DCUSA Consultation	At what stage is this document in the process?
# DCP 328 ## Use of system charging for private networks with competition in supply *Raised on 15th August 2018 as a Standard Change*	01 – Change Proposal **02 – Consultation** 03 – Change Report 04 – Change Declaration

Purpose of Change Proposal:

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.

The Workgroup recommends that this Change Proposal should:
proceed to Consultation

Parties are invited to consider the questions set in section 10 and submit comments using the form attached as Attachment 1 to dcusa@electralink.co.uk by **xx xxx xx.**

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).

Impacted Parties:

DCUSA parties: Suppliers, DNOs and IDNOs

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.

Impacted Clauses:

XXX

Contents

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
Consultation issued to Parties	December 2018
Assessment of Consultation from Working Group	January/ February 2019
2nd Consultation Issued to Parties	February 2019
Change Report issued to Panel	March/ April 2019
Change Report issued for Voting	March/ April 2019
Party Voting Ends	March/ April 2019
Change Declaration Issued to Parties	April 2019
Authority Decision	April 2019
Implementation	TBC

Any questions?

Contact:
Code Administrator

DCUSA@electralink.co.uk

02074323000

Proposer:
Andrew Enzor

andrew.enzor@northernpowergrid.com

07834 618994

1 Summary

What?

1.1. There are several scenarios in which multiple customers can be connected to an electricity distribution system operated by a licence exempt distributor (i.e. to a 'private network'), with that network then connected to the local licensed distribution network operator's (DNO's) network further upstream. Common examples include airports which often have a single point of connection to the local DNO network, with a private network serving individual shops and operations within the terminal buildings. Private networks also exist for generation sites and are becoming increasingly common for the 'co-location' of storage, whereby a storage facility is added to (for example) a wind farm to give control over the time periods in which the power generated by the wind farm is exported onto the DNO network.

1.2. Where such private networks exist, there is only one connection to the DNO 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 private network operator will appoint an electricity supplier, and will pay a single electricity bill in respect of a single Meter Point Administration Number (MPAN) at the DNO to private network boundary, 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).

1.3. Customers connected to a private network are entitled to request competition in supply, which private network operators are obliged to deliver if requested. 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. In order to facilitate this, DNOs 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.

1.4. This creates complications for use of system charging. For half hourly site-specific settled customers (i.e. those in measurement class C, D or E), DNOs receive usage data by MPAN in order to invoice use of system charges, with an invoice being issued per MPAN per month. Hence when competition in supply is in place, if the DNO 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 DNO only has a relationship with the private network operator (as the party which has a connection to the DNO 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 methodology, there is a risk that different DNOs 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 DNO's network; hence the use of system 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 intended equivalence in charges faced by the 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.

2 Governance

Justification for Part 1 Matter

2.1. The Proposer considers that this Change Proposal 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. Consultation Document issued for a period of three weeks

3 Why Change?

Background of DCP 328

3.1. There are several scenarios in which multiple customers can be connected to an electricity distribution system operated by a licence exempt distributor (i.e. to a 'private network'), with that network then connected to the local DNO's network further upstream. Common examples include airports which often have a single point of connection to the local DNO network, with a private network serving individual shops and operations within the terminal buildings. Private networks also exist for generation sites and are becoming increasingly common for the 'co-location' of storage, whereby a storage facility is added to (for example) a wind farm to give control over the time periods in which the power generated by the wind farm is exported onto the local DNO network.

3.2. Where such private networks exist, there is only one connection to the DNO 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 private network operator will appoint an electricity supplier, and will pay a single electricity bill in respect of a single MPAN at the DNO to private network boundary, which is then shared amongst the customers connected to the private network through some agreed contractual framework.

A simple example is shown in Figure 1.

