

DCP452 logic applied to other voltages

Summary

01

The scope of DCP452 is restricted to only 0000 customers, being those connected direct to a GSP. 0000 customers currently face an FCP charge in respect of thermal reinforcement on circuits downstream of the GSP, despite never impacting thermal reinforcement on those circuits in the FCP model. This document explores the extent to which that logic could be applied to other customer categories and voltages.

02

The most notable parallel is for 1100 customers who connect direct to a BSP (i.e. a 132/33kV substation). Those customers are in a network group which includes the 132/33kV substation and downstream 33kV circuits. They face Charge 1 for the whole network group, part of which relates to thermal reinforcement on 33kV circuits which they do not drive in the FCP model. However, unlike 0000 customers, Charge 1 for their network group includes a combination of both upstream elements (the 132/33kV transformers) on which 1100 customers do drive thermal reinforcement **and** downstream elements (the 33kV circuits) on which 1100 customers do not drive thermal reinforcement.

03

Other parallels exist where downstream customers connect to non interconnected upstream networks. For example, a 1110 category customer connecting at 33kV will be included in a network group covering the entire 33kV network downstream of a given BSP. Depending on interconnecting, that customer may only drive thermal reinforcement on a subset of the 33kV network and/or a subset of the upstream 132kV network.

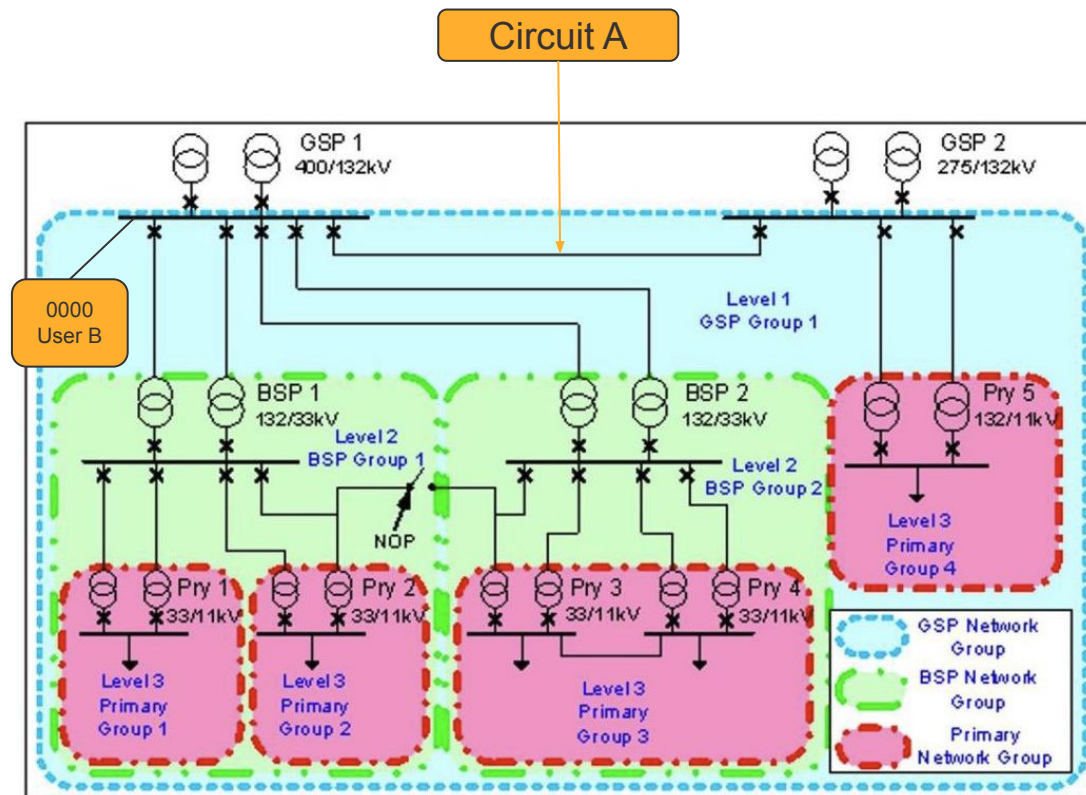
04

The Working Group concluded that fixes for categories other than 0000 customers would be complex, requiring Level 1 and Level 2 groups split into sub-groups based on interconnection, challenging the network group philosophy of the FCP methodology. The Proposer also noted that the logic of DCP452 is much less clear cut for other voltages, where users face Charge 1 which **partially** reflects downstream or non-interconnected assets on which they do not drive thermal reinforcement, unlike 0000 customers whose **entire** Charge 1 exposure relates to downstream assets on which those customers can never drive thermal reinforcement.

