

DCUSA Consultation	At what stage is this document in the process?
<h2 style="color: green;">DCP 328</h2> <h3 style="color: green;">Use of system charging for private networks with competition in supply</h3> <p style="color: green;"><i>Raised on 15th August 2018 as a Standard Change</i></p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">01 – Change Proposal</div> <div style="background-color: #0070C0; color: white; padding: 2px; margin-bottom: 2px;">02 – Consultation</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">03 – Change Report</div> <div style="border: 1px solid black; padding: 2px;">04 – Change Declaration</div>
<p>Purpose of Change Proposal:</p> <p>The intent of this change is to ensure that use of system charging remains cost-reflective when competition in supply on a private network is in place.</p>	
 	<p>The Workgroup recommends that this Change Proposal (Attachment 1) should: proceed to Consultation</p> <p>Parties are invited to consider the questions set in section 10 and submit comments using the form attached as Attachment 2 to dcusa@electralink.co.uk by 22 February 2019.</p> <p>DCP 328 has been designated as a Part 1 Matter and a standard change. The Working Group will consider the consultation responses and determine the appropriate next steps for the progression of the Change Proposal (CP).</p>
	<p>Impacted Parties:</p> <p>DCUSA parties: Suppliers, DNOs and IDNOs</p> <p>Others: private network operators and customers connected to private networks. Potential impact on data collectors or the Supplier Volume Allocation Agent also, should an accompanying Balancing and Settlement Code change be required.</p>
	<p>Impacted Clauses: To be determined based on the option chosen from this consultation</p>

Contents		 Any questions?
1. Summary	3	Contact: Code Administrator
2. Governance	5	 DCUSA@electralink.co.uk
3. Why Change?	5	
4. Working Group Assessment	12	 02074323000
5. Legal Text	25	
6. Relevant Objectives	25	Proposer: Andrew Enzor
7. Impacts & Other Considerations	26	 andrew.enzor@northernpowergrid.com
8. Implementation	27	
9. Consultation Questions	27	 07834 618994
Timetable		
The timetable for the progression of the CP is as follows:		
Change Proposal timetable		
Activity	Date	
Initial Assessment Report Approved by Panel	08 August 2018	
First Consultation issued to Parties	01 February 2019	
Assessment of Consultation from Working Group	March 2019	
Second Consultation Issued to Parties	April 2019	
Change Report issued to Panel	July 2019	
Change Report issued for Voting	July 2019	
Party Voting Ends	August 2019	
Change Declaration Issued to Parties	August 2019	
Authority Decision	September 2019	
Implementation	TBC	

1 Summary

What?

1.1. There are several scenarios in which multiple customers can be connected to an electricity distribution system (private network) operated by a licence exempt distributor (known throughout this document as a Private Network Operator (PNO)) with that private network then connected to the local Distributor's¹ network further upstream. There are numerous PNOs which vary in scale. Common examples are:

- airports;
- ports;
- generation sites;
- high rise flats;
- office blocks;
- caravan sites;
- small businesses/industrial sites;
- marinas; and
- properties that have been subdivided into flats.

This is not an exhaustive list.

Q1a: Do you agree that the above identifies an appropriate range of private networks?

Q1b: If you are a PNO please detail which type of network you manage.

If you are responding and are not a PNO, please be clear if you are considering a specific example in each section of your response.

1.2. Where such private networks exist, there is only one connection to the Distributor's network at the point where the private network connects to the wider network. The private network then serves multiple customers, generally operating under an exemption from holding a Distribution licence. In some circumstances, the PNO will appoint an electricity Supplier, and will pay a single electricity bill in respect of a single Meter Point Administration Number (MPAN) at the ownership boundary between the Distributor and the PNO, which is then shared amongst the customers connected to the private network through some agreed contractual framework (potentially using some private metering on each customer's connection to the private network to determine that customer's share of the total bill).

¹ A licensed distributor is either a Distribution Network Operator or an Independent Distribution Network Operator, collectively known in this consultation document as Distributors unless the text is specific to either party.

- 1.3. The Electricity and Gas (Internal Markets) Regulations 2011² introduced new obligations on PNOs and supply undertakings, including a duty to facilitate third party access to their electricity and gas networks. Customers connected to a private network are entitled to request competition in supply. PNOs are obliged to deliver this if requested although there are some exceptions which are detailed in those regulations. This means that, rather than the customer paying their share of the total electricity bill for the entire private network, the customer can enter into contract with their chosen Supplier to provide their electricity and pay a separate electricity bill to that Supplier. The DNO Use of System (UoS) charges were explored during an earlier change to DCUSA, DCP158 – “DNO DUoS re EDNOs” which was rejected by the Authority. Documentation detailing the timeline of regulatory events and the obligations on parties, which formed part of that CP, is in Attachment 3.
- 1.4. In order to facilitate competition in supply, Distributors are required to provide additional MPANs to be used for customers who have requested competition in supply in order to differentiate units which relate to that customer from the remainder of the customers connected to the private network. This creates complications for UoS charging. For half hourly site-specific settled customers (i.e. those in measurement class C, D or E), Distributors receive usage data by MPAN in order to invoice UoS charges, with an invoice being issued per MPAN per month. Hence when competition in supply is in place, if the Distributor followed standard processes, it would issue an invoice in respect of each MPAN, some of which in fact relate to customers connected to the private network.
- 1.5. The Distributor only has a relationship with the PNO (as the party which has a connection to the Distributor’s network), with that relationship likely to be underpinned by a connection agreement, detailing the maximum import (and if applicable maximum export) capacities of the private network.

Why?

- 1.6. Without clarity in the charging methodology, there is a risk that Distributors will take different approaches, undermining the intended commonality of the charging methodologies.
- 1.7. Competition in supply on a private network does not alter the use of the Distributor’s network; hence the CP form asserts that the UoS charges faced by the multiple Suppliers involved when competition in supply is in place should sum to the same total as would be applied if a single Supplier were supplying the site as a whole.
- 1.8. When competition in supply is not in place (i.e. there is a single Supplier and one MPAN) fixed and capacity charges would be applied in respect of that single MPAN. Where competition in supply is in place (i.e. there are multiple Suppliers and multiple MPANs), if all tariff elements are applied in respect of all MPANs (as would be expected), multiple fixed and capacity charges would be applied. This undermines the equivalence in charges (which the CP suggests should be seen) faced by the

² http://www.legislation.gov.uk/ukxi/2011/2704/pdfs/ukxi_20112704_en.pdf

single Supplier (where competition in supply is not in place) and the sum of charges faced by multiple Suppliers (where competition in supply is in place).

How?

- 1.9. There are a number of possible solutions to this issue which are discussed in detail later in this consultation document.