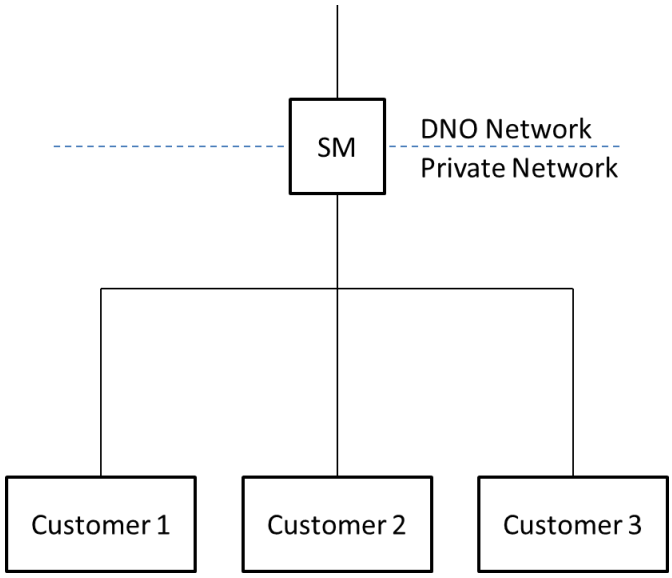

Figure 1 - three customers on a private network

The meter marked as 'SM' will be used in Settlement, and the commercial arrangement with the supplier will be with the private network operator. The private network operator 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 the energy cost could be included in the lease of the site for each customer.

Customers connected to a private network are entitled to request competition in supply, which private network operators are obliged to deliver if requested. This means that, 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, DNOs 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.

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, namely:

- difference metering;
- full Settlement metering; or
- shared metering.

Under all metering options, the DNO is obliged to provide Meter Point Administration Services (MPAS) to customers on the private network and in so doing provides MPANs against which metering data is recorded in Settlement.

3.3. Difference Metering

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.

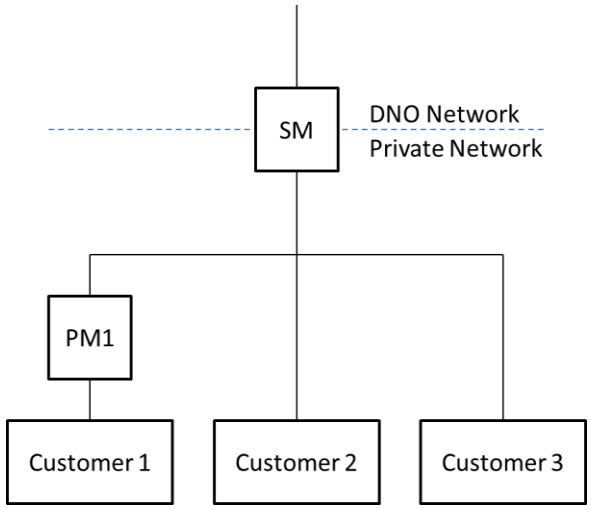

Figure 2 - competition in supply using difference metering

In order for difference metering to be used, all metering systems involved ('PM1' and 'SM' in this example) must be half hourly metering systems.

Under a difference metering approach, Settlements metering measuring customer 1's usage ('PM1') will be used in Settlement for their units under a separate MPAN. These units will also have flowed through the boundary meter ('SM') and so a correction is required to avoid double counting. This is made through differencing units used by customer 1 ('PM1') from units through the boundary ('SM'). For example, if customer 1 were to now be supplied by 'supplier A' using 'MPAN A' and customers 2 and 3 now supplied by 'supplier B' using 'MPAN B', the units in Settlement for the two suppliers would be as follows:

- *Supplier A Units = MPAN A = PM1*
- *Supplier B Units = MPAN B = SM - PM1*

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

3.4. Full Settlement Metering

In order for full Settlement metering to be used to facilitate competition in supply for customer 1, metering arrangements as shown in Figure 3 would be required.