Directly connected to the GSP – 0000

In the example shown in DCUSA, two GSPs are interconnected, so DCP452 would not apply. If Circuit A were removed (or its circuit breakers normally open), the GSPs would be non-interconnected. 0000 User B would then face the forward-looking charge for circuits in level 1 (132kV) **but will never drive thermal reinforcement on those circuits.** That is the central argument for DCP452.

The following slides consider the extent to which that logic could be applied to other connectee types.

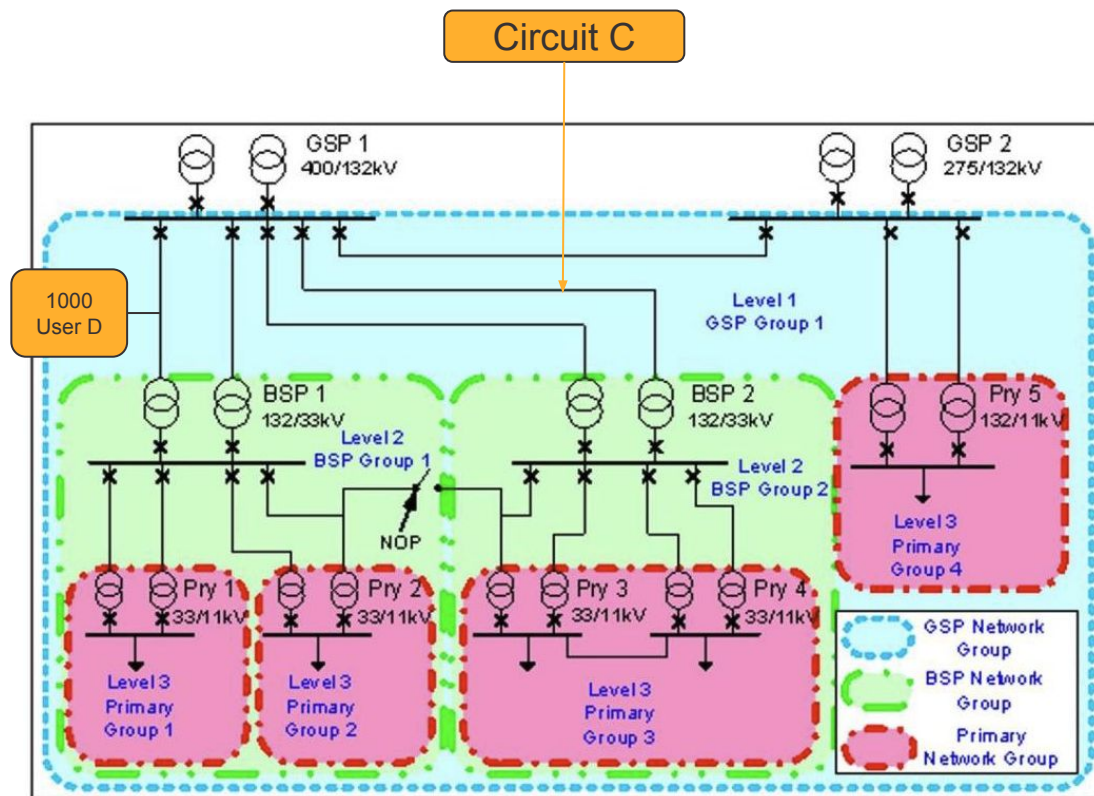


Connected to 132kV circuits – 1000

Customers connected to **shared 132kV circuits** are categorised as 1000. They are included in the FCP group for network level 1 and face the forward-looking charge in respect of all 132kV circuits in that network group.

In the example shown opposite (from DCUSA), there are electrically distinct 132kV circuits. For example, the circuits labelled Circuit C is electrically distinct from the circuit to which User D connects. Hence User D may face a forward-looking charge in respect of reinforcement of assets on which it will never drive thermal reinforcement.

However, this is relatively uncommon, and because many BSPs are connected to GSPs in loops, any customer connected to 132kV circuits will impact most 132kV circuits in that group.

