TNUoS Tariffs Five Year View for 2021/22 – 2025/26

Webinar

NGESO Revenue Team

September 2020

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Agenda

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Revenue team: TNUoS Tariff Forecasting & Setting

Rebecca Yang

Forecasting, setting and billing TNUoS to recover around £3bn of revenue per year from generators, demand and suppliers

Sarah Chleboun

(On Maternity Leave)

Jo Zhou

- **Revenue**
- **Onshore Local Circuits**
- **Annual Load Factors (ALFs)**

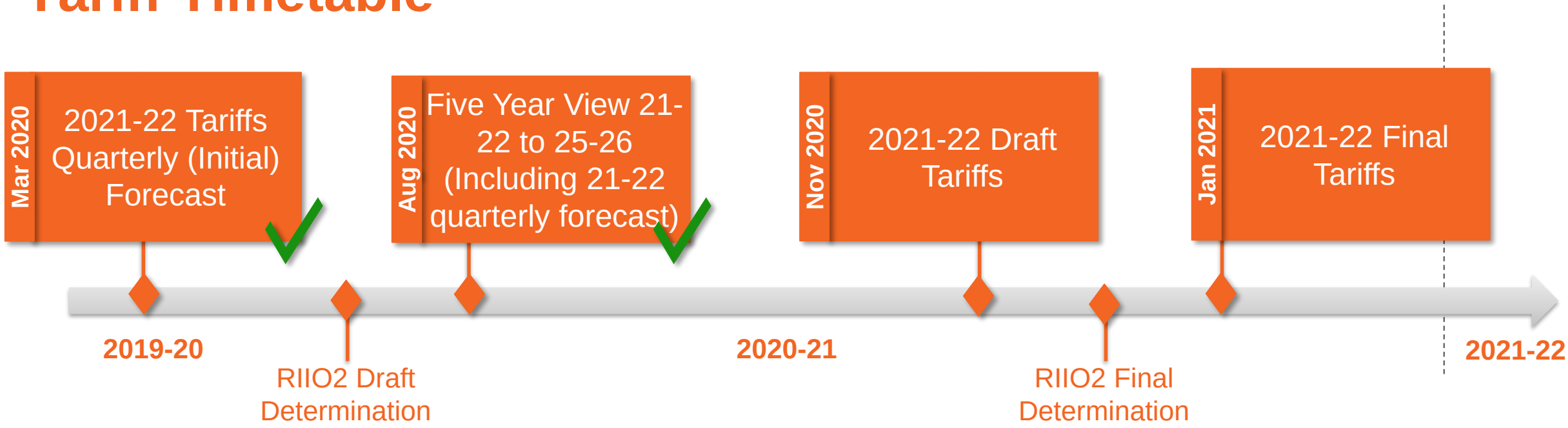
Alice McCormick

- **Generation**
- **Local substation**
- **Offshore**

Matt Wootton

- **Demand**
- **EET**
- **RIIO2 Parameters**

Tariff Timetable



- We have published two forecasts for the TNUoS tariffs for 2021/22.
- These tariffs will be refined throughout the year, the final tariffs will be published by 31st January 2021 and take effect from 1st April 2021.
- Final tariffs for 2021/22 will incorporate RIIO-2 Final Determinations (expected by December) as well as the decision on CMP 317/327 (Transmission Generation Residual) and CMP324/325 (Generation Re-zoning)

Overview of challenges and assumptions

This five-year view presented a number of significant challenges mainly driven by ongoing uncertainties in the charging framework:

Regulatory Changes

- TGR due April 2021
- TDR due April 2022
- Access SCR - likely April 2023

Data Availability

- Challenges for the TO to provide full set of data

COVID19

- COVID19 has introduced uncertainty in demand forecast

RIIO2 Re-set

- MAR – based on onshore TOs' forecast
- Generation zones – 27 zones for the base case
- Expansion constants - inflated by RPI
- Local onshore security factor – recalculated for RIIO2, rounded to 1.8
- Avoided GSP Infrastructure Credit (AGIC) – recalculated for RIIO2
- Local substation tariffs – inflated by RPI
- Offshore local tariffs – recalculated for RIIO2

Key Messages

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Input changes in this tariff publication

