

DCP203 IMPACT ASSESSMENT

Some respondents to the first DCP203 consultation stated that they did not agree with the intent of DCP203 as they expressed concerns that it has a detrimental impact on the costs reflectivity of the allocation of UMS revenue between the DNO and the embedded EDNO. To address these concerns it was agreed that the working would undertake some impact analysis.

It was decided to consider a range of possible scenarios where an EDNO would have a different split in its connections portfolio across the EDNO's networks connected to the host DNO at LV and those connected at HV. For simplicity connections to EDNO networks connected to the host DNO at higher network levels have not been considered in the assessment, as the HV LV scenario splits cover the most common arrangements that exist in practice.

For the purpose of the assessment 7 fictitious EDNOs are considered each with the same size portfolio of 20,000 domestic customers and the typical number of associated street lighting connections of 6,667 based on a 1 to 3 ratio of street lights to domestic MPANs. Each of the 7 EDNOs have a different ratio of EDNO networks connected to the host DNO at the EDNO/ DNO HV and LV boundary network level.

The table below shows the seven scenarios.

| Scenario No. | EDNO Domestic and UMS Connection numbers | The ratio of domestic customer connections to the EDNO networks with LV DNO/EDNO connection boundaries and HV DNO/EDNO connection boundaries |
|--------------|---|--|
| 1 | 20,000 domestic and 6,667 UMS connections | 90% LV, 10% HV |
| 2 | 20,000 domestic and 6,667 UMS connections | 25% LV, 75% HV |
| 3 | 20,000 domestic and 6,667 UMS connections | 45% LV, 55% HV |
| 4 | 20,000 domestic and 6,667 UMS connections | 50% LV, 50% HV |
| 5 | 20,000 domestic and 6,667 UMS connections | 55% LV, 45% HV |
| 6 | 20,000 domestic and 6,667 UMS connections | 75% LV, 25% HV |
| 7 | 20,000 domestic and 6,667 UMS connections | 10% LV, 90% HV |

For each scenario, the anticipated UMS EDNO Margin was calculated based on current published tariffs of one Host DNO. For the purpose of the calculation EDNO Margin can be considered to the ATW tariff multiplied by the relevant EDNO discount. The UMS EDNO margin was also calculated for

a: the UMS All discount and,

b: for using one of the existing discounts for the EDNO's entire UMS portfolio determined by the split of domestic connections to the EDNO's networks which are connected to the host DNO at the LV and HV network level.

The results of the calculations are shown in the table below with the full tables attached in Appendix A.

Table A: Impact Assessment of Using a Combined UMS ALL discount

| Scenario Number | EDNO Margin (UMS) - current Discounts | EDNO Margin (UMS) - UMS ALL Discount | % impact on UMS margin for UMS ALL Discount Vs UMS margin with Current discounts | Total Value of EDNO Margin for all connections with EDNO current discounts | % impact for UMS ALL Discount Vs all connections margin with Current discounts |
|-----------------|---------------------------------------|--------------------------------------|--|--|--|
| 1 | £8,150 | £10,146 | 24.49% | £557,642 | 0.36% |
| 2 | £8,899 | £10,146 | 14.02% | £608,849 | 0.20% |
| 3 | £9,897 | £10,146 | 2.52% | £677,125 | 0.04% |
| 4 | £10,146 | £10,146 | 0.00% | £694,194 | 0.00% |
| 5 | £10,396 | £10,146 | -2.40% | £711,263 | -0.04% |
| 6 | £11,394 | £10,146 | -10.95% | £779,539 | -0.16% |
| 7 | £12,142 | £10,146 | -16.44% | £830,746 | -0.24% |
| | | Average % | 1.61% | Average % on total margin | 0.02% |

Table B: Impact Assessment of using one of the existing tariffs for the entire Portfolio based on the split of the EDNO domestic connections with a EDNO/DNO boundary network level of LV and HV Boundary

| Scenario Number | EDNO Margin (UMS) - current Discounts | EDNO Margin (UMS) - Single Agreed Discount | % impact on UMS margin for Single Agreed Discount Vs UMS margin with Current discounts | Total Value of EDNO Margin for all connections with EDNO current discounts | % impact for Single Agreed Discount Vs all connections margin with Current discounts |
|-----------------|---------------------------------------|--|--|--|--|
| 1 | £8,150 | £7,651 | -6.12% | £557,642 | -0.09% |
| 2 | £8,899 | £7,651 | -14.02% | £608,849 | -0.20% |
| 3 | £9,897 | £7,651 | -22.69% | £677,125 | -0.33% |
| 4 | £10,146 | £7,651 | -24.59% | £694,194 | -0.36% |
| 5 | £10,396 | £12,641 | 21.60% | £711,263 | 0.32% |
| 6 | £11,394 | £12,641 | 10.95% | £779,539 | 0.16% |
| 7 | £12,142 | £12,641 | 4.11% | £830,746 | 0.06% |
| | | Average % | -4.39% | Average % | -0.06% |

It can be seen from the tables that both approaches introduce a margin of error which is not insignificant when considered against the UMS revenue only. When considered in the wider context of the total EDNO margin for each scenario then the impact reduced to an average of 0.02% increase in EDNO margin for the UMS ALL Discount or a 0.06% reduction in EDNO margin where a single discount is used for the EDNO's entire UMS portfolio. The selection of the single discount is determined using a rule that the LV discount is selected where the split of the EDNO domestic connections portfolio with an upstream EDNO/DNO boundary network level at LV is less than 50% and the HV discount applied in all other instances.