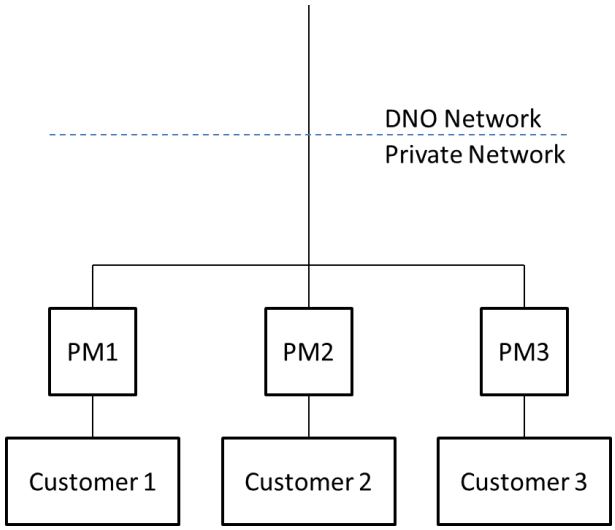

Figure 3 - competition in supply using full Settlement metering

The full Settlement metering solution requires each customer to have its own metering and its own supplier with no metering at the DNO to private network boundary. The Balancing and Settlement Code refers to such an arrangement as an 'Associated Distribution System'. 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 DNO to private network boundary 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'.

Under a full Settlement metering approach, Settlements metering measuring the usage of customer 1, customer 2 and customer 3 would be used in Settlement under separate MPANs, with the boundary meter (previously 'SM') no longer used.

Assuming the customers use the same suppliers as under the difference metering example, customer 1 would be supplied by 'Supplier A' using 'MPAN A', customer 2 would be supplied by 'Supplier B' using 'MPAN B' and customer 3 would be supplied by 'Supplier B' using 'MPAN C'. The units in Settlement for the two suppliers would be as follows:

- *Supplier A Units = MPAN A = PM1*
- *Supplier B Units = MPAN B + MPAN C = PM2 + PM3*

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

3.5. Shared Metering

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.

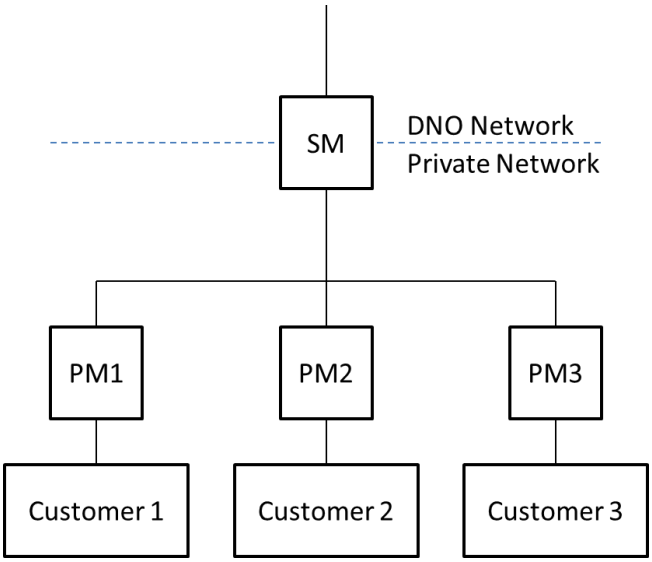

Figure 4 - competition in supply using shared metering

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

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 non-Settlement metering measuring the usage of each individual customer being used to determine the proportion of the total units in Settlement which is allocated to each supplier. The means of allocation is agreed between the suppliers in question, with the most straightforward mechanism being simply proportional to the units used by each customer, with an adjustment made for the difference between the total of the private metering and the Settlement metering. This would ensure that the total units in Settlement always sum to the total metered by the Settlements metering.

Assuming the customers use the same suppliers as under the difference metering example, customer 1 would be supplied by 'Supplier A' using 'MPAN A', and customers 2 and 3 would be supplied by 'Supplier B' using 'MPAN B'. The units in Settlement for the two suppliers would be as follows:

- *Supplier A Units = MPAN A = SM x (PM1 / (PM1 + PM2 + PM3))*
- *Supplier B Units = MPAN B = SM x (PM2 + PM3 / (PM1 + PM2 + PM3))*

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

3.6. Use of System Charging Implications

Under all metering options, the DNO to private network operator boundary remains unaltered, and the only connection agreement is between the private network operator and the DNO, 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 DNO network has also not changed, total use of system charges should not change.