		No new data since last forecast	Updated		Updated and locked down	
		March	Five-year forecast	August	DRAFT Nov	FINAL Jan
Methodology			**Open to industry governance**			
Locational	DNO/DCC demand data	Demand forecast provided by DNOs/DCCs in 2019 (for charging years 2021/22 – 2025/26)			DNOs/DCCs update by week24	As per Draft Tariffs
	Contracted TEC	Latest TEC	Latest TEC	Latest TEC	TEC Register frozen at 31 October	As per Draft Tariffs
	Network model	As modelled in ETYS 2019 for charging years 2021/22 – 2025/26)			Updated with ETYS 2020	As per Draft Tariffs
Residual	Allowed revenue	Initial revenue forecast	Update financial parameters	Update financial parameters	Latest TO forecasts	Final TO revenue submissions
	Demand charging bases	Revised forecast	Revised forecast	Revised forecast	Revised forecast	Final forecast
	Generation charging base	ESO best view	ESO best view	ESO best view	ESO best view	ESO final best view
	Generation ALFs	As in 2019 ALF report			As in 2020 ALF report	As per Draft Tariffs
	Generation revenue	Forecast	Forecast	Fixed gen rev £m (CMP317/327)	As per August*	As per August*

Key Messages

Revenue

- The total TNUoS revenue would increase steadily over the next 5 years from £3bn in 2021/22 (a reduction of £4.5m from March forecast), up to £3.76bn in 2025/26.

Generation

- Generation revenue £821m for 2021/22 (50% increase from 20/21) mainly driven by TGR implementation.
- The average generation tariffs would increase from £10.74/kW in 2021/22 to £11.96/kW in 2025/26.

Demand

- Demand revenue £2.2bn in 2021/22 (£246m reduction from 2020/21). Thus the average gross demand tariff is forecast to decrease by 9.5% for HH users and 6% for NHH users.
- From 2022/23 new demand residual (non-locational) tariffs calculation mechanism - banding based (£/site/day). The demand tariffs would increase steadily between 3% and 5% up to 2025/26 in line with revenue increase.

Consumer bill

- Due to TGR, TNUoS impact on consumer bill would reduce by ~£2 in 2021/22. The figure would decrease further 7% in 2022/23 with the introduction of TDR, then increase year on year from £30 to £33, in line with TNUoS revenue increase, based on TOs' revenue forecasts.

Please note: the key messages are based on the base case analysis and a number of assumptions

Revenue

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TO Revenue

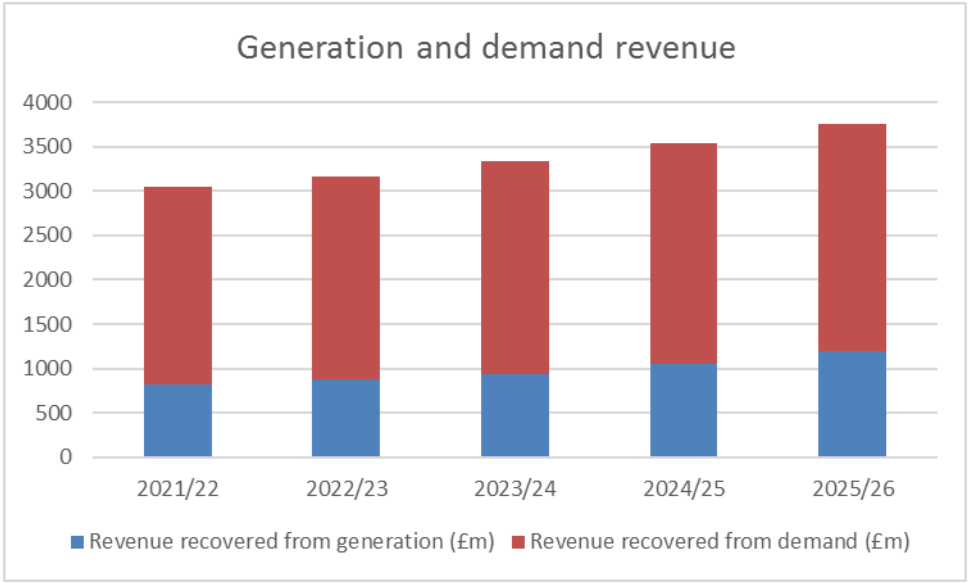
Allowed Revenues					
£m Nominal	2021/22	2022/23	2023/24	2024/25	2025/26
NGET Income from TNUoS	1,723.9	1,776.5	1,830.7	1,886.5	1,956.9
SPT Income from TNUoS	*371.5*	*382.3*	*391.8*	*416.2*	*428.6*
SHETL Income from TNUoS	*380.0*	*389.0*	*403.3*	*417.8*	*417.8*
ESO Pass-through from TNUoS	17.5	17.6	17.7	17.8	17.8
Offshore (+ Interconnector cap&floor)	555.8	593.5	695.2	802.3	937.0
Total to Collect from TNUoS	3,048.6	3,158.8	3,338.6	3,540.6	3,758.1