Conclusion: When considered in the wider context of inter-distributor billing either approach causes minimal price disturbance. The impact assessment appears to show that the UMS ALL Discount approach appears to cause less price disturbance than the single discount approach however it is also worth noting that the implementation of a single discount with a simple rule would be much easier than going through the process of modifying the existing CDCM models to create new combined discounts for UMS connections only.

Appendix A

The following tables show the assumptions used and the results of the calculations completed for the impact assessment.

Table A1

EDNO Discounts including EDNO UMS ALL

| Boundary category | Total no. of Domestic MPANS connected to Embedded EDNO Networks within the DNO's DSA. | Embedded network (EDNO) discounts | EDNO Discount UMS ALL |
|-------------------|---|-----------------------------------|-----------------------|
| EDNO HV | 70000 | 46.96% | 37.69% |
| EDNO LV | 70000 | 28.42% | |

UMS CDCM ATW Tariff

| NHH UMS category A | 2.021 per kWh | | |
|--------------------|---------------------|-----------------------|--|
| domestic tariff | 2.356 pence per kWh | 2.27 per MPAN per day | |

Table A1. above shows a sample data taken from a random Host DNO for the purpose of the impact assessment. The table contains details of the DNO EDNO Discount tariffs, the newly proposed UMS All tariff, UMS ATW unit rate and domestic ATW for standing and unit charges.

Table A2

Fictitious EDNO with 20,000 domestic customers

| Scenario Number | LV sites | Boundary | HV sites | Boundary | LV Boundary sites | HV Boundary sites |
|-----------------|---|----------|----------|--|-------------------|-------------------|
| | No. of domestic connections to each network level | | | Associated no. of UMS connections to each network level i.e. 1/3 of the no of domestic connections | | |
| 1 | 18000 | | 2000 | | 5994 | 666 |
| 2 | 15000 | | 5000 | | 4995 | 1665 |
| 3 | 11000 | | 9000 | | 3663 | 2997 |
| 4 | 10000 | | 10000 | | 3330 | 3330 |
| 5 | 9000 | | 11000 | | 2997 | 3663 |
| 6 | 5000 | | 15000 | | 1665 | 4995 |
| 7 | 2000 | | 18000 | | 666 | 5994 |

Tables A2 above shows the split of Domestic and UMS EDNO connections that have DNO/EDNO boundary network levels of LV and HV for each of the 7 scenarios.

Table A3

| Scenario Number | Value of EDNO EAC Margin for UMS portfolio with LV boundary | Value of EDNO EAC Margin for UMS portfolio with HV boundary | Total Value of EDNO UMS portfolio with current discounts |
|-----------------|---|---|--|
| | Product of Total LV EAC, ATW, LV Discount | Product of Total LV EAC, ATW, HV Discount | Sum of LV and HV UMS EDNO Margin |
| 1 | £6,886 | £1,264 | £8,150 |
| 2 | £5,739 | £3,160 | £8,899 |
| 3 | £4,208 | £5,688 | £9,897 |
| 4 | £3,826 | £6,320 | £10,146 |
| 5 | £3,443 | £6,953 | £10,396 |
| 6 | £1,913 | £9,481 | £11,394 |
| 7 | £765 | £11,377 | £12,142 |

Table A3 shows the EDNO Margin in £ per annum, for the UMS connections for each of the 7 scenario. This is calculated based on an assumed EAC of 200kWhs for each UMS connection (street light).

Table A4

| Scenario Number | Value of EDNO Margin for Domestic portfolio with LV boundary | Value of EDNO Margin for Domestic portfolio with HV boundary | Total Value of EDNO Margin for Domestic portfolio with current EDNO discount |
|-----------------|--|--|--|
| 1 | £464,268 | £85,224 | £549,492 |
| 2 | £386,890 | £213,061 | £599,951 |
| 3 | £283,719 | £383,509 | £667,228 |
| 4 | £257,927 | £426,121 | £684,048 |
| 5 | £232,134 | £468,734 | £700,867 |
| 6 | £128,963 | £639,182 | £768,145 |
| 7 | £51,585 | £767,019 | £818,604 |

Table A4 shows the EDNO Margin in £ per annum, for the Domestic connections for each of the 7 scenarios. This is calculated based on an EAC of 3500kWhs for each domestic customer.