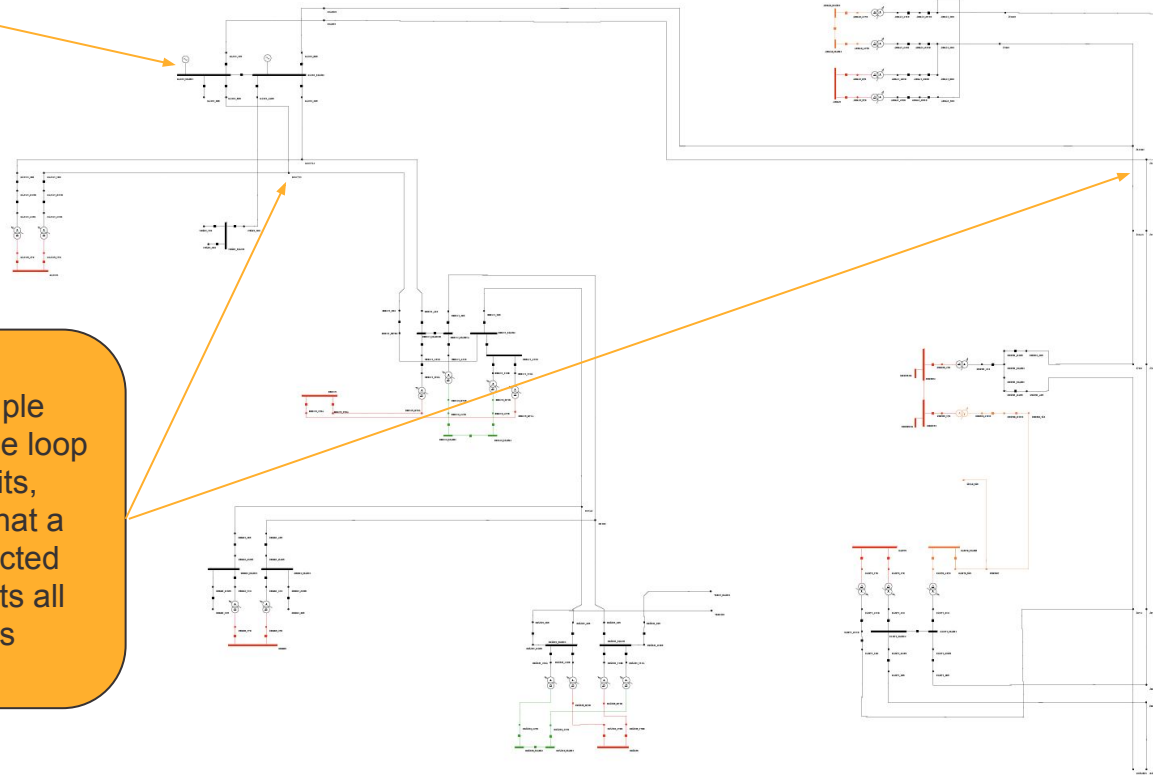


Example GSP from NGED LTDS

Rassau 132kV

GSP

There are multiple tee-offs and a large loop of 132kV circuits, making it likely that a customer connected anywhere impacts all 132kV circuits