2 Governance

Justification for Part 1 Matter

- 2.1. The Proposer considers that this CP should be considered a Part 1 Matter as it satisfies one or more of the following criteria:
- a) it is likely to have a significant impact on the interests of electricity consumers;
 - b) it is likely to have a significant impact on competition in one or more of:
 - i. the generation of electricity;
 - ii. the distribution of electricity;
 - iii. the supply of electricity; and
 - iv. any commercial activities connected with the generation, distribution or supply of electricity.

Current Next Steps

- 2.2. This consultation will be open for a period of three weeks. Following this, the Working Group will review responses and determine the appropriate next steps. This is likely to involve further refinement of the options for change followed by further industry consultation on the refined solution.

3 Why Change?

Background of DCP 328

- 3.1. Elexon have a guidance document for Third Party Access to Licence Exempt Distribution Networks³. This focuses on the Balancing and Settlement Code (BSC) obligations and processes associated with facilitating competition in supply (referred to as 'third party access') for electricity customers connected to private networks. The proposed options detailed in this consultation are designed to work with the options available for settlement where competition in supply is in place, as summarised in that guidance.

³ [Third Party Access to Licence Exempt Distribution Networks](#)

- 3.2. As stated in section 1 there are a number of different types of private networks operated by PNOs.
- 3.3. A simple example is shown in Figure 1, where competition in supply is not in place.

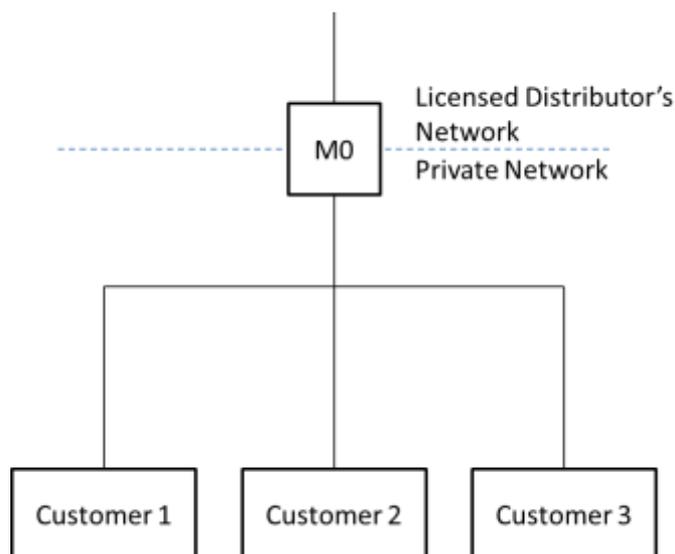


Figure 1 - three customers on a private network

- 3.4. The meter marked as 'M0' will be used in Settlement, and the commercial arrangement with the Supplier will be with the PNO. The PNO is then likely to pass through the charges from the Supplier to the end customers – to do so, it may use private (i.e. non-Settlement) meters for each customer to derive the amount due from each customer, or an alternative contractual agreement.
- 3.5. Customers connected to a private network are entitled to request competition in supply, which PNOs are obliged to deliver if requested (subject to some exemptions detailed in the Electricity and Gas (Internal Markets) Regulations 2011). Where a customer is granted competition in supply, rather than the customer paying their share of the total electricity bill for the private network, the customer can enter into contract with their chosen Supplier to provide their electricity and pay a separate electricity bill to that Supplier. In order to facilitate this, Distributors are required to provide additional MPANs to be used for customers who have requested competition in supply in order to differentiate units which relate to that customer from the remainder of the customers connected to the private network.
- 3.6. If customer 1 in the example above now wishes to use a different Supplier to that used by customers 2 and 3, there are three possible metering arrangements which can be used which will facilitate competition in supply on a private network, as stated in the Elexon guidance document mentioned in paragraph 3.1 above namely:
- difference metering;
 - full Settlement metering; or
 - shared metering.
- 3.7. Under all metering options, the Distributor is obliged to provide Meter Point Administration Services to customers on the private network and in so doing provides MPANs against which metering data is recorded in Settlement.

Difference Metering

3.8. In order for difference metering to be used to facilitate competition in supply for customer 1, metering arrangements as shown in Figure 2 would be required.

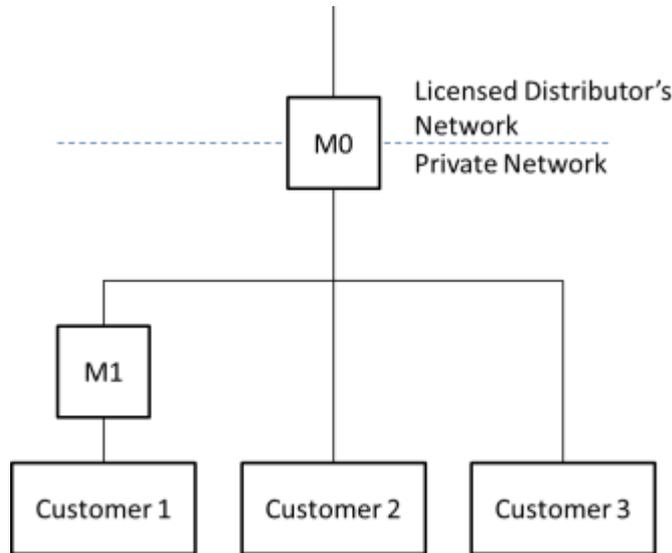


Figure 2 - competition in supply using difference metering

3.9. In order for difference metering to be used, all metering systems involved ('M0' and 'M1' in this example) must be half hourly metering systems.

3.10. Under a difference metering approach, Settlements metering measuring customer 1's usage ('M1') will be used in Settlement for their units under a separate MPAN. These units will also have flowed through the boundary meter ('M0') and so a correction is required to avoid double counting. This is made by subtracting units used by customer 1 ('M1') from units measured through the boundary ('M0'). For example, if customer 1 were to now be supplied by 'Supplier A' using 'MPAN A' and customers 2 and 3 continue to be supplied by the PNO, who in turn takes his energy from 'Supplier X' using 'MPAN X', the units in Settlement for the two suppliers would be as follows:

- *Supplier A Units = MPAN A = M1*
- *Supplier X Units = MPAN X = M0 - M1*

This maintains Settlement accuracy by ensuring that units are counted in Settlement once and only once.

Full Settlement Metering

3.11. In order for full Settlement metering to be used to facilitate competition in supply all the customers on the private network would need to have settlement metering and no settlement boundary meter as shown in Figure 3 below.