Table A5

| Scenario Number | Total Value of LDNO UMS portfolio with LDNO current discounts | Total Value of LDNO UMS portfolio with LDNO UMS ALL discount | Total Value impact |
|---|---|--|---|
| | Sum of LV and HV UMS LDNO Margin | Product of Total EAC, ATW, UMS ALL Discount | UMS Margin based on LV and HV Discount - UMS Margin based on UMS ALL Discount |
| 1 | £8,150 | £10,146 | £1,996 |
| 2 | £8,899 | £10,146 | £1,247 |
| 3 | £9,897 | £10,146 | £249 |
| 4 | £10,146 | £10,146 | £0 |
| 5 | £10,396 | £10,146 | -£249 |
| 6 | £11,394 | £10,146 | -£1,247 |
| 7 | £12,142 | £10,146 | -£1,996 |
| Nett impact on the sum of EDNO UMS margin across the DNO area | | | £0 |

Table A5 shows the value of the difference in £ per annum, on the calculation of the EDNO margin when using the UMS All discount versus the applicable current LV and HV discount for each scenario

Table A6

| Scenario Number | Total Value of LDNO UMS connection using current LDNO discounts | Total Value impact - UMS ALL Discount | Total % impact on value of margin calculated on current discounts - UMS ALL Discount | Total Value of LDNO Margin for all connections with LDNO current discounts | Total % impact when considered against total margin for portfolio - UMS ALL Discount |
|--|---|---------------------------------------|--|--|--|
| 1 | £8,150 | £10,146 | 24.49% | £557,642 | 0.36% |
| 2 | £8,899 | £10,146 | 14.02% | £608,849 | 0.20% |
| 3 | £9,897 | £10,146 | 2.52% | £677,125 | 0.04% |
| 4 | £10,146 | £10,146 | 0.00% | £694,194 | 0.00% |
| 5 | £10,396 | £10,146 | -2.40% | £711,263 | -0.04% |
| 6 | £11,394 | £10,146 | -10.95% | £779,539 | -0.16% |
| 7 | £12,142 | £10,146 | -16.44% | £830,746 | -0.24% |
| Average % change based on total UMS margin | | | 1.61% | Average % on total margin | 0.02% |

Table A6 shows the Impact Assessment of one of the Existing Tariffs for the entire Portfolio based on the split of the EDNO domestic connections with a EDNO/DNO boundary network level of LV and HV Boundary

Table A7

| Scenario Number | Total Value of EDNO UMS portfolio with EDNO current discounts | Total Value of EDNO UMS portfolio under single existing discount using Proposed Rules | Total Value impact |
|---|---|---|--|
| | Sum of LV and HV UMS EDNO Margin | Product of Total EAC, ATW, the relevant UMS EDNO Discount | UMS Margin based on LV and HV Discount - UMS Margin based on UMS Single Discount |
| 1 | £8,150 | £7,651 | -£499 |
| 2 | £8,899 | £7,651 | -£1,247 |
| 3 | £9,897 | £7,651 | -£2,245 |
| 4 | £10,146 | £7,651 | -£2,495 |
| 5 | £10,396 | £12,641 | £2,245 |
| 6 | £11,394 | £12,641 | £1,247 |
| 7 | £12,142 | £12,641 | £499 |
| Nett impact on the sum of EDNO UMS margin across the DNO area | | | -£2,495 |

Table A7 shows the value of the difference in £ per annum, on the calculation of the EDNO margin where a single discount is used for all of the UMS portfolio using the LV discount in scenarios 1 to 4 and the HV discount elsewhere.

Table A8

| Scenario Number | EDNO Margin (UMS) - current Discounts | EDNO Margin (UMS) - Single Agreed Discount | % impact on UMS margin for Single Agreed Discount Vs UMS margin with Current discounts | Total Value of EDNO Margin for all connections with EDNO current discounts | % impact for Single Agreed Discount Vs all connections margin with Current discounts |
|-----------------|---------------------------------------|--|--|--|--|
| 1 | £8,150 | £7,651 | -6.12% | £557,642 | -0.09% |
| 2 | £8,899 | £7,651 | -14.02% | £608,849 | -0.20% |
| 3 | £9,897 | £7,651 | -22.69% | £677,125 | -0.33% |
| 4 | £10,146 | £7,651 | -24.59% | £694,194 | -0.36% |
| 5 | £10,396 | £12,641 | 21.60% | £711,263 | 0.32% |
| 6 | £11,394 | £12,641 | 10.95% | £779,539 | 0.16% |
| 7 | £12,142 | £12,641 | 4.11% | £830,746 | 0.06% |
| | | Average % | -4.39% | Average % | -0.06% |

Table A8 shows the : Impact Assessment of using one of the existing tariffs for the entire Portfolio based on the split of the EDNO domestic connections with a EDNO/DNO boundary network level of LV and HV.