- Total revenue is forecast to be £3,048.6m in 2021/22, increasing to £3,758.1m by 2025/26, according to TOs‘ revenue forecast.
- These figures are highly indicative, and is based on February 2020 forecast by TOs.
- RIIO-2 final determination by Ofgem is expected to be published by December 2020.

Summary of revenue to be recovered

Revenue	The G/D Split					
	2021/22 March	2021/22 August	August 5-year view			
			2022/23	2023/24	2024/25	2025/26
Total Revenue (£m)	3,053.1	3,048.6	3158.8	3338.6	3540.6	3758.1
Generation Output (TWh)	199.8	222.8	210.0	206.5	207.9	214.0
% of revenue from generation	26.9%	27.1%	28%	28%	30%	32%
% of revenue from demand	73.1%	72.9%	72%	72%	70%	68%
Revenue recovered from generation (£m)	820.6	826.4	884.6	937.2	1056.2	1199.8
Revenue recovered from demand (£m)	2232.6	2222.2	2274.2	2401.4	2484.3	2558.3

- Generation revenue increased by £446m compared to 2020/21, as a result of TGR (TNUoS Generation Residual) change
- CMP317/327 seek to remove “assets required for connection” from calculation of “EU gen cap”, and to remove generation residual
- Generation revenue increased by £5.8m from March forecast. This figure will be refined throughout the year
- Over the next 5 years, driven by increased local charges, generation revenue will continue to grow to £1.2bn by 2025/26.



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Generation Tariffs

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Transmission Generation Residual (TGR)

- For this forecast we have modelled the tariffs based on Ofgem's final decision for the Targeted Charging Review (TCR) .
- As part of our modelling of the changes to the TGR, we have assumed that local onshore and offshore tariffs are not included in the European €2.50/MWh cap as proposed under CMP317.
- This has resulted in residual tariff being greatly increased, becoming less negative. This would increase the amount generators pay for TNUoS.

Table 2

Generation Tariffs (£/kW)	March 2021/22	August 2021/22	Five-year View 2022/23	2023/24	2024/25	2025/26
Residual	- 0.365971	- 0.232751	- 0.899494	- 1.598413	- 3.052436	- 3.263235
Average Generation Tariff*	10.690216	10.740461	11.162782	11.077140	10.986968	11.962772

* The average generation tariff is calculated by dividing the total revenue payable by generation over the generation charging base in GW.

Generation TNUoS Tariffs – Wider tariffs

The generation TNUoS wider tariffs are made of the four elements below:

Peak Security

Year Round Shared

Generator Residual

Year Round Not Shared

Year Round Shared and Year Round Not Shared elements are multiplied by Annual Load Factors (ALFs) dependent on generation type

We publish examples for each generation type calculation using example ALFs:

Conventional Carbon 80%	Conventional Low Carbon 80%	Intermittent 40%
Biomass	Nuclear	Offshore wind
CCGT/CHP	Hydro	Onshore wind / Solar
Coal		Tidal
OCGT/Oil		
Pumped storage (including battery storage)		

Generation Tariffs – Conventional Carbon

Scotland

- Mainly consistent increase each year driven by increase in renewable generation increases (except ‘flip’ in zone 4)
- Large increase in zone 1 in 2025/26 due to circuit and generation changes

England & Wales

- Tariffs get more negative in line with the gradual reduction of the residual
- There are some fluctuations in zones 22-27 due to generation connecting in later years