However, under each of the three metering options there will be multiple MPANs with metering data in Settlement. Under normal processes, the DNO 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.

This results in several issues for use of system charging and associated administration:

1. **Assigning tariffs:** Depending on the tariffs which the DNO assigns to each customer, there is a risk that the DNO 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 LV network whilst the DNO to private network boundary is at the HV/LV substation. If the DNO 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.

2. **Losses within the private network:** Under the difference metering and full Settlement metering approaches, losses within the private network will not be accounted for in the units in Settlement. 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 DNO to private network boundary which that customer caused, because losses will have been incurred between the boundary and the customer metering.

3. **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.

4. **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 DNO and the private network operator, formalised in a connection agreement. It is not clear what agreed capacity the DNO should charge in respect of MPANs which relate to connections to the private network where the DNO has no commercial relationship with the customer and so no basis on which to determine the agreed capacity.

5. **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.

6. **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 DNO to private network boundary. The

import and export units for each customer within the private network will be seen separately in Settlement, and so the DNO 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 use of system 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.

7. **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.

8. **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.

Q1: Do you understand the intent of DCP 328?

Q2: 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 potential solutions. The solutions proposed 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 Distribution network to private network boundary, 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 Distributor network, with the private network operator able to 'claim' some use of system revenue back from the Distributor in respect of private network assets
- Option 4 – Invoice the private network operator direct
- 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

4.2. The Working Group have considered the above options and below is amore detailed analysis of each option.

4.3. Option 1 – Invoice only the boundary supplier

Under this approach, the Distributor (Distribution Network Operator (DNO) and Independent Distribution Network Operator (IDNO)) would continue to invoice use of system charges only to the supplier registered to the boundary Metering Point Administration Number (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 in settlements it will only show net units (i.e. with units used by embedded customers having been differenced from the boundary MPAN).

This solution has the advantage of the Distributor only invoicing in respect of the boundary, being where its responsibility ends. However, it results in the boundary supplier being invoiced use of system charges in respect of units which it has not supplied (i.e. the units used by embedded customers for whom another supplier is responsible). The solution is only compatible with the difference metering option (which requires the metering to measure on a HH basis) as it relies on a 'principle' supplier being in place, where the full Settlement and shared metering options treat all suppliers of customers connected to the private network equally.

Scenario	Pros	Cons
Overall		• Can only be applied where there is a boundary MPAN with an appointed supplier • PNO's own network costs still need to be recovered, either through agreement with embedded customer or through UoS charges to supplier(s) of embedded customer(s).
All HH Site Specific Settled with difference metering	• All charges (including capacity and reactive power) can be levied accurately based on boundary metering data • DNO would assign the tariff which would be assigned to a single customer connected at the DNO to private network boundary – so DNO is only invoicing in respect of its own assets • Provided an agreement is in place between the MOP/DC and boundary supplier, the boundary supplier will receive the same boundary metering data as the DNO so can validate invoices • By invoicing based on actual boundary metering data (rather than e.g. the sum of embedded customer metering data) the DNO 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 DNO use of system charges will always be exactly equal to the charges which would have been levied had a single customer been connected at the DNO to private network boundary	• Needs a mechanism by which the DNO receives boundary metering data (which will not be received through Settlement) • Needs a mechanism by which the DNO does not bill (or zero rates) DUoS charges associated with embedded customer MPANs • The boundary supplier is invoiced use of system charges in respect of units which it has not supplied (i.e. the units used by embedded customers for whom another supplier is responsible) • PNO's own network costs still need to be recovered, either through agreement with embedded customer or through UoS charges to supplier(s) of embedded customer(s)

