Slough Heat and Power

Charging methodology for the use of Slough Heat and Power's electricity distribution system

Effective from 1 April 2021

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Background

1. The distribution of electricity by Slough Heat & Power Limited (SHP) is exempt from licensing contained in the Electricity Act 1989 by virtue of it falling within exemptions under The Electricity (Class Exemptions from the Requirement for a Licence) Order 2001 (Schedule 3 Class C Distribution to non-domestic suppliers).

2. Under the Balancing and Settlement Code, SHP's network operates as an Associated Distribution System, as defined in Annex X-1 of the Code. The Licensed Distribution System Operator that SHP's system is associated to is SEPD. This means that all electricity customers on SHP's licence exempt private electricity network (SHP Network) have SEPD MPANs.

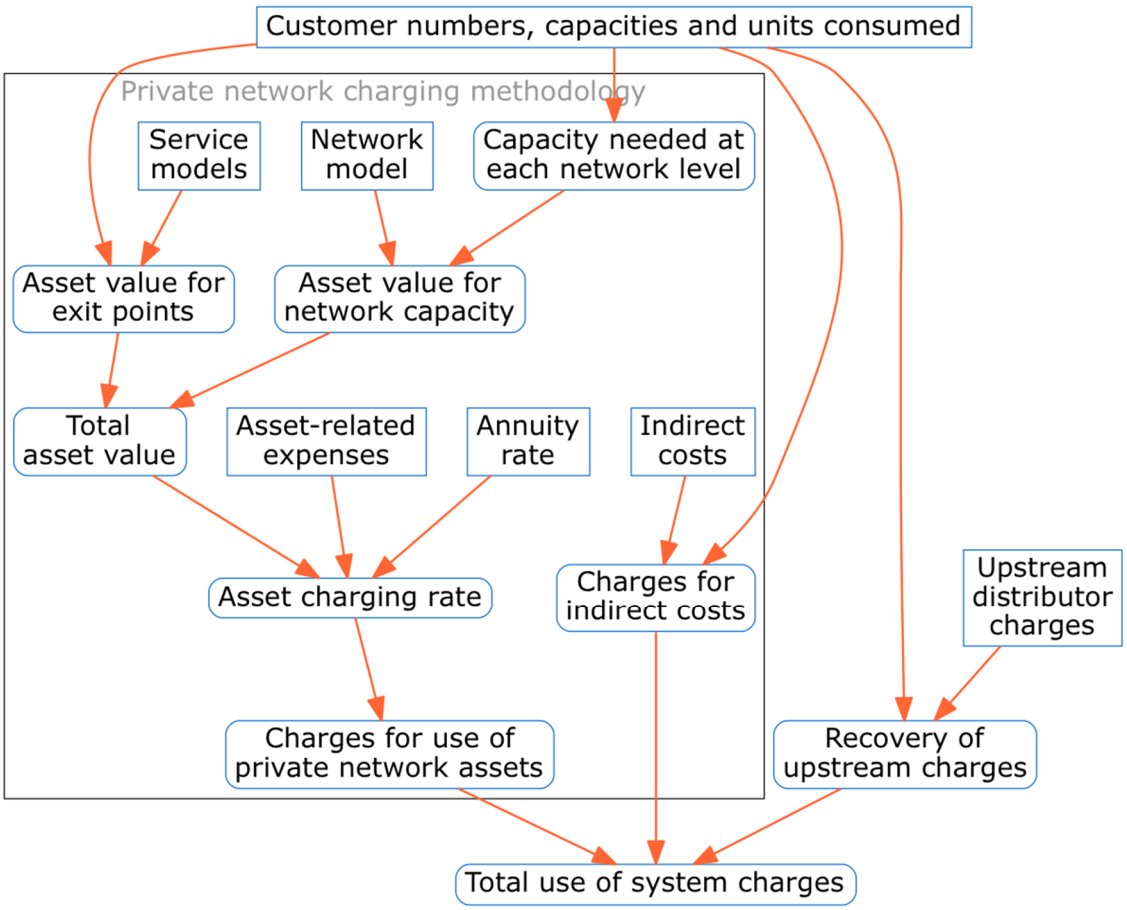
3.

Charging Methodology

4. This methodology will apply from 1 April 2021, has been approved by Ofgem and demonstrates that our charges are based on a reasonable and proportionate method of identifying costs.