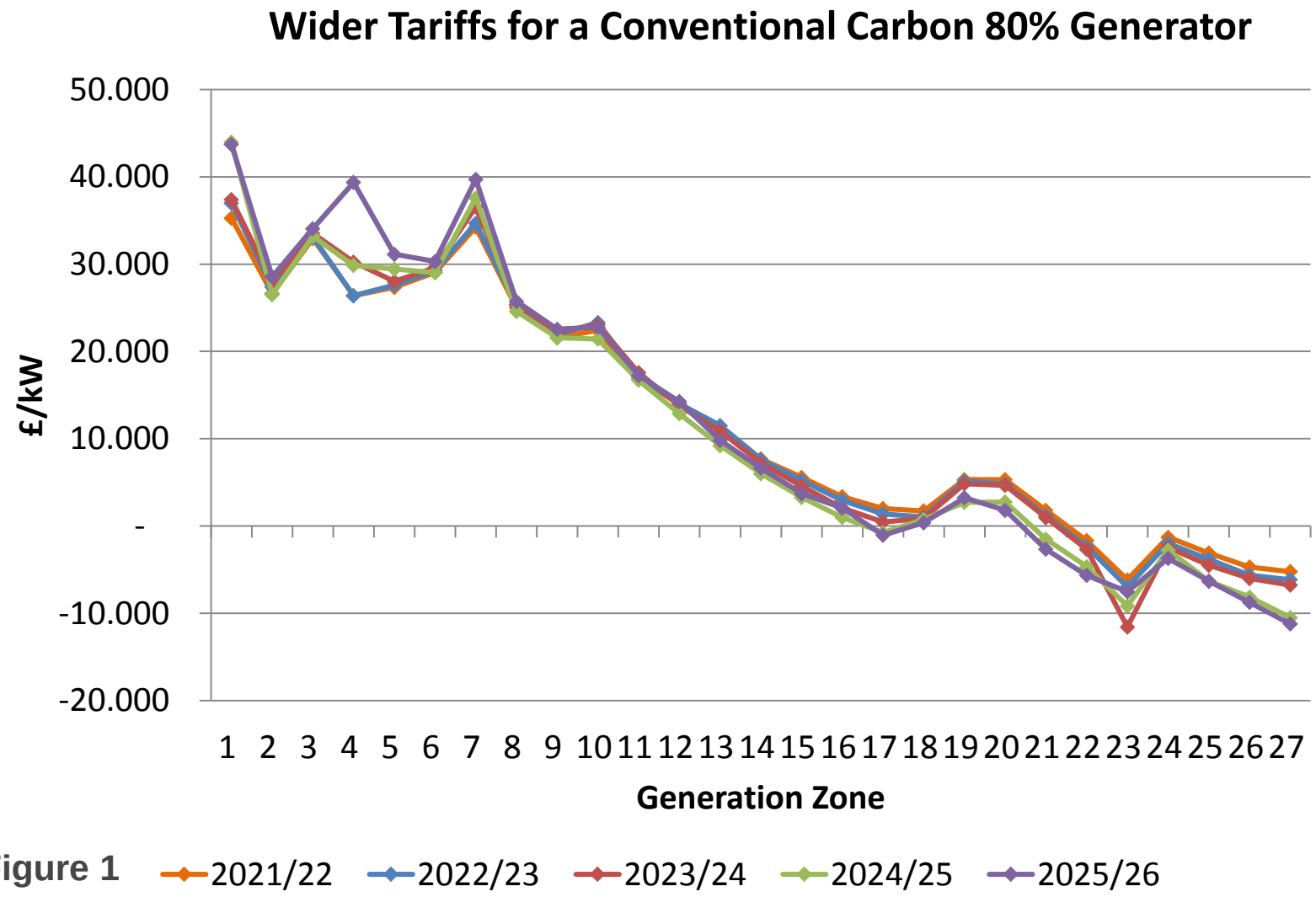

Figure 1

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Generation Tariffs – Conventional Low Carbon

- Similar to Conventional Carbon though higher in the north due to paying full Year Round Not Shared tariff