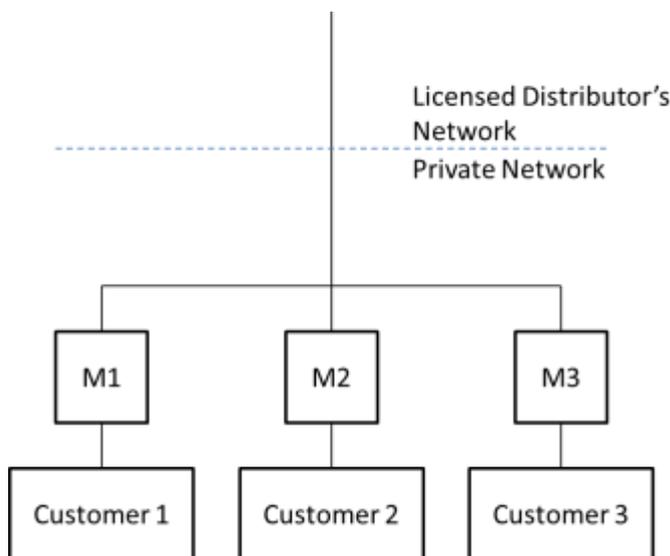


Figure 3 - competition in supply using full Settlement metering

- 3.12. The BSC refers to such an arrangement as an 'Associated Distribution System' and requires all the entry and exit points to be metered. Full Settlement metering can be used with either half hourly metering systems, non-half hourly metering systems, or a combination of the two, and is often used for connections such as blocks of flats, where the ownership boundary between the Distributor and the PNO is at the base of the building whilst each flat is separately metered – the rising mains within the building form a private network or 'Associated Distribution System'.
- 3.13. Under a full Settlement metering approach, Settlements metering that measures the usage of customer 1, customer 2 and customer 3 would be used in Settlement under separate MPANs, with the boundary meter (previously 'M0') no longer used.
- 3.14. Under this arrangement there is no customer at the boundary and all customers on the private network have a chosen a Supplier. Let us assume for this example that customer 1 is still supplied by 'Supplier A' using 'MPAN A', customer 2 is supplied by 'Supplier B' using 'MPAN B' and customer 3 is supplied by 'Supplier C' using 'MPAN C'. The units in Settlement for the three Suppliers would be as follows:
- *Supplier A Units = MPAN A = M1*
 - *Supplier B Units = MPAN B = M2*
 - *Supplier C Units = MPAN C = M3*

This maintains Settlement accuracy by ensuring that units are counted in Settlement once and only once.

Shared Metering

- 3.15. In order for shared metering to be used to facilitate competition in supply for customer 1, metering arrangements as shown in Figure 4 would be required.

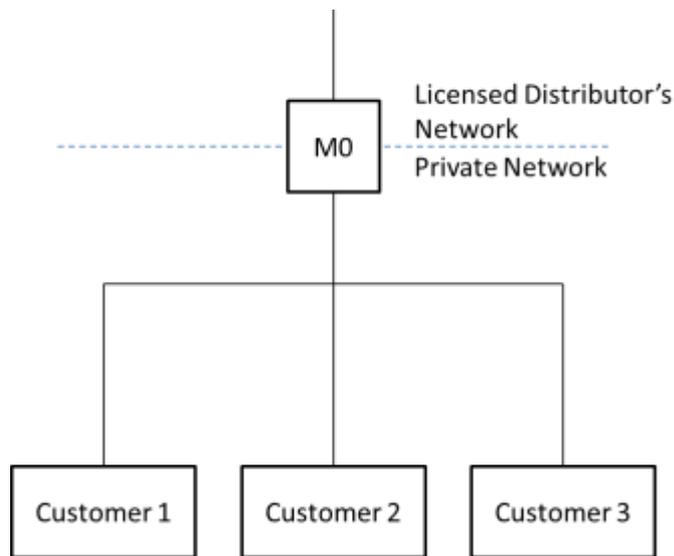


Figure 4 - competition in supply using shared metering

3.16. In order for shared metering to be used, all metering systems involved must be half hourly metering systems.

3.17. Under a shared metering approach, Settlements metering at the boundary (i.e. measuring the usage of all **three** customers) is used to determine the total units entered into Settlement, with an agreed allocation method being used to determine the usage of each individual customer which is in turn allocated to each Supplier. The means of allocation is agreed between the Suppliers in question, which can be based on private metering measuring each customer's individual usage or through a simple mechanism such as a fixed proportion.

3.18. Assuming the customers use the same Suppliers as under the full settlement example, customers 1, 2 and 3 would be supplied by 'Supplier A', 'Supplier B' and 'Supplier C' respectively using 'MPAN A', 'MPAN B' and 'MPAN C' respectively. The units in Settlement for the three Suppliers would be as follows:

- *Supplier A Units = MPAN A = MO x X*
- *Supplier B Units = MPAN B = MO x Y*
- *Supplier C Units = MPAN C = MO x Z*

Where X + Y + Z = 1.

This maintains Settlement accuracy by ensuring that units are counted in Settlement once and only once.

Use of System Charging Implications

3.19. Under all metering options, the ownership boundary between the Distributor and the PNO remains unaltered, and the connection agreement is between the PNO and the Distributor, with the agreed capacity reflecting the agreed capacity at the boundary. Assuming each of the customers does not alter their usage in this process, this will remain appropriate, as units through the boundary will not

change. Given the boundary arrangements have not changed, and usage of the Distributor's network has also not changed, the CP asserts that total UoS charges should not change.

3.20. However, under each of the three metering options there will be multiple MPANs with metering data in Settlement. Under current processes, the Distributor would assign a tariff to each MPAN reflecting the type of customer connected and the voltage of connection, and then invoice the registered Supplier of each MPAN accordingly based on data received through Settlement.

3.21. The CP form highlighted a number of issues for UoS charging and associated administration as below:

- a) **Assigning tariffs:** Depending on the tariffs which the Distributor assigns to each customer, there is a risk that the Distributor will be invoicing in respect of assets which are in fact private network assets. For example, a customer within a private network could be connected to the Low Voltage (LV) network whilst the ownership boundary between the Distributor and the PNO is at the High Voltage (HV)/LV substation. If the Distributor were to assign tariffs based on the voltage of connection of the customer, it would assign an LV network tariff to the embedded customer and so would be charging in respect of LV circuit assets which it does not own or operate.
- b) **Losses within the private network:** Losses within the private network may not be accounted for in the units in Settlement. Under the difference metering option, units recorded against MPANs for customers with competition in supply will be artificially low as losses between the ownership boundary between the Distributor and the PNO and the customer will not be included in those units – the differencing calculation will instead assign those losses to remaining customers. Under the full Settlement option, units recorded against all MPANs will be artificially low as losses on the private network will not be taken into account at all. The treatment of losses under the shared metering option will depend on the calculation used to apportion boundary units between customers, which may or may not accurately take losses into account. This issue is particularly prevalent if customers within the private network are at lower voltage than the boundary (i.e. if there is some transformation within the private network, and so corresponding transformation losses). The units in Settlement for a customer embedded within the private network will not reflect the flows at the ownership boundary between the Distributor and the PNO which that customer caused, because losses will have been incurred between the boundary and the customer metering. However this issue may be resolved using the BSC complex site mapping exercise (BSCP514⁴).