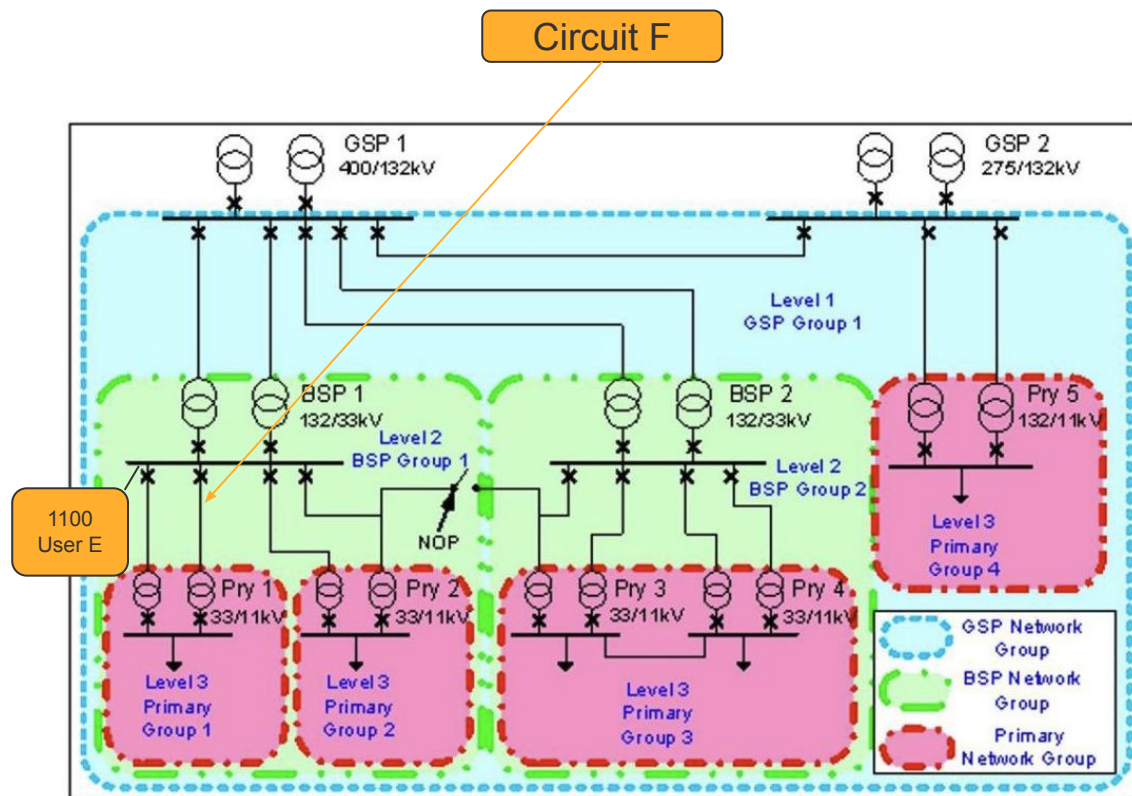


Connected direct to BSP – 1100

Customers connected directly to a Bulk Supply Point (typically a 132/33kV substation) are categorised as 1100. They are included in the FCP group for network level 2 and face the forward-looking charge in respect of all 33kV circuits in that group and all 132kV circuits from the network level above.

User E will influence thermal reinforcement on the upstream 132kV circuits, and transformers at the BSP. At non-interconnected BSPs (as shown here), it will **not** impact the 33kV circuits (e.g. Circuit F).

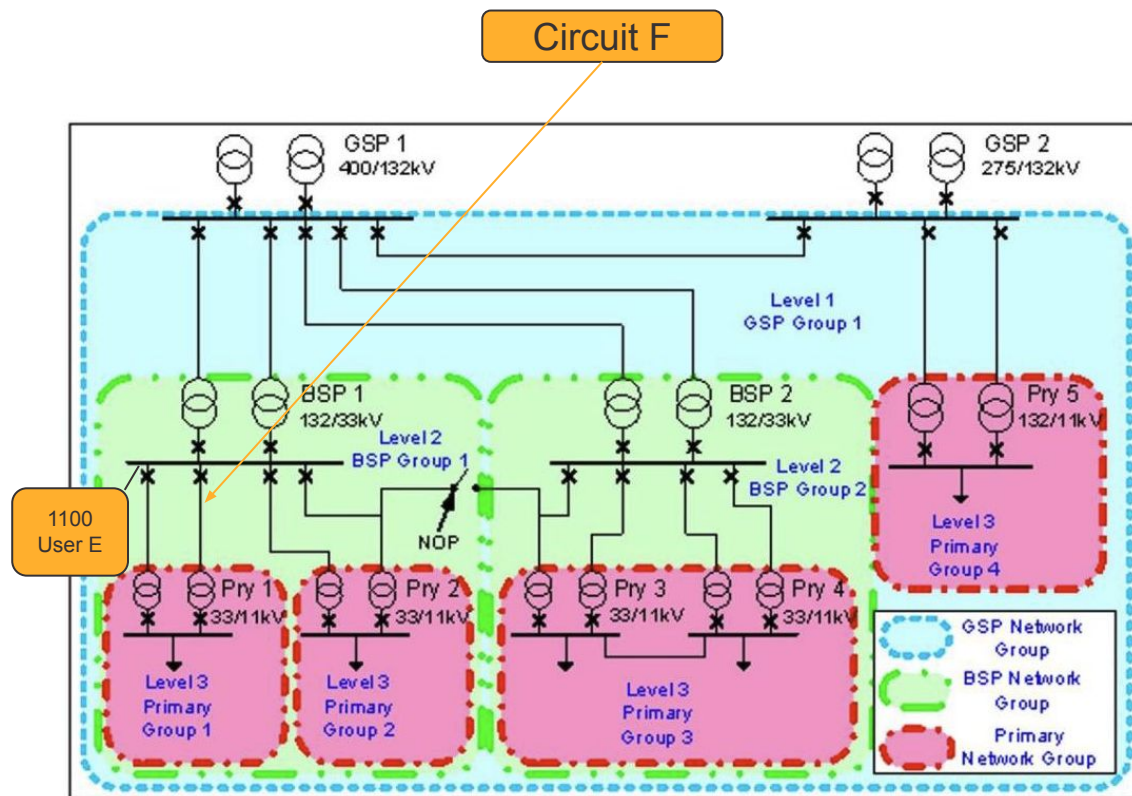
The logic of DCP452 could be applied to User E's impact on the 33kV circuits. However, unlike 0000 customers, the charge for the Level 2 network group includes both the 132/33kV substation (which User E does impact) and the downstream 33kV circuits (which User E does not impact). (continued next slide)