5. Figure 1 gives a graphical overview of the main steps in the charging methodology.

Figure 1 Overview of the charging methodology



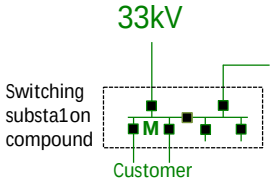
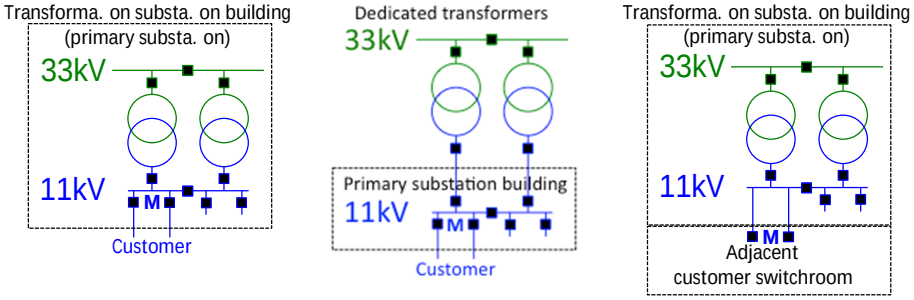
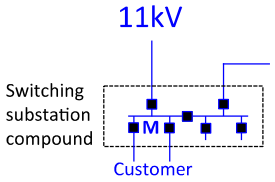
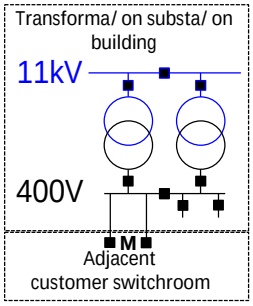
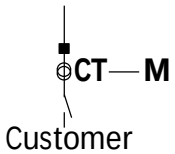
6. Use of system tariffs are calculated by performing a fair allocation of SHP's electricity distribution costs and charges, including a reasonable return on capital, according to the extent to which each customer uses different parts of the network or other services.

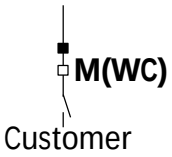
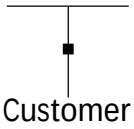
Customer categories

7. Table 1 provides a specification of the network users to which each tariff applies, together with diagrams illustrating some of the relevant configurations.

8. The following legend applies to the illustrative diagrams in table 1: M means metering point; CT means current transformer; M(WC) means a whole-current meter.

Table 1 Contributions to each tariff component

Tariff name	Conditions and typical diagram(s)
33kV	Customer supplied and metered at 33kV. 
HV Sub	Metering point at 11kV, at or adjacent to the primary substation supplying the load. A primary substation is defined as a substation which 33kV/11kV transformers are dedicated to feed, whether these transformers are located at the primary substation or remotely. 
HV	Metering point at 11kV, not at or adjacent to the primary substation supplying the load. 
LV Sub	Metering point at LV, in BSC measurement class C ("HH metered in 100kW Premises") or E ("HH metered sub 100kW CT"), and adjacent to the 11kV/LV transformation substation supplying the load. 
LV	Metering point at LV, in BSC measurement class C ("HH metered in 100kW Premises") or E ("HH metered sub 100kW CT"), not at or adjacent to the 11kV/LV transformation substation supplying the load. 

Tariff name	Conditions and typical diagram(s)
LV small	Metering point at LV, in BSC measurement class A ("Non Half Hourly Metered") or G ("HH metered sub 100kW nondom wc"). This can be settled either half hourly or non half hourly. For half hourly settlement, distribution charges are based on red, amber and green time bands. For non half hourly settlement, distribution charges are based on weighted average unit rates calculated in the model for profile 3 (single rate), profile 4 (day rate and night rate), and profiles 5–8 (day rate and night rate). 
Unmetered supplies	Unmetered supply under the Balancing and Settlement Code. Only for loads of less than 0.5kW where consumption can be estimated accurately without a meter. This can be settled either half hourly or non half hourly. For half hourly settlement, distribution charges are based on black, yellow and green time bands. For non half hourly settlement, distribution charges are based on a single weighted average unit rate calculated in the model for each of categories A, B, C and D (each category corresponds to a different consumption pattern). 

Network usage assumptions and basis for each charging component

9. Charges are levied on a different basis for different categories of users on the SHP Network, reflecting differences in network use and in available data. Table 2 shows how each type of charge is applied to each category of network user.

Table 2 Contributions to each tariff component

Tariff	Unit rates p/kWh or p/kVArh	Fixed charge p/day	Capacity charge p/kVA/day
33kV	None	Site-specific sole use assets	Recovery of upstream charges on capacity 33kV assets Contribution to indirect costs

Tariff	Unit rates p/kWh or p/kVArh	Fixed charge p/day	Capacity charge p/kVA/day
HV Sub	None	Metering circuit breaker at the primary substation	Recovery of upstream charges on capacity 33kV assets and 33kV/HV assets Contribution to indirect costs
HV	Charges for 33kV assets	Ring main unit with metering	Recovery of upstream charges on capacity 33kV/HV assets and HV assets Contribution to indirect costs
LV Sub	Charges for assets at 33kV/HV and above	Metering circuit breaker	Recovery of upstream charges on capacity HV and HV/LV assets Contribution to indirect costs
LV	Charges for assets at HV and above	Metering circuit breaker	Recovery of upstream charges on capacity HV/LV and LV mains assets Contribution to indirect costs
LV small	Charges for assets at all network levels	Service cable and cut-out	Not applicable
Unmetered	Charges for assets at all network levels	Not applicable	Not applicable

10. The rationale for the rules set out in table 2 for the allocation of charges for assets to capacity charges is as follows.

11. For HV Sub users and all 33kV users, capacity on the 33kV/HV transformers (if relevant) and on the 33kV network serving that substation (if relevant) is reserved in line with the customer's maximum import capacity, whether used or not.