⁴ [SVA Meter Operations for Metering Systems Registered in SMRS](#)

- c) **Fixed charges:** Where competition in supply is not in place, one fixed charge will be applied in respect of the one MPAN at the boundary. Where competition in supply is in place, fixed charges will be applied in respect of all MPANs.
- d) **Agreed capacity charges:** Where competition in supply is not in place, one agreed capacity charge will be levied at the boundary, based on the capacity agreed between the Distributor and the PNO, formalised in a connection agreement. It is not clear what agreed capacity the Distributor should charge in respect of MPANs which relate to connections to the private network where the Distributor has no commercial relationship with the customer and so no basis on which to determine the agreed capacity.
- e) **Excess capacity charges:** Where competition in supply is not in place, one excess capacity charge will be levied at the boundary if the aggregate usage of all customers connected to the private network (as measured by the boundary metering) exceeds the agreed capacity at the boundary; if not, no excess capacity charge will be levied. Even if the agreed capacity issue detailed in the previous point can be overcome by allocating boundary capacity to individual end users, diversity of usage within the network is problematic for excess capacity charging, where there is a possibility that some (or all) users exceed their allocated capacity at certain times whilst the private network as a whole remains within its agreed capacity as a result of different users exceeding their allocated capacity at different times. Thus simply allocating boundary capacity between end users on the private network may result in excess capacity charges being applied where none would be applied in the scenario where competition in supply is not in place.
- f) **Charging for export sites:** If one of the sites within the private network includes some generation which exports onto the private network, the units exported are likely to be used by other customers within the private network, and so will offset flows at the ownership boundary between the Distributor and the PNO. The import and export units for each customer within the private network will be seen separately in Settlement, and so the Distributor will charge import units and (where applicable) credit export units. Generation credits at a given voltage are not the inverse of demand charges at that voltage, and so the total UoS charge for customers connected to the private network will be different if the import and export from each customer is charged separately to that which would have been charged had all usage been charged at the boundary. This issue is currently resolved by using the BSC complex site mapping exercise.
- g) **Charging for reactive power:** Under the difference metering approach, reactive units metered at customer connections will be deducted from reactive units metered at the boundary. Such differencing will not accurately reflect reactive power flows at the boundary.
- h) **Sites with multiple feeders:** there are complications for the difference metering arrangements where a private network has multiple feeders, each with a Connection Agreement, agreed capacity, and possible different voltages. Under this scenario it may

not be clear to which of the multiple feeders the differencing should be applied. This issue is currently resolved by using the BSC complex site mapping exercise.

- 3.22. DCP 328 is seeking to formalise the approach which Distributors should take when invoicing UoS charges in respect of private networks where competition in supply is in place, to ensure commonality between different Distributors and to maintain cost-reflectivity wherever possible.

Q2: Do you understand the intent of DCP 328?

Q3: Are you supportive of the principles of DCP 328?

4 Working Group Assessment

DCP 328 Working Group Assessment

- 4.1. A Working Group has been established to discuss a number of potential solutions of which more than one option may be chosen based on the complexity of the private network. The solutions which the Working Group has considered are:

- Option 1 – Invoice only the boundary Supplier;
- Option 2 – Invoice all Suppliers based on the tariff which the Distributor would apply if the end user were connected at the ownership boundary between the Distributor and the PNO with a correction to fixed charges and some form of capacity allocation;
- Option 3 – Invoice all Suppliers as if the customer were connected to the Distribution network, with the PNO able to ‘claim’ some UoS revenue back from the Distributor in respect of private network assets;
- Option 4 – Invoice the PNO direct; and
- Option 5 – Invoice all Suppliers based on new UoS charges which only include elements of charging which relate to voltage levels provided by the Distributor.

- 4.2. In order to assess the advantages and disadvantages of each option, the Working Group considered four scenarios:

- **All HH Site Specific Settled with difference metering** – a scenario where all customers seeking in supply have half hourly metering and half hourly metering is in place at the ownership boundary between the Distributor and the PNO with difference metering being used in Settlement (see Figure 2). Such a setup would be typical of an airport where a small number (perhaps one) customer connected to the private network is seeking competition in supply.
- **All HH Site Specific Settled with full settlement metering** – a scenario where all customers connected to the private network have half hourly metering and the full

settlement option is used in settlement, with each customer choosing their own supplier (see Figure 3). Such a setup would be typical of a generation site where the owner of each generating engine wished to access competition in supply.

- **All NHH or HH Aggregate Settled with full settlement metering** – a scenario where all customers connected to the private network have non-half hourly metering or half hourly whole current metering (i.e. aggregated data is used in Settlement) and the full settlement option is used in Settlement, with each customer choosing their own supplier (see Figure 3). This setup is most likely to be used for a block of flats where the connection to the Distributor’s network is at the base of the building and the ‘rising mains’ to each flat form a private network, with each flat having its own metering system and each tenant choosing their electricity supplier.
- **Combination of HH and NHH Settled with full settlement metering** – a scenario where customers connected to the private network have non-half hourly or half hourly metering and the full settlement option is used in Settlement, with each customer choosing their own supplier (see Figure 3). This setup is most likely to be used for a commercial building where the connection to the Distributor’s network is at the base of the building and the ‘rising mains’ to each section of the building form a private network, with commercial customers within the building each having their own metering system (some of which are half hourly and some non-half hourly) and each choosing their own supplier.

4.3. The Working Group has considered the options listed in paragraph 4.1 in the context of each scenario listed in paragraph 4.2 and below is a more detailed analysis of each option.

Option 1 – Invoice only the boundary Supplier

4.4. Under this approach, the Distributor would continue to invoice UoS charges only to the Supplier registered to the boundary MPAN in Settlement. In order to invoice all units, this solution requires the Distributor to either receive or be in a position to calculate gross units at the boundary, whereas Settlements will only show net units (i.e. with units used by embedded customers having been differenced from the boundary MPAN).