Connected direct to BSP – 1100

So:

- The arguments of DCP452 do not apply as clearly to these customers.
 - 0000 customers at non-interconnected GSPs will **never** impact thermal reinforcement on any assets in the Level 1 Group.
 - 1100 **will** impact thermal reinforcement on some assets in the Level 2 Group but not others.
- If this were deemed an issue, the fix would be more complex, requiring the 132/33kV transformers and 33kV circuits respectively to be split into separate network levels, so that only the 132/33kV level charge is applied to 1100 customers

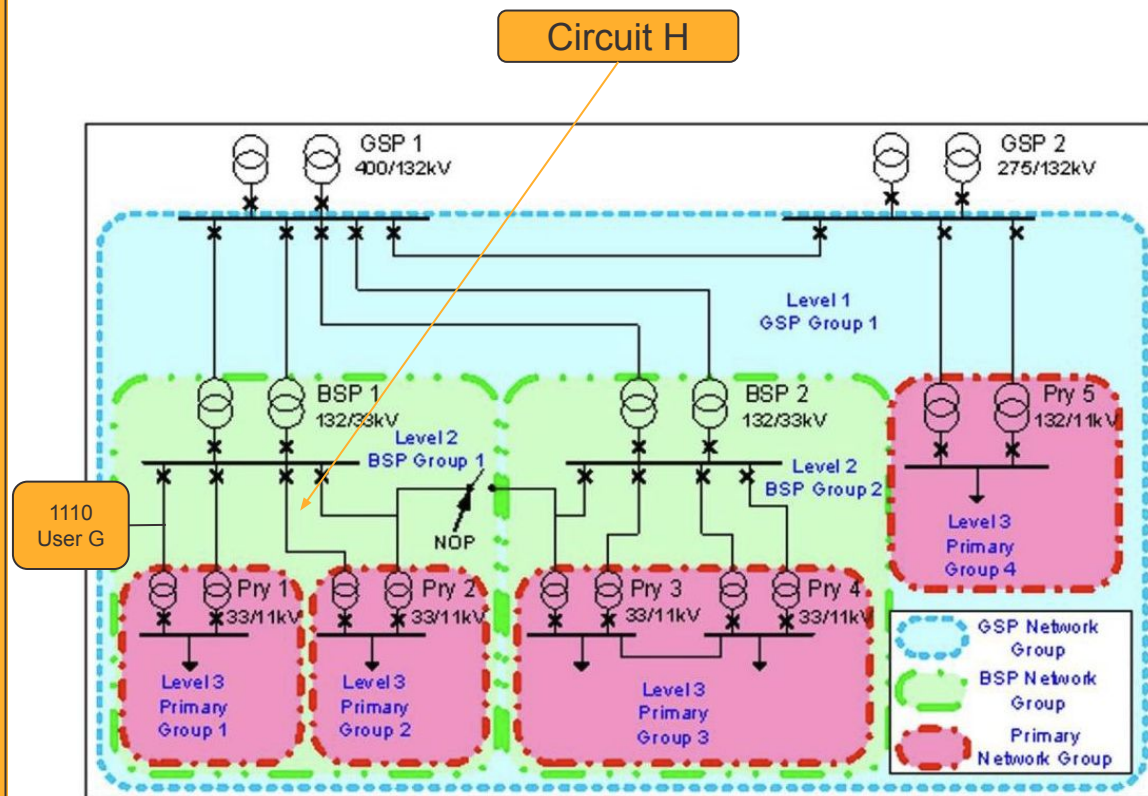


Connected to 33kV circuits – 1110

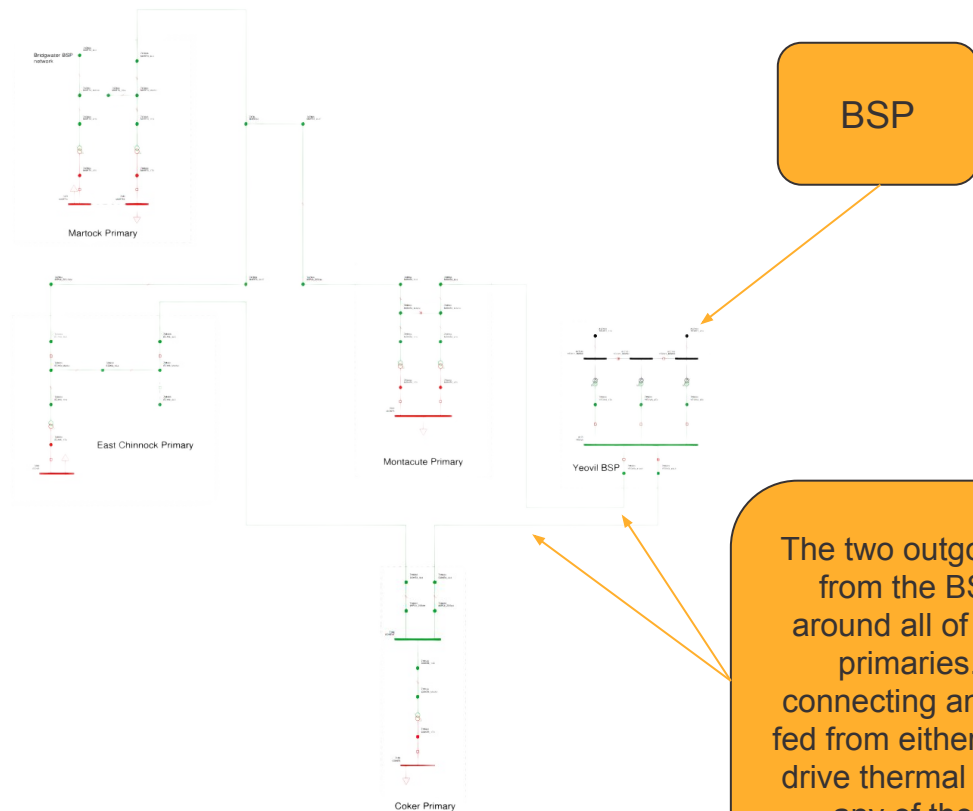
Customers connected directly to 33kV circuits downstream of a 132/33kV Bulk Supply Point are categorised as 1110. They are included in the FCP group for network level 2 and face the forward-looking charge in respect of all 33kV circuits in that group and all 132kV circuits from the network level above.

As with 1000 customers, there may be an argument that such users only drive reinforcement on a subset of 33kV circuits (e.g. User G could argue it does not impact Circuit H), and so could face a forward-looking charge for thermal reinforcement they do not drive.

But again, as with 1000 customers, the diagram opposite is a simplification and typically primary substations are connected to BSPs in 33kV loops, so a user connecting anywhere on the 33kV circuits downstream of a BSP **will** impact all of those circuits.



Example BSP from NGED LTDS



Connected to primary substations – 1111

Customers connected directly to a primary substation downstream of a 132/33kV Bulk Supply Point are categorised as 1111. They are included in the FCP group for network level 3 and face the forward-looking charge in respect of all 33/11kV substations in that group and all 132kV and 33kV circuits from the two network levels above.

As Level 3 only includes the substations (not 11kV circuits), the arguments of DCP452 do not apply to downstream 11kV circuits.

This user could argue that they do not impact Circuit H. As with 1110 customers, the diagram shown is uncommon in practice, with primary substations typically looped together via a 33kV ring downstream of BSPs, meaning that any 1111 user will impact all of the upstream 33kV and 132kV circuits.

