CMP 264/265

Guidance on Changes in TNUoS Charging Arrangements

October 2017

Information about the implementation of CMP264/265 from 1st April 2018.

In this information paper you'll find guidance on how CUSC modification CMP 264/265 will be implemented, and what changes you will see in the 2018/19 Transmission Network Use of System (TNUoS) Demand Tariffs, effective from 1st April 2018.

October 2017

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If you have any comments or questions on the contents or format of this document, please don't hesitate to get in touch with us.

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Background to CMP 264/265

What is CMP264/265?

Ofgem recently approved the CUSC modification under WACM4 for CMP264/265 (June 2017) which is designed to change the charging arrangements for National Grid's Demand TNUoS Tariffs and associated billing. This, alongside BSC modifications P348/P349[1] and consequential CUSC modification CMP269/270 will result in Half Hourly Demand Tariffs being charged based on "gross" Demand and an explicit export payment for embedded generation less than 100MW. This represents a fundamental change in how Half-Hourly Demand is charged. At present Half-Hourly Demand is charged at a "net" level (gross Demand minus export from embedded generation) and this modification brings the introduction of an explicit "Embedded Export Tariff". Once implemented the modification will apply to suppliers with Half-Hourly Demand volumes and embedded generators (CVA registered[2] <100MW) directly contracted with National Grid.

This document explains what specific changes National Grid will make in terms of how Demand and the subsequent TNUoS liability is calculated. If you would like to know more regarding the driver of these changes please refer to the Ofgem decision letter[3].

Implementation Date

Ofgem's decision to implement WACM4 of CMP264/265 indicates a change to the CUSC to apply from 1st April 2018.

All TNUoS charging changes resulting from this modification will become effective for 2018/19 TNUoS tariffs.

[1] https://www.ofgem.gov.uk/publications-and-updates/embedded-benefits-decision-industry-proposals-p348-and-p349

[2] https://www.elexon.co.uk/wp-content/uploads/2013/10/acronyms_defined_terms_simpleguide_v2.0_cgi.pdf

[3] https://www.ofgem.gov.uk/publications-and-updates/decision-industry-proposals-cmp264-and-cmp265-change-electricity-transmission-charging-arrangements-embedded-generators

What will CMP 264/265 change in the TNUoS Charging arrangements?

Following the implementation of CMP 264/265, the way in which National Grid charges TNUoS Demand will change as well as the actual TNUoS Demand Tariffs, this will lead to:

1. The Half Hourly (HH) zonal Demand Tariff changing from "net" (gross minus Embedded Export from embedded generation) to "gross" chargeable Demand.
2. The introduction of an explicit Embedded Export Tariff (EET).
3. Changes in the billing and supplier forecast processes.

Fundamentally Half-Hourly Demand suppliers and/or embedded generators will now be charged/paid based on two volumes:

- "Gross" Demand volume.
- "Embedded Export" volume.

For reference the introduction of CMP264/265 will not change:

- The Non Half-Hourly (NHH) Demand Tariff, this remains calculated on a "net" basis.
- Our total Demand Revenue recovery.
- The definition of "Triad", this is still calculated on "net" system peak.

Which customers will this affect?

CMP264/265 will directly affect all Demand customers (suppliers) who pay TNUoS charges and embedded generators (CVA registered) who receive an "Embedded Export" payment. This will also indirectly affect embedded generators who receive "Embedded Export" payments from their suppliers when generating over Triad period (depending on their contract).

How will these changes be implemented and reflected for customers?

There will be a substantial change in our chargeable Half-Hourly Demand volumes and TNUoS Tariffs.

Half-Hourly Demand users will now be explicitly charged the zonal Tariffs based on the "gross" Demand (import) volume. This is different to how we currently invoice suppliers for TNUoS based on their "net" Demand.

Suppliers (SVA registered) will now also receive an "Embedded Export" payment (based on export volume) to be passed on to their associated embedded generator(s) for exporting over Triad periods.

This will be implemented by separating the supplier's Half-Hourly Demand charge into two Tariffs under CMP264/265 requirements, a **"Gross HH Demand Tariff"** and an **"Embedded Export Tariff":**

Embedded generators (CVA registered <100MW) will also receive an "Embedded Export" payment (based on export volume) directly from National Grid.