Scenario	Pros	Cons
Overall		<ul style="list-style-type: none"> • Can only be applied where there is a boundary MPAN with an appointed Supplier.
All HH Site Specific Settled with difference metering	<ul style="list-style-type: none"> • All charges (including capacity and reactive power) can be levied accurately based on boundary metering data. • Provided an agreement is in place between the Meter Operator/Data Collector and boundary Supplier, the 	<ul style="list-style-type: none"> • Needs a mechanism by which the Distributor receives gross boundary metering data (which will not be received through Settlement). • Needs a mechanism by which the Distributor applies zero rates to data

	<p>boundary Supplier will receive the same boundary metering data as the Distributor so can validate invoices.</p> <ul style="list-style-type: none"> • By invoicing based on actual boundary metering data (rather than e.g. the sum of embedded customer metering data) the Distributor will always invoice for the units which it has delivered, avoiding any issues with losses within the private network and the risk of inaccuracy when ‘re-aggregating’ embedded customer metering data to determine boundary data. • Private network is treated as a single customer – so the Distributor’s charges will always be exactly equal to the charges which would have been levied had a single customer been connected at the ownership boundary between the Distributor and the PNO and the Distributor is only invoicing in respect of its own assets 	<p>received through Settlement for the PNO (both embedded customers and difference boundary data). Full charges will be applied to the supplier of the boundary point MPAN based on the gross boundary point metering data.</p> <ul style="list-style-type: none"> • For the avoidance of doubt appropriate loss adjustment factors need to be applied in a manner in accordance with BSCP128. <p>The boundary Supplier is invoiced by the Distributor in respect of units which it has not supplied (i.e. the units used by embedded customers for which another Supplier is responsible). There will need to be additional processes in place to recover these costs from the other Suppliers of embedded customers, which may be between PNO and supplier or supplier and supplier.</p>
<p>All HH Site Specific Settled with full settlement metering</p>		
<p>All NHH or HH Aggregate Settled with full settlement metering</p>		<ul style="list-style-type: none"> • Solution relies on a boundary MPAN with an appointed Supplier – hence does not cater for these scenarios.
<p>Combination of HH and NHH Settled with full settlement metering</p>		

Consumer Impacts

4.5. If the Distributor is billing at the boundary, the boundary Supplier is receiving all of the Distributor's charges which are likely to be passed on to the boundary customer (i.e. the PNO). Allocation of the Distributor's charges between the PNO and its customers (including those with competition in supply) would then rely on appropriate commercial arrangements between the PNO customers and the suppliers involved.

Q4: What are your views on option 1 and would you like the Working Group to consider this option further?

Option 2 – Invoice all Suppliers based on the tariff which the Distributor would apply if the end user were connected at the ownership boundary between the Distributor and the PNO with a correction to fixed charges and some form of capacity allocation

4.6. Under this approach, the Distributor would invoice based on units received through Settlement, using the tariff which the Distributor would apply if the customers were connected at the ownership boundary between the Distributor and the PNO UoS charges to:

- both the boundary Supplier and the Supplier of embedded customers (under the difference metering approach); or
- the Suppliers of all embedded customers (under the full Settlement or shared metering approach).

4.7. A solution would be needed to the issues raised at the end of the 'Why Change' section (paragraph 1.8). This could be achieved for fixed charges by applying a proportion of the fixed charge to each supplier which would ensure that the total of fixed charges applied for all customers connected to the private network is equivalent to the fixed charge which would have been applied had there only been a single boundary MPAN. For capacity charging, some means of capacity allocation would be required to split the agreed capacity at the ownership boundary between the Distributor and the PNO between the connected customers.

Scenario	Pros	Cons
Overall	<ul style="list-style-type: none"> • Distributors and Suppliers already receive (almost) all information required to facilitate this approach through existing settlement arrangements. • Each Supplier pays UoS charges only for units which it has supplied. • Distributor would assign the tariff which would be assigned to a single customer connected at the ownership boundary between the Distributor and the PNO – so Distributor is only invoicing in respect of its own assets. 	<ul style="list-style-type: none"> • Distributors and Suppliers would need additional information identifying private network MPANs in order to appropriately assign tariffs. • The need for additional (likely manual) processes for Suppliers will increase the cost to serve of embedded customers, potentially reducing Supplier engagement and the extent to which embedded customers benefit from competition.

	<ul style="list-style-type: none"> All units are charged based on the tariff which the Distributor would apply at the boundary – so assuming the sum of units charges is equivalent to the sum of units through the boundary, the total units charges levied will be the same as those which would be levied if a single customer were connected at the ownership boundary between the Distributor and the PNO. 	
<p>All HH Site Specific Settled with difference metering</p>		<ul style="list-style-type: none"> Capacity and reactive power charging will be inaccurate compared to option 1. The connection agreement will be between the Distributor and PNO for capacity at the boundary, which is being monitored by boundary metering – the Distributor would be (arbitrarily) dividing this capacity between PNO customers. Option 1 results in charges which are exactly equal to that which would have been levied had a single customer been connected at the ownership boundary between the Distributor and the PNO – this option will create a similar but not identical charge because the excess capacity charging issue and reactive power charging issues identified in the ‘why change’ section (paragraph 1.8) cannot be resolved under this mechanism.
<p>All HH Site Specific Settled with full settlement metering</p>	<ul style="list-style-type: none"> Fixed charges can effectively be split between the number of embedded customers to ensure the equivalent of one fixed charge is levied in aggregate. 	<ul style="list-style-type: none"> Capacity charging will rely on the Distributor ‘assigning’ some of the boundary capacity to each embedded customer. The Distributor has no basis for doing so, and risks indicating that each embedded customer has that agreed capacity – the only agreed capacity which is relevant to the

		<p>embedded customers is that with the PNO.</p> <ul style="list-style-type: none"> • If the Distributor splits capacity between embedded customers, it may also levy excess capacity charges for individual embedded customers, when each customer may well have operated within their agreed capacity with the PNO and in aggregate (because of diversity between embedded customers) remained below the agreed capacity for the private network, but exceeded their 'portion' of the boundary capacity. • Reactive power flows through each embedded customer's metering will not sum to the reactive power flows at the boundary, so reactive power charging will be inaccurate. • In order to accurately split fixed charges, the Distributor will need to know how many customers are connected to the private network, including when this changes over time. The Distributor will then need to amend the fraction of the fixed charge which is applied in respect of each embedded customer – which could be a cumbersome process.
<p>All NHH or HH Aggregate Settled with full settlement metering</p>		<p>If the tariff which the distributor would apply at the boundary is a HH metered tariff (which is likely given the boundary has potentially relatively high load) then this option would not be feasible with these scenarios as the distributor will receive aggregated data through Settlement to which it will not be in a position to apply a site-specific tariff</p>

Combination of HH and NHH Settled with full settlement metering		(which would include variable unit rates, capacity and reactive charges).
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Consumer Impacts

4.8. Each customer will be charged by their Supplier rather than the PNO for the use of the upstream distribution network (either explicitly via ‘pass-through’ arrangements or through inclusion in the supplier’s tariff), the same as they do if they were connected to the Distributor’s network. However PNO network costs will still need to be recovered, either through agreement with customer(s) or by PNO UoS charges to Supplier(s) of embedded customer(s).