All HH Site Specific Settled with full settlement metering		Solution relies on a boundary MPAN with an appointed supplier – hence does not cater for this scenario
All NHH or HH Aggregate Settled with full settlement metering		Solution relies on a boundary MPAN with an appointed supplier – hence does not cater for this scenario
Combination of HH and NHH Settled with full settlement metering		Solution relies on a boundary MPAN with an appointed supplier – hence does not cater for this scenario

4.4. Option 2 – Invoice all suppliers based on the tariff which the Distributor would apply if the end user were connected at the Distribution network to private network boundary, with a correction to fixed charges and some form of capacity allocation

Under this approach, the Distributor would invoice use of system 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 the tariff which the Distributor would apply if the customers were connected at the Distributor to private network boundary. In this way, units would be charged once and only once.

A solution would be needed to the issues raised at the end of the 'Why Change' section. 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 Distributor to private network boundary between the connected customers.

Scenario	Pros	Cons
Overall	• DNOs and suppliers already receive (almost) all information required to facilitate this approach through existing settlement arrangements • Each supplier pays use of system charges only for units which it has supplied • DNO would assign the tariff which would be assigned to a single customer connected at the DNO to private network boundary – so DNO is only invoicing in respect of its own assets	• DNOs 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. • PNO's own network costs still need to be recovered, either through agreement with embedded customer

		or through UoS charges to supplier(s) of embedded customer(s).
All HH Site Specific Settled with difference metering		• Capacity and reactive power charging will be inaccurate compared to option 1 • The only connection agreement in place will be between the DNO and PNO for capacity at the boundary, which is being monitored by boundary metering – the DNO would be (arbitrarily) dividing this capacity between PNO customers which is not necessary given the boundary metering • Option 1 results in charges which are exactly equal to that which would have been levied had a single customer been connected at the DNO to private network boundary – this option will create a similar but not identical
All HH Site Specific Settled with full settlement metering	• All units are charges based on the tariff which the DNO 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 DNO to private network boundary • Fixed charges can effectively be split between the number of embedded customers to ensure the equivalent of one fixed charge is levied in aggregate	• Capacity charging will rely on the DNO 'assigning' some of the boundary capacity to each embedded customer. The DNO 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 private network operator • If the DNO 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 private network operator and in aggregate (because of diversity between embedded customers) remained below the agreed capacity for the private network, but exceeded their 'portion' of the private network 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 DNO will need to know how many customers are connected to

		the private network, including when this changes over time. The DNO 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
All NHH or HH Aggregate Settled with full settlement metering	• All units are charges based on the tariff which the DNO 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 DNO to private network boundary	• The tariffs levied in respect of NHH customers connected to DNO networks assume they are connected at LV and are based on the load profile of either residential or small commercial customers. The boundary tariff applied would be likely to be based on the load profile of an industrial customer (i.e. the appropriate 'HH Metered' tariff for the voltage of the DNO to private network boundary) and so may not be cost-reflective
Combination of HH and NHH Settled with full settlement metering	• All units are charges based on the tariff which the DNO 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 DNO to private network boundary	• The tariffs levied in respect of NHH customers connected to DNO networks assume they are connected at LV and are based on the load profile of either residential or small commercial customers. The boundary tariff applied would be likely to be based on the load profile of an industrial customer (i.e. the appropriate 'HH Metered' tariff for the voltage of the DNO to private network boundary) and so may not be cost-reflective

4.5. Option 3 – Invoice all suppliers as if the customer were connected to the Distributor network, with the private network operator able to 'claim' some use of system revenue back from the Distributor in respect of private network assets

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

Scenario	Pros	Cons
Overall	• Suppliers face identical processes and charges for embedded customers as for equivalent Distribution connected customers. This will potentially facilitate engagement by Suppliers and so increase the extent to which	• If Distributor treats credit to 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

	embedded customers benefit from competition • A single contractual agreement with the distributor would be required by the PNO to recover UoS charges. More efficient than maintaining multiple contractual agreements with (changing) suppliers.	• Need for contractual agreement with Distributor and PNO to agree what value can be claimed
All HH Site Specific Settled with difference metering	• 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	• Creates a complex mechanism by which the end result of option 1 is achieved
All HH Site Specific Settled with full settlement metering	•	• Issues with capacity and reactive power charging identified under option 2 remain under this scenario
All NHH or HH Aggregate Settled with full settlement metering	• NHH DNO 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	• 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	•	• Would require meter reads for NHH private network customers to be disaggregated from meter reads for other customers to enable the credit to the PNO to be calculated