12. For HV users, capacity on the HV network and on the 33kV/HV substation serving that network is reserved in line with the customer's maximum import capacity, whether used or not.

13. For LV Sub users, capacity on the HV/LV substation and on the HV network is reserved in line with the customer's maximum import capacity, whether used or not.

14. For metered LV users subject to capacity charges, capacity on the HV/LV substation and on the LV network is reserved in line with the customer's import capacity, irrespective of usage.

15. For LV small users which are either settled as non half hourly or as aggregated half hourly, no capacity charge is levied, in line with the practice under the DNOs' CDCM, as it would be impractical for suppliers to validate their charges if they were based on site-specific capacities.

16. For unmetered supplies, the only charges are for units consumed. This is because the industry data flows used for distribution use of system billing do not provide data about the number of exit points or the total capacity provided to unmetered supplies. This is in line with the DNOs' CDCM.

17. No charge or credit is provided in respect of users that export power to SHP's network. This is because SHP receives no material benefit from such embedded generation, as it plans the capacity on its network to be able to maintain continuity of supply even if embedded generation is unavailable or chooses not to operate for commercial reasons.

18. The way in which costs are converted into charges in respect of each tariff component and network level mirrors the principles in the DNO's CDCM.

19. Charges for active power consumption reflect contributions of consumption to network capacity required, estimated by reference to peaking probabilities.

20. Charges for excess reactive power flows reflect the contribution of reactive power flows to the capacity required on the network, given typical power factors of flows through the network.

21. Charges for capacity reflect the capacity reserved on the network, as this is what would be taken into account for system planning purposes in respect of the assets specified in table 2 as relevant to capacity charges. The same rate applies to exceeded capacity, as SHP's policy is to be pro-active in enforcing maximum import capacities.

22. Charges for exit points (fixed charges) reflect the network assets dedicated to the exit point (e.g. a service cable).

Recovery of upstream DNO boundary charges

23. SHP has decided to recover upstream DNO boundary charges on the basis set out in Table 3.

Table 3 Basis of recovery of upstream DNO boundary charges

User type	Basis of recharge for DNO boundary charges
Users supplied at HV Sub and above	Capacity charge based on the ratio of DNO boundary charges to DNO maximum import capacity, capped to prevent over-recovery.
Users supplied at HV and below	Capacity charge calculated as an allocation of DNO maximum import capacity not covered by the charges above, capped to prevent over-recovery after taking account of amounts recovered from users supplied at HV Sub and above.

Depreciation and return on network assets

24. We have followed the model of the DNOs' CDCM by setting charges for network assets on the basis of an annuity calculated by reference to a notional asset value for an efficient network made up of modern assets equivalent in functionality to the actual assets — a valuation also known as "modern equivalent asset value" or "MEAV".

25. The annuity formula has the advantage of ensuring a flat profile of charges over time, reflecting the distribution services provided by the asset, even though the net asset value falls with asset age.

26. The charging model provides for notional assets to be scaled down in the event that the bottom-up estimate of assets required based on the above network usage assumptions and unit asset values exceeds an assessment of the modern equivalent value of the actual assets in the SHP Network. This ensures that SHP will not charge for any additional historical assets that exist but are not assessed as necessary to meet demand on the SHP system.

Allocation of operating costs

27. Forecast operating costs, other than upstream distributor use of system charges, are split into two parts:

    (a) Direct costs are allocated to different network levels in proportion to the notional asset value.

(b) Indirect costs are recovered on the same basis as boundary use of system charges, i.e. based on the capacity provided to each user.

28. This is a similar approach as used by DNOs under the EDCM.

Future reviews of the charging methodology

29. SHP will keep this charging methodology under review to ensure that it continues to meet its objectives.

30. When data are updated, annually or in conjunction with the analysis of a proposed major system change, SHP will undertake the following review and validation tasks:

(a) Update the asset value assumptions to reflect new cost information and any technical changes in typical network design.

(b) Update demand forecasts to reflect new information.

(c) Assess whether recent financial market data or regulatory decisions would require SHP to revisit its cost of capital or annualisation period assumptions.

(d) Check whether there continues to be broad consistency between top-down and bottom-up measures of the gross asset value.

31. SHP will undertake a root-and-branch review of the charging methodology if any of the following conditions are met:

(a) if there are major changes (whether actual or foreseen) in the structure or patterns of use of SHP's electricity distribution system; or

(b) if there are major financial or organisational changes in the business which would mean that the current methodology no longer provides a basis for tariffs that enable a viable distribution business; or

(c) if a routine review uncovers a major new discrepancy or issue with the assumptions made in the current methodology.

32. As part of each review (whether routine or root-and-branch), besides examining the methodology for charging for its own assets, SHP will also confirm that the assumptions made about the boundary charge remain valid, and update the parameters derived from the caps on boundary charge recovery set out above. In the event of a major discrepancy between the amounts paid by SHP and recovered by SHP in respect of boundary charges, SHP will implement a fair and practical method to allocate the under/over-recovery between affected users.