Q5: What are your views on option 2 and would you like the Working Group to consider this option further?

Option 3 – Invoice all Suppliers as if the customer were connected to the Distributor’s network, with the private network operator able to ‘claim’ some use of system revenue back from the Distributor in respect of private network assets

4.9. Under this approach, the Distributor would invoice the Supplier of both the embedded customers and the boundary Supplier UoS charges as if those end customers were connected direct to its network. As a result, the Distributor would have recovered some UoS charges in respect of assets on the private network, to which the PNO should be entitled, and so the PNO would be eligible to claim back a portion of UoS revenue from the Distributor.

Scenario	Pros	Cons
Overall	<ul style="list-style-type: none"> Suppliers face identical processes and charges for embedded customers as for equivalent Distributor connected customers. This will potentially facilitate engagement by Suppliers and so increase the extent to which embedded customers benefit from competition. A single contractual agreement with the Distributor would be required by the PNO to recover UoS charges. This is more efficient than maintaining multiple contractual agreements with (changing) Suppliers. 	<ul style="list-style-type: none"> If the Distributor treats credits to the PNO as a cost, it will not fully recover its revenue allowances. Would either require a licence change to allow such PNO credits to be treated as pass-through costs or for the costs to be treated as negative regulated revenue. Need for either a contractual agreement with Distributor and PNO to agree what value can be claimed or for the mechanism by which this value is determined to be defined in DCUSA.

All HH Site Specific Settled with difference metering	<ul style="list-style-type: none"> If the amount which the PNO is eligible to claim is set relative to the boundary metering data, the net charge for the private network will be the same as under option 1. 	<ul style="list-style-type: none"> Creates a complex mechanism by which the end result of option 1 is achieved.
All HH Site Specific Settled with full settlement metering	<ul style="list-style-type: none"> The issue over capacity under this option falls away due to reconciliation process between the Distributor and PNO. 	<ul style="list-style-type: none"> Issues with reactive power charging identified under option 2 remain under this scenario.
All NHH or HH Aggregate Settled with full settlement metering	<ul style="list-style-type: none"> NHH Distributor tariffs are calculated specifically for each given end user group (e.g. domestic customers) – this approach enables existing tariffs to be used without needing to define tariffs for such customers with different boundary voltages. 	<ul style="list-style-type: none"> Would require meter reads for private network customers to be disaggregated from meter reads for other customers to enable the credit to the PNO to be calculated.
Combination of HH and NHH Settled with full settlement metering	<ul style="list-style-type: none"> NHH Distributor tariffs are calculated specifically for each given end user group (e.g. domestic customers) – this approach enables existing tariffs to be used without needing to define tariffs for such customers with different boundary voltages. 	<ul style="list-style-type: none"> Would require meter reads for NHH and HH aggregate Settled private network customers to be disaggregated from meter reads for other customers to enable the credit to the PNO to be calculated.

Consumer Impacts

4.10. None identified.

Other Considerations

4.11. The Working Group discussed the impact this option could have on IDNOs, and whether this option would discriminate against IDNOs in a situation where a private network is connected to an IDNO network. In this situation, the IDNO would invoice the Suppliers of the embedded customers (typically using the tariff which the host DNO would apply to those end customers if those end customers were connected to the host DNOs network). The PNO would be entitled to ‘claim’ a portion of that revenue from the IDNO. But under existing processes the DNO also invoices the IDNO to recover its portion of UoS charges in respect of those end customers. As a result, the IDNO would be required to pay a credit back to the PNO as well as settling the DNO upstream invoice. Members of the Working Group were concerned that this could result in a reduced IDNO margin.

4.12. In order to reconcile these concerns, the Working Group considered the revenue which would be available to an IDNO under equivalent scenarios with and without a PNO operating the LV network.

Figure 5 shows a typical scenario with customers connected to an IDNO network.

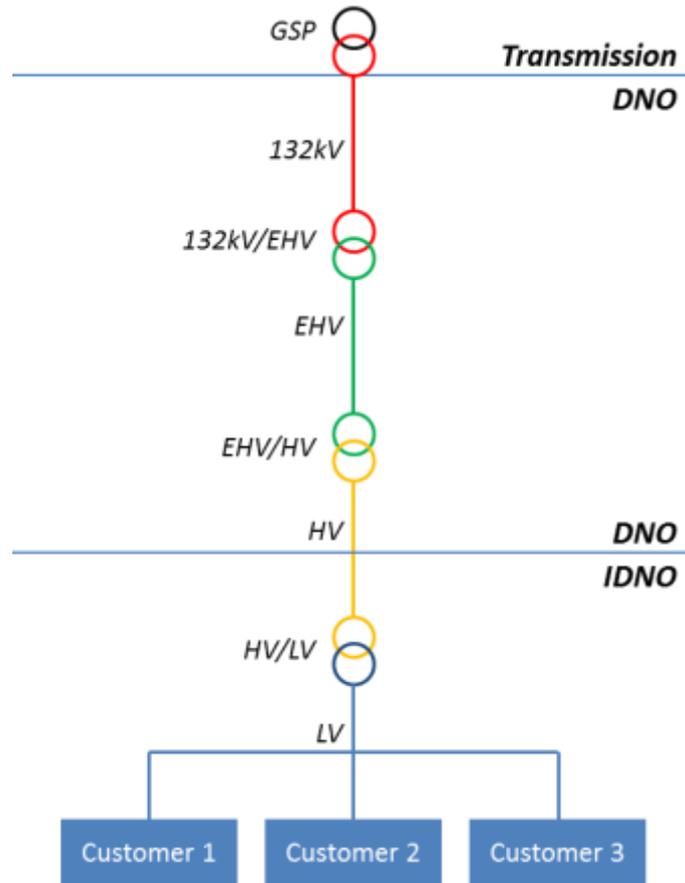


Figure 5 - IDNO connected end customers without PNO

4.13. Under this arrangement, the IDNO would invoice the Suppliers of the end customers, typically using the tariff which the host DNO would apply if the customers were connected direct to the host DNO's network. The DNO would then invoice the IDNO 'discounted' UoS charges in respect of those end customers – in this case with the discounts calculated to take into account that the IDNO is connected to the host DNO network at HV and is supplying LV customers, so should be entitled to revenue in respect of a portion of the HV circuits network level, and all of the HV/LV transformation and LV circuits network levels.

4.14. **Figure 6** shows an equivalent scenario, but with a PNO owning and operating the LV network.