Gross HH Demand Tariff

This revised Tariff represents a change in how we currently charge zonal Triad Demand (GW), moving from our previous "net" position (gross Demand minus export from embedded generation) to "gross" Demand only. The structure of the existing Tariff will remain the same with only the methodology and nomenclature changing.

There are two key changes within the charging (CUSC) methodology for the "Gross HH Demand Tariff", illustrated in diagram 1:

- "Gross" Triad Demand charging base changing within the locational and residual elements of the Tariff and Transport model.
- Inclusion of £ Embedded Export Revenue in the Demand residual.

There will also be a minor change to the calculation of the small generator Half Hourly recovery rate, which is applied to the final Tariffs after this calculation. Please see Appendix 1 for further details.

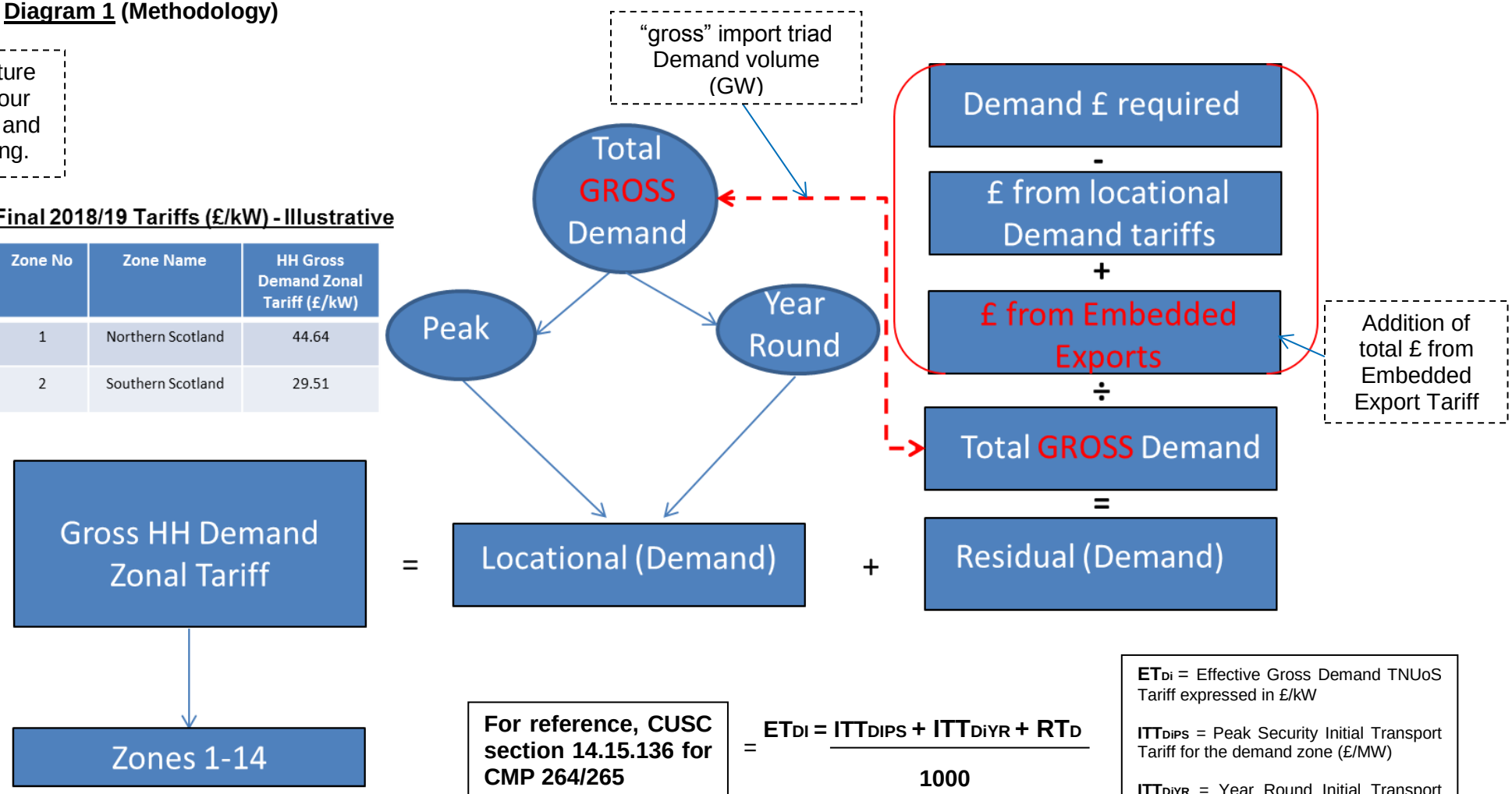
Gross HH Demand Tariff *(charged on gross Demand for HH customers)*

Diagram 1 (Methodology)

The Tariff structure you will see in our future forecasts and final Tariff setting.