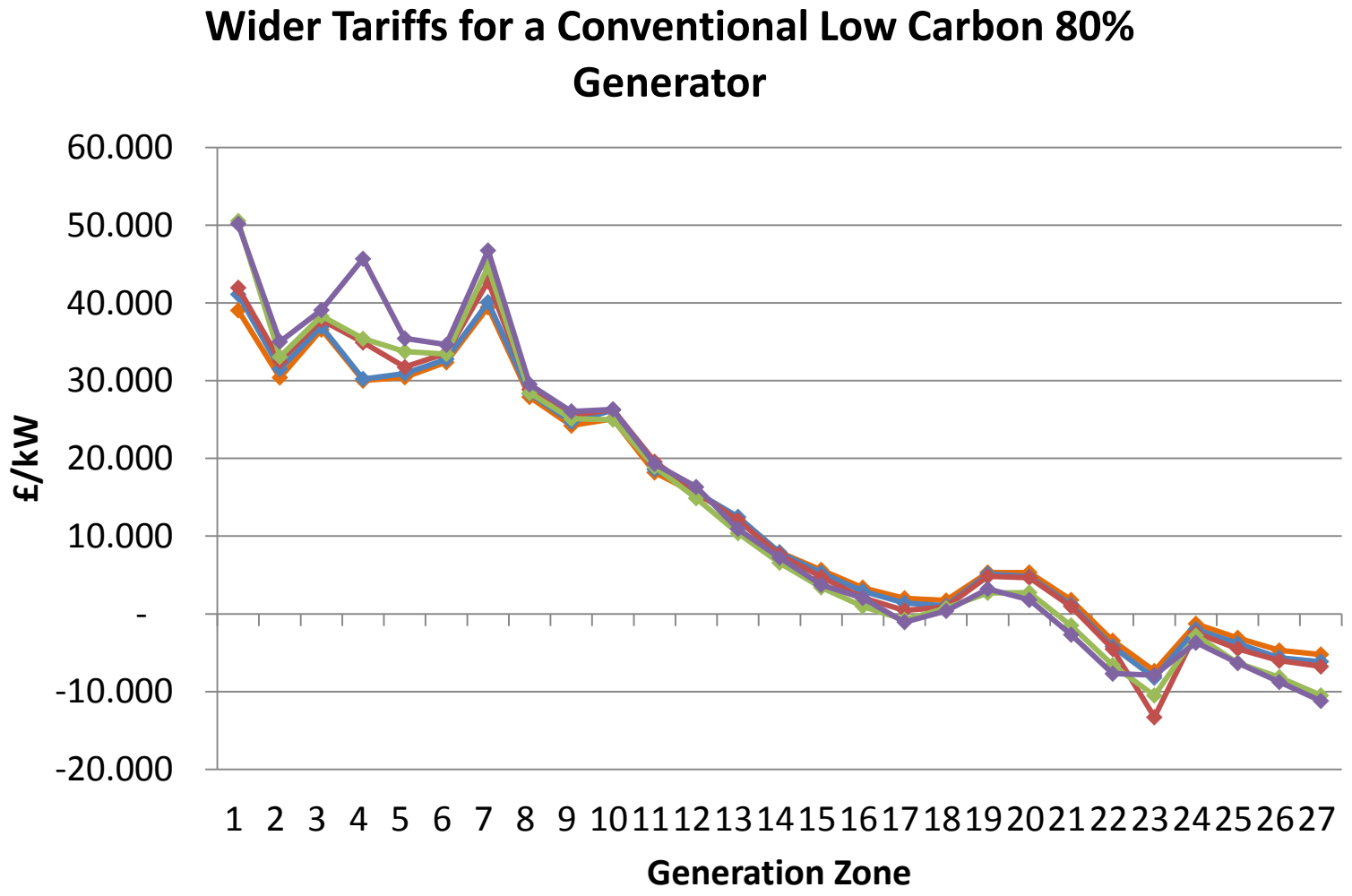

Figure 2

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Generation Tariffs – Intermittent

Scotland

- Tariffs follow similar profile to Conventional generators
- Zones 4 and 7 affected by generation increases from 2023

England & Wales

- Decreases follow the decrease in the residual;
- Zones 22 to 27 affected by increase in intermittent generation from 2023

