary terms and conditions upon which the connected customer is connected to the Distribution System. The connection agreement contains information such as, the address of the connection, the owner of the connection, the capacity being connected and whether the supply is for import or export. The connection agreement may also include diagrams showing the ownership boundary between the customer's equipment and the DNO.

Grid Code

The Grid Code sets out the technical parameters of using the transmission network.

Generation licence

The generation licence is granted through the act for generators either over 100MW at transmission or for generators who choose to be licenced.

CUSC

The CUSC sets out the commercial requirements of connecting to, and using the transmission system.

Annex 4: Extracts from engineering guidance G99

2.6 The generic requirements for all types of Power Generating Facilities within the scope of this document relate to the connection design requirements, connection application and notification process including confirmation of commissioning. The document does not attempt to describe in detail the overall process of connection from application, through agreement, construction and commissioning. It is recommended that the ENA publication entitled – "Distributed Generation Connection Guide" is consulted for more general guidance.

2.7 Any Power Generating Module which participates in the balancing mechanism in addition to the general requirements of this EREC will have to comply with the relevant parts of the Grid Code. If the aggregated capacity of all the Power Generating Modules in the Power Generating Facility reaches the threshold for large as defined in the Grid Code (i.e. 10 MW in the north of Scotland; 30 MW in the south of Scotland, 100 MW in England and Wales), then the Generator will have to ensure compliance with the relevant parts of the Grid Code.

2.8 If the Registered Capacity of a Power Generating Facility in England and Wales is 50 MW or more, the Generator will have to comply with the requirements for an Embedded Medium Power Station as detailed in paragraphs 6.4.4 and 13.8.