Final 2018/19 Tariffs (£/kW) - Illustrative

Zone No	Zone Name	HH Gross Demand Zonal Tariff (£/kW)
1	Northern Scotland	44.64
2	Southern Scotland	29.51



For reference, CUSC section 14.15.136 for CMP 264/265

$$ET_{DI} = \frac{ITT_{DIPS} + ITT_{DiYR} + RT_{D}}{1000}$$

ET_{Di} = Effective Gross Demand TNUoS Tariff expressed in £/kW

ITT_{DiPS} = Peak Security Initial Transport Tariff for the demand zone (£/MW)

ITT_{DiYR} = Year Round Initial Transport Tariff for the demand zone (£/MW)

RT_{D} = Residual Tariff £/MW

Embedded Export Tariff

This is a new Tariff payable to Embedded Exports for Half-Hourly Demand customers and CVA registered embedded generators (<100MW) only, which represents the payment for the Embedded Export volume produced during Triad periods. Embedded Export generation produced by embedded generators less than 100MW will now be treated as a separate export volume, as a subsequent change under CMP264/265 from the previous "net" Demand charging arrangements.

The final zonal "Embedded Export Tariff" will be floored at £0/kW for the avoidance of negative Tariffs and be applied to the metered Triad volumes of Embedded Exports for each Demand zone, the methodology will include:

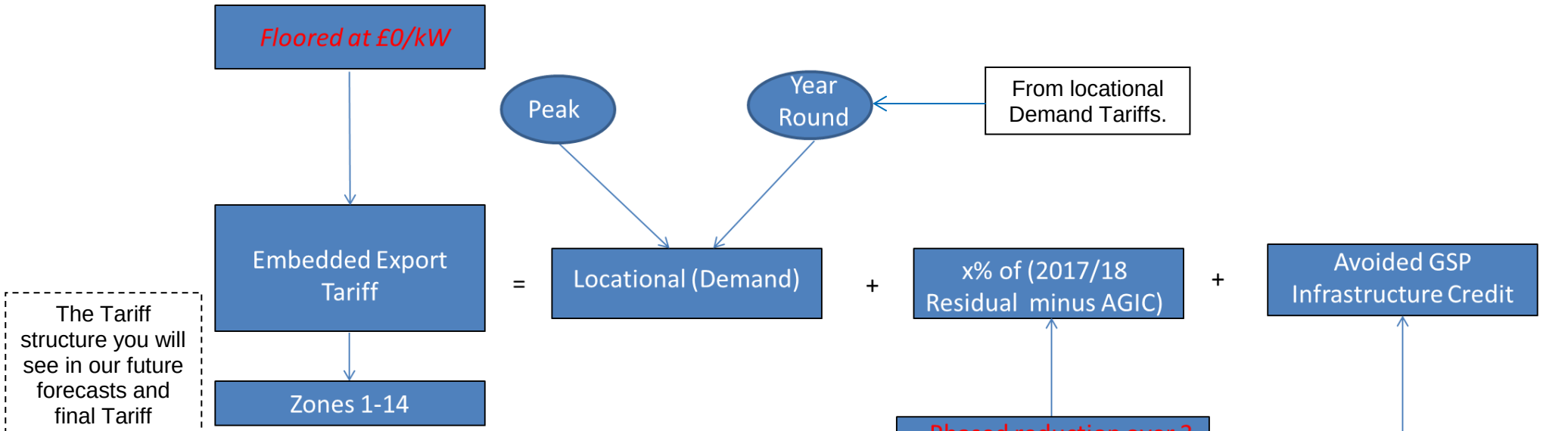
- The locational Demand element (Peak/Year Round) from the Tariff and Transport model.
- An Avoided GSP Infrastructure Credit (AGIC) which represents the unit cost of infrastructure reinforcement at GSPs. This will be explained in further detail as part of the AGIC letter which has also been published alongside this publication.
- A percentage of the 2017/18 residual less the AGIC in 2018/19 and 2019/20 only. This percentage is 66% in 2018/19, 33% in 2019/20, from 2020/21 onwards this value is zero.

