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From: Franck Latrémoilière

Sent: 10 April 2015 10:09

To: DCUSA

Cc: Shankar Rajagopalan; Bethany Hanna; Chris Ong; Wendy Mantle; Dave Wornell; Kathryn Evans; Pat Wormald; Andrew Pace; Robert Garner; Mo Sukumaran; Keith Burwell; Richard Ellis; Gary Holmes; Steven Inglis; Anika Brandt; Iain Morgan; Donald Preston; Kevin Woollard

Subject: Re: Query Regarding DCP 183

(Subject to <http://reckon.co.uk/notices/>.)

Using capacity to scale local notional assets makes sense: local network assets are likely to be sized to accommodate agreed capacity irrespective of whether that capacity is used for active power, for reactive power, or not used at all.

Using consumption to scale remote notional assets makes sense: remote assets might well be sized on the basis of observed maximum flow on the network (i.e. after diversity), rather than agreed capacities before diversity. Insofar as the super-red time band correctly reflects the likely times of maximum load on these networks assets (which I doubt), then consumption during super-red would be an indication of the contribution of an EDCM customer to the maximum active power flow on the network.

It would have been possible to add reactive power to the calculations related to remote notional assets. Doing this properly would have entailed obtaining data or making assumptions about reactive power flows on the network, since the amount of network capacity used by each additional kVAr depends drastically on the amount of reactive power flowing through the relevant network asset. This would naturally have led to a super-red-only p/kVArh charge.

In terms of data about reactive power flows on the network, for companies using FCP, relevant information might have been drawn from table 911. However, as far as I recall, companies using LRIC were not keen on adding corresponding data to the EDCM model (in table 913, there is no information about active or reactive power flows on shared network assets); to keep things simple and avoid asking LRIC companies to do more work, the remote notional asset calculation was set on the assumption that all relevant power flows had a power factor of 0.95 lagging, the same assumption as in the construction of the 500 MW model.

It would be easy to use the generic figures in CDCM table 1092 to feed a plausible calculation of the amount of notional network capacity used by reactive power flows to EDCM customers.

I cannot see any good justification for the favourable treatment that generation-dominated sites already receive under the EDCM through network use factors. The DCP 183 solution that was consulted on would have compounded that unfair advantage by effectively assuming unity power factor for the sections of network serving these sites (instead of the current assumption of 0.95, or the typical 0.95-0.98 that would probably result from using the table 1092 figures or location-specific data on network flows).

The method of allocation of so-called indirect costs and 20 per cent of whatever has no intellectually satisfactory justification. In the source code that I use to build EDCM workbooks, the variables representing the “Factor for the allocation of capacity scaling” and “Proportion of residual to go into fixed adder” are called ynonFudge and ynonFudge41, so that might tell you something about where I

thought, rightly or wrongly, that these came from. In the context of these non-cost-reflective elements, I cannot see any basis for adding reactive power to the mix.

I cannot see any satisfactory justification for charging for remote notional assets through capacity charges and historical consumption data (the kW/kVAr figure), instead of using in-year consumption data and charging through unit rates.

For a CDCM 11kV customer, a 33kV/11kV transformer is treated as local (sized on capacity), but for an EDCM 33kV customer, a 132kV/33kV transformer is treated as remote (sized on demand). I cannot see any satisfactory justification for that inconsistency.

These last two issues are likely to be more serious than anything related to reactive power. The treatment of reactive power in the EDCM is sane enough, compared to the rest of the EDCM, but it seems to have received a disproportionate amount of attention.

Shankar might disagree with some or all of the above when he comes back from holidays.

Franck.

**From:** Wormald, Pat

**Sent:** 21 April 2015 13:22

**To:** DCUSA; Bethany Hanna; Chris Ong; Wendy Mantle; Dave Wornell; Kathryn Evans; Andrew Pace; Robert Garner; Mo Sukumaran; Keith Burwell; Richard Ellis; Anika Brandt; Iain Morgan; Donald Preston

**Subject:** RE: Website Updated: DCP 183 - Meeting 15 Final Agenda

Hi All

Apologies for the short notice, but unfortunately I am unable to join the call this afternoon. I have reviewed Franck's comments and have also looked at the original submission document (see attached)

Para 141 – describes - Demand scaling involves the following steps:

- a) Allocation of the direct operating cost and network rates elements in the EDCM demand revenue target to individual EDCM demand users on the basis of shared network assets and sole use assets.
- b) Allocation of the indirect cost element in the EDCM demand revenue target to individual EDCM demand customers in the basis of their forecast consumption at the time of DNO peak (based on historical data) and 50 per cent of maximum import capacity as a p/kVA/day charge.
- c) Forecasting the notional recoveries from the application of LRIC or FCP charges to EDCM demand users.

- d) Allocation of 80 per cent of the difference between the EDCM demand revenue target and the sum of charges under (a), (b) and (c) above on the basis of shared network assets (not sole use assets).
- e) Allocation of 20 per cent of the difference between the EDCM demand revenue target and the sum of charges under (a), (b) and (c) above on the basis of forecast consumption at the time of peak and 50 per cent of maximum import capacity as a p/kVA/day fixed adder.

Para 142 - The DNOs' direct operating costs and network rates are considered to be closely linked to network assets, and therefore best allocated using assets (shared and sole use) as the driver.

Para 143 - DNO indirect costs are not considered to be closely linked to assets, but rather to customer size. As a result, indirect costs are allocated to customers on the basis of a composite proxy for customer size, i.e. 50 per cent of maximum capacity and peak-time consumption.

Para 144 - The rationale for allocating 80 per cent on the basis of shared network assets and 20 per cent on the basis of a fixed adder is set out in Annex 5.

I think this leads me to conclude that paras 142 and 143 explain the reason for applying the scaling to local and remote assets differently and Franck seems to agree with this in his response. I don't tend to agree with his assertion that LRIC companies were not keen on adding data to the EDCM or that it was to avoid more work, but others may remember more.

I am happy to catch up later, but if the decision is not to proceed I would support it.

Hope this helps.

Regards

Pat Wormald