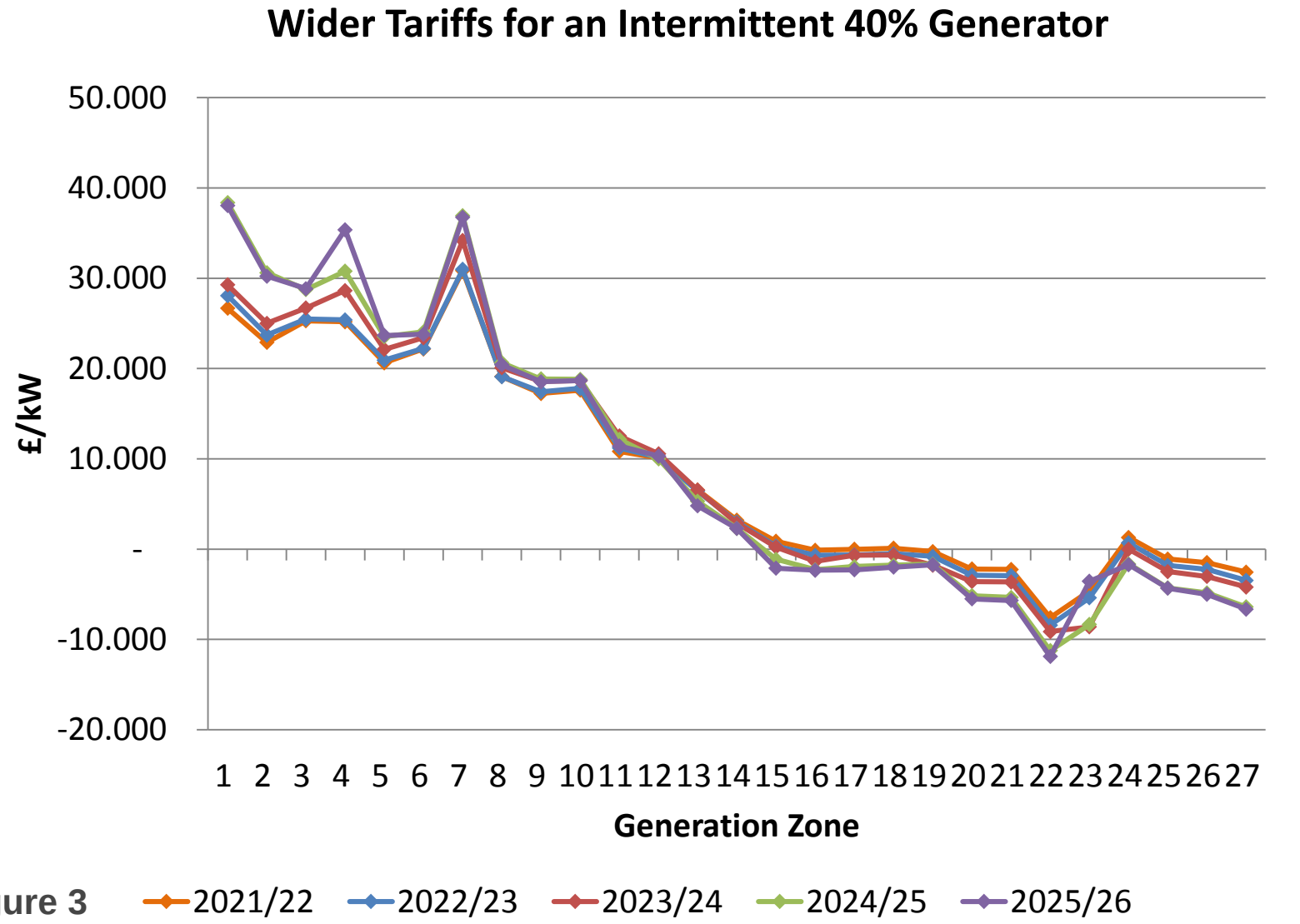

Figure 3

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Contracted, Modelled & Chargeable Generation Capacity

CONTRACTED:

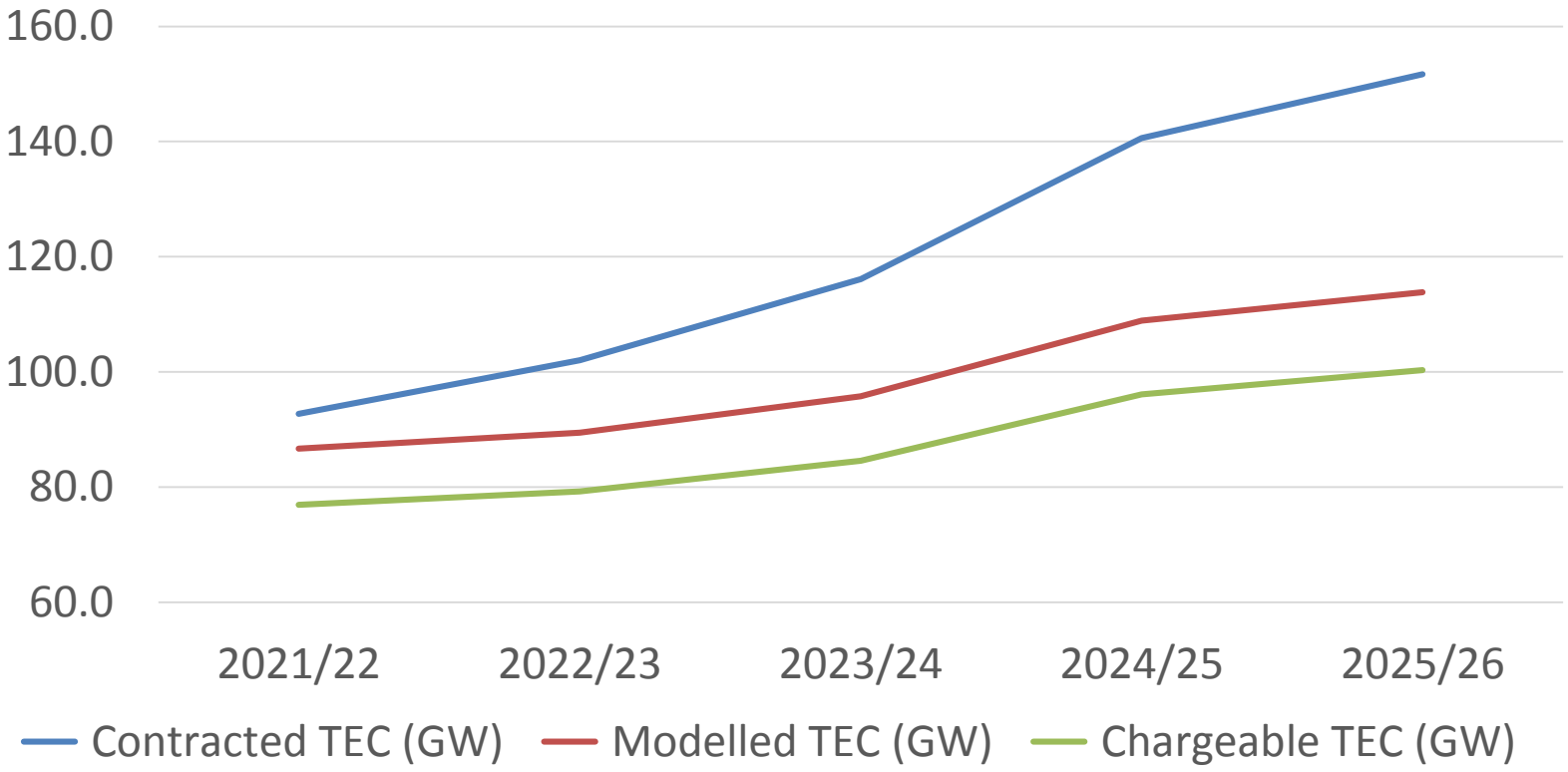
Full TEC register used

MODELLED:

Reduction in TEC in line with FES forecast

CHARGEABLE:

Modelled TEC minus interconnector capacity



	2021/22	2022/23	2023/24	2024/25	2025/26
Contracted TEC (GW)	92.70	102.04	116.08	140.63	151.71
Modelled TEC (GW)	86.68	89.48	95.78	108.91	113.82
Chargeable TEC (GW)	76.94	79.24	84.61	96.13	100.29

Table 24

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Local Tariffs

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Onshore Local Circuits Tariffs

- Local circuits are modelled using the best information available.
- Any completion dates used to model local circuits are based on the TEC register.
- Local circuit tariffs have mainly increased over the 5 year period, though depending on the flows some have flipped between being positive or negative.
- Circuit parameters have been updated according to the latest ETYS data, causing tariff changes to some generators.