4.6. **Option 4 – Invoice the private network operator direct**

Under this approach, the Distributor would invoice use of system charges direct to the private network operator only 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 private network operator 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. included in the lease for each customer).

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, where Settlement will only show net units (i.e. with units used by embedded customers having been differenced from the boundary MPAN).

This solution has the advantage of the Distributor only invoicing in respect of the boundary, being where its responsibility ends, and avoids the issues presented in option one where the boundary supplier is being invoiced use of system 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.

Scenario	Pros	Cons

Overall	• Tariffs would be assigned at the boundary, so the DNO is invoicing only in respect of its own assets	• Need for zero tariffs to be applied to MPANs on private network for 'standard' supplier invoices • 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 • PNOs do not accede to the DCUSA, so DCUSA obligations covering distributor to supplier invoices (e.g. the obligation to pay) would not apply • PNO's own network costs still need to be recovered, either through agreement with embedded customer or through UoS charges to supplier(s) of embedded customer(s).
All HH Site Specific Settled with difference metering	• 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	• Enables more appropriate capacity and reactive power charging than other options as charges are levied for the network as a whole •	• 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	•	• 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	•	• 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

4.7. 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

Under this approach, the Distributor would invoice use of system 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.
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 Low Voltage services and Low Voltage 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 private network operator 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	• 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	• Need for a large number of new tariffs (every tariff with every DNO to private network boundary) • PNO's own network costs still need to be recovered, either through agreement with embedded customer or through UoS charges to supplier(s) of embedded customer(s).
All HH Site Specific Settled with difference metering	•	• Capacity charging will rely on the DNO 'assigning' some of the boundary capacity to each embedded customer. The DNO 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 private network operator • If the DNO 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 private network operator and in aggregate (because of diversity between embedded customers) remained below the agreed capacity for the private network, but exceeded their 'portion' of the private network 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
All HH Site Specific Settled with full	•	• Capacity charging will rely on the DNO 'assigning' some of the boundary capacity to each embedded customer. The DNO has no basis for doing so, and

settlement metering		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 private network operator • If the DNO 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 private network operator and in aggregate (because of diversity between embedded customers) remained below the agreed capacity for the private network, but exceeded their 'portion' of the private network 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
All NHH or HH Aggregate Settled with full settlement metering	• Enables differences between the DNO to private network and end customer voltage to be appropriately considered (i.e. DNO tariffs 'discounted' to reflect DNO assets not used)	•
Combination of HH and NHH Settled with full settlement metering	•	•

5 Legal Text

DCP 328 Proposed Legal Text

Q: Do you have any comments on the proposed legal text?

6 Relevant Objectives

Assessment Against the DCUSA Objectives

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 use of system 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.

DCUSA Charging Objectives	Identified impact
☐ 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
☐ 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
☐ 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
☐ 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
☐ 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
☐ 6 that compliance with the Charging Methodologies promotes efficiency in its own implementation and administration.	Negative

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 Balancing and Settlement Code to ensure that DNOs 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 on any SCR currently in progress, nor is it expected to impact on the likely imminent SCR to be launched following Ofgem's consultation 'Getting more out of our electricity networks by reforming access and forward-looking charging arrangements'

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

8 Implementation

8.1. Need to consider appropriate implementation date.

9 Consultation Questions

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

Number	Questions
1	
2	
3	
4	
5	
6	
7	

8	
9	
10	
11	

9.1 Responses should be submitted using Attachment 3 to dcusa@electralink.co.uk no later than, **xx xxx xx**.

9.2 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 – DCP 328 Consultation Response Form