The cost of the "Embedded Export Tariff" will be added to the Revenue to be recovered within Demand TNUoS, prior to calculating the residual to ensure overall £ Revenue recovery.

The methodology behind this is illustrated in diagram 2, in addition to this please see an indicative example of both the "Embedded Export Tariff" and CMP264/265 Vs the current methodology as shown in Tables 1-3.

Embedded Export Tariff *(based on Triad output from embedded generators)*

Diagram 2 (Methodology)



Final 2018/19 Tariffs (£/kW) - *Illustrative*

Zone No	Zone Name	Embedded Export Tariff (£/kW)
1	Northern Scotland	31.43
2	Southern Scotland	13.29

EX = First Charging year following the implementation date of CMP 264/265:

$$\frac{2}{3}(XP - AGIC) + AGIC$$

Second charging year following the implementation date of CMP 264/265:

$$\frac{1}{3}(XP - AGIC) + AGIC$$

Third charging year following the implementation date of CMP 264/265 and every subsequent charging year:

$$= AGIC$$

Where
XP = Value of demand residual in charging year prior to implementation

For reference, CUSC section 14.15.114 for CMP 264/265

= **$ETDI = ITTDIPS + ITTDiYR + EX$**

ETDi = Embedded Export Tariff TNUoS Tariff expressed in £/kW

ITT_{DiPS} = Peak Security Initial Transport Tariff for the demand zone

ITT_{DiYR} = Year Round Initial Transport Tariff for the demand zone

EX = The Avoided GSP Infrastructure Credit (AGIC)

The total cost £m of the "Embedded Export Tariff" is the sum of the zonal "Embedded Export Tariff" multiplied by the zonal Embedded Export volume. This along with our total system Triad Demand, zonal HH Demand and zonal NHH Demand are derived from our Demand forecast model which takes into account a number of potential variables when forecasting average Triad Demand.

Table 1 – Locational Demand Tariff (£/kW)

Locational Demand Tariff (£/kW)					
Zone	Zone Name	18/19	19/20	20/21	21/22
1	Northern Scotland	-0.88	-4.81	-4.77	-4.82
2	Southern Scotland	-19.02	-21.57	-21.10	-22.59
3	Northern	-9.52	-10.07	-10.99	-10.99
4	North West	-2.78	-2.92	-2.97	-2.66
5	Yorkshire	-3.15	-3.06	-3.43	-3.16
6	N Wales & Mersey	-1.44	-1.59	-1.37	-0.51
7	East Midlands	-0.21	0.44	0.37	0.91
8	Midlands	1.54	1.72	1.83	2.82
9	Eastern	1.37	1.90	1.89	2.73
10	South Wales	-2.06	-2.40	-2.03	2.38
11	South East	4.20	4.39	4.53	5.62
12	London	6.68	7.25	7.49	8.52
13	Southern	5.56	5.09	5.39	6.79
14	South Western	5.28	4.74	2.84	5.19

Based on June forecast for 2018/19 & 5 year forecast for 2019/20 onwards

Table 2 – Embedded Export Tariff (£/kW)

Illustrative Embedded Export Tariffs (£/kW)					
Zone	Zone Name	18/19	19/20	20/21	21/22
1	Northern Scotland	30.95	12.08	-	-
2	Southern Scotland	12.81	-	-	-
3	Northern	22.31	6.82	-	-
4	North West	29.05	13.97	-	-
5	Yorkshire	28.68	13.82	-	-
6	N Wales & Mersey	30.39	15.30	0.62	1.54
7	East Midlands	31.62	17.33	2.36	2.96
8	Midlands	33.37	18.61	3.82	4.87
9	Eastern	33.20	18.79	3.88	4.78
10	South Wales	29.77	14.49	-	4.43
11	South East	36.04	21.28	6.52	7.67
12	London	38.51	24.14	9.48	10.57
13	Southern	37.39	21.98	7.38	8.84
14	South Western	37.11	21.63	4.83	7.24
including:					
AGIC		1.88	1.93	1.99	2.05
Phased Residual		29.95	14.96	-	-

AGIC based on estimate of £1.62/kW in 2011/12 prices, inflated to 2018/19 prices

Phased residual begins with 2017/18 Demand residual of £47.26/kW

Note: *Figures are illustrative only, and will be updated in the October forecast for 2018/19. and in the November Five Year Forecast for 2019/20 onwards.*

The following table is an example calculation of applying the CMP264/265 changes to TNUoS Demand Tariffs for a Suppler.