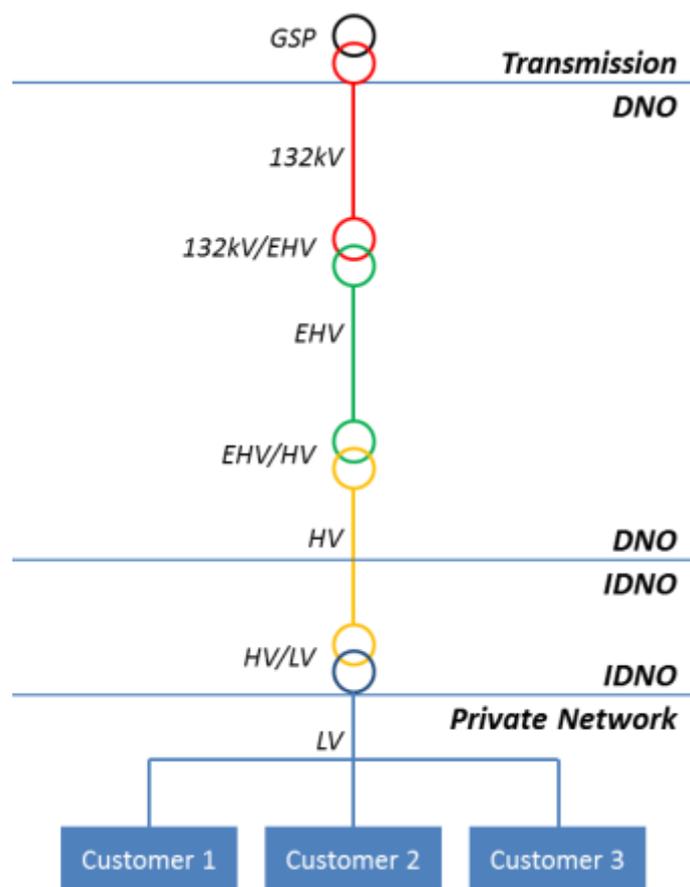


Figure 6 - PNO connected end customers with PNO network connected to IDNO network

- 4.15. As under the more standard arrangement shown in Figure 5, the IDNO would invoice the Suppliers of the end customers, typically using the tariff which the host DNO would apply if the customers were connected direct to the host DNO's network. The DNO would then invoice the IDNO 'discounted' UoS charges in respect of those end customers. The DNO would be 'blind' to the involvement of the PNO, and so would apply the same charges as under the standard IDNO arrangement shown in Figure 5 – i.e. with the discounts calculated to take into account that the IDNO is connected to the host DNO network at HV and is supplying LV customers, so the DNO should not recover revenue in respect of a portion of the HV circuits network level, and all of the HV/LV transformation and LV circuits network levels. With this transaction complete, the IDNO is left with all UoS revenue in respect of the LV circuits and HV/LV transformation network levels and a portion of the HV circuits network level.
- 4.16. Under the option being considered, the PNO would be entitled to claim some UoS revenue from the IDNO. In this example, the PNO would be entitled to claim UoS revenue in respect of the LV circuits network level. This being the case, the IDNO will be left with all UoS revenue in respect of the HV/LV transformation network level and a portion of the HV circuits network level, being those network levels where it owns and operates assets.

Q6: What are your views on option 3 and would you like the Working Group to consider this option further?

Option 4 – Invoice the PNO direct

4.17. Under this approach, the Distributor would invoice UoS charges direct to the PNO based on total units at the boundary, with no charges applied to the units recorded in Settlement against MPANs which relate to customers connected to the private network or against the boundary MPAN if applicable. The PNO may then directly pass through the Distributor's charges to customers connected to the private network or recover those costs through another means (e.g. an appropriate commercial agreement).

Scenario	Pros	Cons
Overall	<ul style="list-style-type: none"> Tariffs would be assigned at the boundary, so the Distributor is invoicing only in respect of its own assets. This solution avoids the issues presented in option one where the boundary supplier is being invoiced UoS charges in respect of units which it has not supplied (under the difference metering approach). Unlike option one this option is also compatible with all metering approaches. 	<ul style="list-style-type: none"> Need for zero tariffs to be applied to MPANs on private network for 'standard' Supplier invoices PNOs do not accede to the DCUSA, so DCUSA obligations covering Distributor to Supplier invoices (e.g. the obligation to pay) would not apply. In order to invoice all units, this solution requires the Distributor to either receive all relevant data associated with the tariff at the boundary, where Settlement will only show net units (i.e. with units used by embedded customers having been differenced from the boundary MPAN). There is a potential that the Distributor will have to deal with bad debt risk.
All HH Site Specific Settled with difference metering	<ul style="list-style-type: none"> Achieves the same position as option 1, albeit charges have been levied on the PNO rather than the boundary Supplier. 	
All HH Site Specific Settled with full settlement metering	<ul style="list-style-type: none"> Enables more appropriate capacity charging than option one as charges are levied for the network as a whole. 	<ul style="list-style-type: none"> Reactive power charging would not be fully accurate as reactive power flows at the boundary will not be equivalent to the sum of reactive power flows at embedded customer metering points.
All NHH or HH Aggregate Settled with full settlement metering		<ul style="list-style-type: none"> Would require meter reads for private network customers to be disaggregated from meter reads for other customers to enable the invoices to the PNO to be calculated.
Combination of HH and NHH		

Settled with full settlement metering		
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Consumer Impacts

4.18. None identified

4.19. After consideration of the above the Working Group concluded that this option was not appropriate as PNOs cannot accede to DCUSA and as such would introduce the need for numerous bilateral agreements to cater for invoice an payment processes with the PNOs.

Q7: What are your views on option 4 and would you like the Working Group to consider this option further?

Option 5 – Invoice all Suppliers based on new use of system charges which only include elements of charging which relate to voltage levels provided by the Distributor

4.20. Under this approach, the Distributor would invoice UoS charges to both the boundary Supplier and the Supplier of embedded customers (under the difference metering approach) or the Suppliers of all embedded customers (under the full Settlement or shared metering approach), based on units received through Settlement, using new tariffs calculated for each Distribution network to private network boundary voltage based on the voltage levels which the Distributor provides. This could be carried out using the calculations in the Common Distribution Charging Methodology which are calculated on a voltage level basis prior to being aggregated to tariff level.

4.21. Provided the breakdown of which tariff elements should and should not apply for a given end user (based on the Distribution network to private network boundary) treats LV services and LV mains distinctly, this solution would resolve the issue of multiple fixed charges as the fixed charge is recovered in respect of service assets which would always be owned by the PNO and so the Distributor would not be charging a fixed charge. For capacity charging, some means of capacity allocation may be required to split the agreed capacity at the Distribution network to private network boundary between the connected customers.