Table 3 - Illustrative example of TNUoS Demand Tariffs (CMP 264/265 Vs Current Methodology)

Illustrative calculation of TNUoS Demand tariffs: CMP264/265 Vs current methodology

Numbers are for illustration only

	Unit	Element	Calculation	Current	CMP264/265
Net HH Demand at Triad	kW	(1)		8000	
Gross HH Demand at Triad	kW	(2)			10000
Embedded Export at Triad	kW	(3)			2000
Average Net HH Demand Tariff	£/kW	(4)		46.81	
Average gross HH Demand Tariff	£/kW	(5)			44.63
Embedded Export Tariff	£/kW	(6)			30
HH Net Demand charge	£	(7)	(1)*(4)	374,468	
HH gross Demand charge	£	(8)	(2)*(5)		446,296
Embedded Export payment	£	(9)	(3)*(6)		60,000
Total Demand charge	£	(9)		374,468	386,296

TNUoS chargeable Demand & Embedded Export volume.

HH gross Demand and new Embedded Export Tariff.

Existing TNUoS net Demand charge based on net Demamd multiplied by the net HH Demand Tariff.

Revised TNUoS gross HH Demand charges & Embedded Export payment.

FINAL TNUoS Demand charge based on the HH gross Demand charge minus the Embedded Export payment.

Embedded Export volume now separate from gross Demand

This example calculation of Demand TNUoS for a BMU assumes a net Demand volume of 8000kW, made up of gross Demand of 1000kW and an Embedded Export volume of 2000kW.

The calculations are as follows:

- The existing net HH Demand charge is element **(1) * (4)**
- The Embedded Export payment is **(3) * (6)**
- The gross HH Demand charge is **(2) * (5)**
- The total HH Demand charge is **(8) – (9)**

Non Half-Hourly Tariff

For Non Half-Hourly users, the methodology for calculating the zonal NHH Demand Tariffs will not change under CMP264/265. However, the zonal NHH Tariffs are derived from the remaining Demand Revenue that must be collected after HH Demand and Embedded Export Revenues have been added.

For the purposes of the demonstrating these revised elements such as the AGIC and the application of the phased residual within the "Embedded Export Tariff" please see below indicative tables for the Locational Demand Tariff and the "Embedded Export Tariff".

What are we changing in our TNUoS billing processes and supplier forecasting?

From 1st April 2018 Demand users (suppliers) will see a change in their monthly invoices where the HH Demand Tariff methodology will be revised to represent charging on a "gross" basis and there will be an embedded payment or credit value through a new "Embedded Export Tariff" for embedded generation.

In accordance with the TNUoS Charging Methodology the HH forecast is capped at zero if the gross Embedded Export forecast (kW) is greater than gross Demand forecast (kW) at the Balancing Mechanism Unit (BMU). For reference Demand and Embedded Exports are assessed separately at the Demand reconciliations.

Below is the charging mechanism for monthly billing based on the changes under CMP264/265:

- HH Monthly invoice (£) = [(Supplier **gross** Demand zonal forecast) x HH **gross** Demand zonal Tariff] – [(Embedded Export forecast) x Embedded Export zonal Tariff] = (Annual Liability £) / number of months remaining in the Financial Year.

Based on the above charging mechanism the monthly backing sheets will be redesigned to accommodate the changes for affected BMU IDs.

In addition to a forecast of chargeable NHH consumption, suppliers are required to forecast gross Demand (import) and gross Embedded Export on or before the 10th day of March in each Financial Year. Suppliers must notify National Grid of any revision to its Demand forecast at least quarterly or at such intervals as may be agreed.

The annual reconciliations use the latest available settlement metering data, in addition to the averages of Triad Liability **gross** Demand. The reconciliation process will also consider Embedded Export volume.

- Initial Reconciliation = [(Average of 3 Demand Triads) x HH gross Demand zonal Tariff] – [(Average of 3 HH Embedded Export Triads) x HH Embedded Export Tariff] – [Monthly Invoices paid]

- Final Reconciliation = [(Average of 3 Demand Triads based on latest RF settlement data) x HH **gross** Demand Zonal Tariff] – [(Average of 3 HH Embedded Export Triads based on latest RF) x HH Embedded Export Tariff] – Initial Reconciliation [A]

With the new charging mechanism the first initial reconciliation will be carried out in June 2019 and the first final reconciliation completed in autumn of 2020 for the charging year 2018/19.

This will be implemented in line with the BSC modification P348/349 in which the HH and NHH metered data will be collected as per the new charging arrangements within CMP264/265.

What are our next steps?

We are in the process of finalising the CMP264/265 implementation for the 2018/19 forecast TNUoS Tariffs which will be circulated as part of the October forecast. This will include all of the charging arrangement changes described above with the exception of the billing and supplier forecast changes which are due to take effect by 1st April 2018. This will involve:

- Modifying our Tariff & Transport Model to incorporate the methodology changes and new Tariff structure.

- Developing a zonal HH/NHH Demand Forecast model incorporating a "gross" and "Embedded Export" volume.

As part of the new "Embedded Export Tariff" we are nearing completion of the Avoided GSP Infrastructure Credit (AGIC). This will be circulated shortly with supporting information on the methodology and associated costs.

When and what will our customers expect to see on this through 2017/18?

In parallel with this publication, we have also published the value of the **"Avoided GSP Infrastrucutre Credit"** (AGIC) for 2018/19 tariffs. The AGIC is a component of the "Embedded Export Tariff".

Future dates are as follows, these remain aligned with the letter we published in June:

End of October 2017	A revised **Forecast for 2018/19 TNUoS tariffs**, in line with the CMP264/265 methodology and using the published AGIC.
End of November 2017	A revised **Five Year Forecast of TNUoS tariffs**, in line with the CMP264/265 methodology
By 24th December 2017	**Draft Tariffs for 2018/19 TNuoS**, in line with CMP264/265 methodology
By 31st January 2017	**Final Tariffs for 2018/19 TNuoS**, in line with CMP264/265 methodology

Other useful information

- *Ofgem Decision to approve WACM4 for CMP264/265.*

  https://www.ofgem.gov.uk/publications-and-updates/decision-industry-proposals-cmp264-and-cmp265-change-electricity-transmission-charging-arrangements-embedded-generators

- *Revised timetable for publication of 2018/19 TNUoS Tariffs.*

  http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=8589940926

- *June forecast 2018/19 TNUoS Tariffs (The upcoming October forecast for the 2018/19 TNUoS Tariffs will also be published here).*

  http://www2.nationalgrid.com/UK/Industry-information/System-charges/Electricity-transmission/Approval-conditions/Condition-5/

- *Targeted Charging Review – Significant Code Review launch.*

  https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-significant-code-review-launch

Appendix 1 - Small Generators Discount

We are obliged under licence condition C13 to operate the Small Generators Discount scheme. This reduces the Tariffs of generators connected at 132kV transmission, and is recovered from HH and NHH Demand customers, using the same charging base as TNUoS.

The change to the residual for Demand, and the charging base for HH Demand TNUoS has an impact on the way that small generator discount in calculated and charged.

Following the move to gross charging for TNUoS Demand, the Small Generator Discount will also be updated to reflect that recovery is from gross HH Demand, and the residual used in the calculation of the discount is the “gross” Demand residual.

Initial indications for 2018/19 are that we expect a minor change to the value of the Small Generator Discount. The value paid to generators will be broadly similar (as the gross and net residual are expected to be broadly similar in value). The unit rate for the gross HH recovery is expected to be lower than the net HH recovery rate due to the increased charging base. Full details of the latest forecast of the Small Generator Discount for 2018/19 will be included in our October Forecast of TNUoS Tariffs.

As currently written in our licence, C13 will expire in March 2019 and will therefore not apply to Tariffs from 2019/20 onwards.