Scenario	Pros	Cons
Overall	<ul style="list-style-type: none"> Process of charging would be more straightforward for Suppliers as there would be dedicated distribution tariffs for these customers, hence the customers should benefit from competition. 	<ul style="list-style-type: none"> Need for a large number of new tariffs (every tariff with every possible voltage level of ownership boundary between the Distributor and the PNO).

<p>All HH Site Specific Settled with difference metering</p>		<ul style="list-style-type: none"> Capacity charging will rely on the Distributor 'assigning' some of the boundary capacity to each embedded customer. The Distributor has no basis for doing so, and risks indicating that each embedded customer has that agreed capacity – the only agreed capacity which is relevant to the embedded customers is that with the PNO.
<p>All HH Site Specific Settled with full settlement metering</p>		<ul style="list-style-type: none"> If the Distributor splits capacity between embedded customers, it may also levy excess capacity charges for individual embedded customers, when each customer may well have operated within their agreed capacity with the PNO and in aggregate (because of diversity between embedded customers) remained below the agreed capacity for the private network, but exceeded their 'portion' of the boundary capacity. Reactive power flows through each embedded customer's metering will not sum to the reactive power flows at the boundary, so reactive power charging will be inaccurate.
<p>All NHH or HH Aggregate Settled with full settlement metering</p>	<ul style="list-style-type: none"> Enables differences between the Distributor to private network and end customer voltage to be appropriately considered (i.e. Distributor tariffs 'discounted' to reflect Distributor assets not used). 	
<p>Combination of HH and NHH Settled with full settlement metering</p>		

Consumer Impacts

4.22. None identified.

Q8: What are your views on option 5 and would you like the Working Group to consider this option further?

Q9: Are there any other options which the Working Group has not identified? Please provide full details.

Q10: Do you agree with the Working Group’s pros and cons against each of the options and do you have any additions pros or cons you would like to make the group aware of?

5 Legal Text

DCP 328 Proposed Legal Text

5.1 The legal text will be developed once there is an agreed solution,

6 Relevant Objectives

Assessment Against the DCUSA Objectives

6.1. For a DCUSA CP to be approved it must be demonstrated that it better meets the DCUSA Objectives.

DCUSA Charging Objectives	Identified impact
<input type="checkbox"/> 1 that compliance by each DNO Party with the Charging Methodologies facilitates the discharge by the DNO Party of the obligations imposed on it under the Act and by its Distribution Licence	None
<input type="checkbox"/> 2 that compliance by each DNO Party with the Charging Methodologies facilitates competition in the generation and supply of electricity and will not restrict, distort, or prevent competition in the transmission or distribution of electricity or in participation in the operation of an Interconnector (as defined in the Distribution Licences)	Positive
<input type="checkbox"/> 3 that compliance by each DNO Party with the Charging Methodologies results in charges which, so far as is reasonably practicable after taking account of implementation costs, reflect the costs incurred, or reasonably expected to be incurred, by the DNO Party in its Distribution Business	Positive
<input type="checkbox"/> 4 that, so far as is consistent with Clauses 3.2.1 to 3.2.3, the Charging Methodologies, so far as is reasonably practicable, properly take account of developments in each DNO Party’s Distribution Business	Positive

<input type="checkbox"/> 5 that compliance by each DNO Party with the Charging Methodologies facilitates compliance with the Regulation on Cross-Border Exchange in Electricity and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.	None
<input type="checkbox"/> 6 that compliance with the Charging Methodologies promotes efficiency in its own implementation and administration.	Negative

6.2. The Proposer believes that this change will :

- **Charging Objective one:** no impact.
- **Charging Objective two:** better met, as the change will ensure that competition to supply customers connected to private networks is not distorted by the application of inappropriate UoS charges in respect of some or all customers connected to private networks.
- **Charging Objective three:** better met, as the change will ensure that the charges faced by multiple Suppliers supplying customers on a private network are broadly equivalent to the charges faced by a single Supplier supplying the private network operator on an equivalent site without competition in supply.
- **Charging Objective four:** better met, as DNOs are seeing increasing volumes of requests to facilitate competition in supply on private networks. Without the change and the regulatory clarity it seeks to create, there is a risk of a divergence in application of the common charging methodologies across DNO licensees.
- **Charging Objective five:** no impact.
- **Charging objective six:** perhaps not as well met, as the change may introduce additional complexity into the charging arrangements. This is considered necessary to ensure cost-reflectivity is maintained.

Q11: Do you believe that the DCUSA Charging Objectives are better facilitated by this CP. Please provide your rationale?

7 Impacts & Other Considerations

Does this Change Proposal impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

- 7.1. Depending on the solution developed, there may be a need for parallel changes to the BSC to ensure that Distributors either receive directly, or are able to calculate, the data needed to charge in line with the solution to this change.
- 7.2. This change does not impact the development of any SCR currently in progress, including the Targeted Charging Review (TCR) SCR and Network Access and Forward Looking Charges Review SCR.

Q12: Are you aware of any wider industry developments that may impact upon or be impacted by this CP?

8 Implementation

8.1. The implementation date for the CP is yet to be determined.

9 Consultation Questions

9.1 The Working Group is seeking industry views on the following consultation questions:

Number	Questions
1a	Do you agree that the above identifies an appropriate range of private networks?
1b	If you are a PNO please detail which type of network you manage? If you are responding and are not a PNO, please be clear if you are considering a specific example in each section of your response.
2	Do you understand the intent of DCP 328?
3	Are you supportive of the principles of DCP 328?
4	What are your views on option 1 and would you like the Working Group to consider this option further?
5	What are your views on option 2 and would you like the Working Group to consider this option further?
6	What are your views on option 3 and would you like the Working Group to consider this option further?
7	What are your views on option 4 and would you like the Working Group to consider this option further?
8	What are your views on option 5 and would you like the Working Group to consider this option further?
9	Are there any other options which the Working Group has not identified? Please provide full details.
10	Do you agree with the Working Group's pros and cons against each of the options and do you have any additions pros or cons you would like to make the group aware of?

11	Do you believe that the DCUSA Charging Objectives are better facilitated by this CP? Please provide your rationale.
12	Are you aware of any wider industry developments that may impact upon or be impacted by this CP?
13	Do you have any other comments?

9.2 Responses should be submitted using Attachment 2 to dcusa@electralink.co.uk no later than, **22 February 2019**.

9.3 Responses, or any part thereof, can be provided in confidence. Parties are asked to clearly indicate any parts of a response that are to be treated confidentially.

Attachments

Attachment 1 – DCP328 Change Proposal

Attachment 2 – DCP 328 Consultation Response Form

Attachment 3 – Timeline and Party Obligations from DCP 158