Connection Point	2021/22 (£/kW)	2022/23 (£/kW)	2023/24 (£/kW)	2024/25 (£/kW)	2025/26 (£/kW)
Aberarder	1.696824	1.738276	1.790439	1.844152	1.898429
Aberdeen Bay	2.673272	2.738577	2.820757	2.905380	2.990892
Achruach	- 2.620252	- 2.683967	- 2.764056	- 2.847272	- 2.931159
Aigas	0.670565	0.686947	0.707561	0.728788	0.750237
An Suidhe	- 0.982228	- 1.005926	- 1.035665	- 1.067024	- 1.098515
Arecleoch	2.129462	2.181483	2.246945	2.314354	2.382470
Baglan Bay	0.780164	0.799223	- 0.158400	- 0.163139	- 0.167935
Beinneun Wind Farm	1.539935	1.577549	1.624886	1.673630	1.722885
Beaw Field				64.543199	67.433697
Bhlaraidh Wind Farm	0.661978	0.678150	0.698500	0.719455	0.740630
Black Hill	1.592263	1.631160	1.680109	1.730512	1.781445
Black Law	1.791561	1.835327	1.890402	1.947114	2.004422

Table 12

Onshore Local Substation Tariffs

- Local Substation tariffs will be recalculated in preparation for the start of the price control based on TO asset costs. Our assumption for this forecast is that they increase by RPI.
- Tariffs have increased slightly, in line with our forecast of May-Oct RPI.

Substation Rating	Connection Type	Local Substation Tariff (£/kW)		
		132kV	275kV	400kV
<1320 MW	No redundancy	0.205851	0.117760	0.084849
<1320 MW	Redundancy	0.453473	0.280567	0.204051
>=1320 MW	No redundancy	-	0.369230	0.267028
>=1320 MW	Redundancy	-	0.606181	0.442462

Offshore Local Tariffs

- Tariffs are set at asset transfer, or the beginning of a price control, and are indexed in line with the revenue of the associated OFTO.
- These offshore tariffs have been recalculated, in preparation for the RIIO-2 period.
- Offshore tariffs will be refined in future forecasts as OFTO revenues and inflation data are updated and the Offshore substation discount is recalculated.
- Projects expected to asset transfer during 2020/21 will have tariffs calculated later this year.

Offshore Generator	Tariff Component (£/kW)		
	Substation	Circuit	ETUoS
Barrow	8.860362	46.745901	1.160765
Burbo Bank	11.096526	21.420771	-
Dudgeon	16.285326	25.527890	-
Galloper	16.601223	26.236091	-
Greater Gabbard	16.480033	38.103364	-
Gunfleet	19.327148	17.810471	3.328879
Gwynt Y Mor	20.507799	20.271496	-
Humber Gateway	11.959852	27.442117	-
Lincs	17.067160	67.060926	-
London Array	11.474417	39.309493	-
Ormonde	27.219353	50.856510	0.405284
Race Bank	9.939735	27.553210	-
Robin Rigg	- 0.585205	33.893199	10.859165
Robin Rigg West	- 0.585205	33.893199	10.859165
Sheringham Shoal	25.471365	29.984861	0.651783
Thanet	19.443486	36.405353	0.876405
Walney 1	23.511515	46.981548	-
Walney 2	21.879971	44.503267	-
Walney 3	10.060437	20.359385	-
Walney 4	10.060437	20.359385	-
West of Duddon Sands	8.944809	44.550087	-
Westermost Rough	18.340048	31.190626	-

Table 14

Demand Forecasts

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Demand volumes (2021/22)

- No additional adjustments have been made for the impact of COVID-19 on demand for 2021/22. Demand charging base has been updated for this forecast with simulations updated to include outturn data up to the end of 2019/20
- HH demand decreased compared to March forecast, due to updated demand charging base and adjustments made related to the CMP266
- As a result it is expected that less revenue would be collected from HH demand
- This increases the proportion of revenue to be collected via NHH demand and increase NHH tariffs

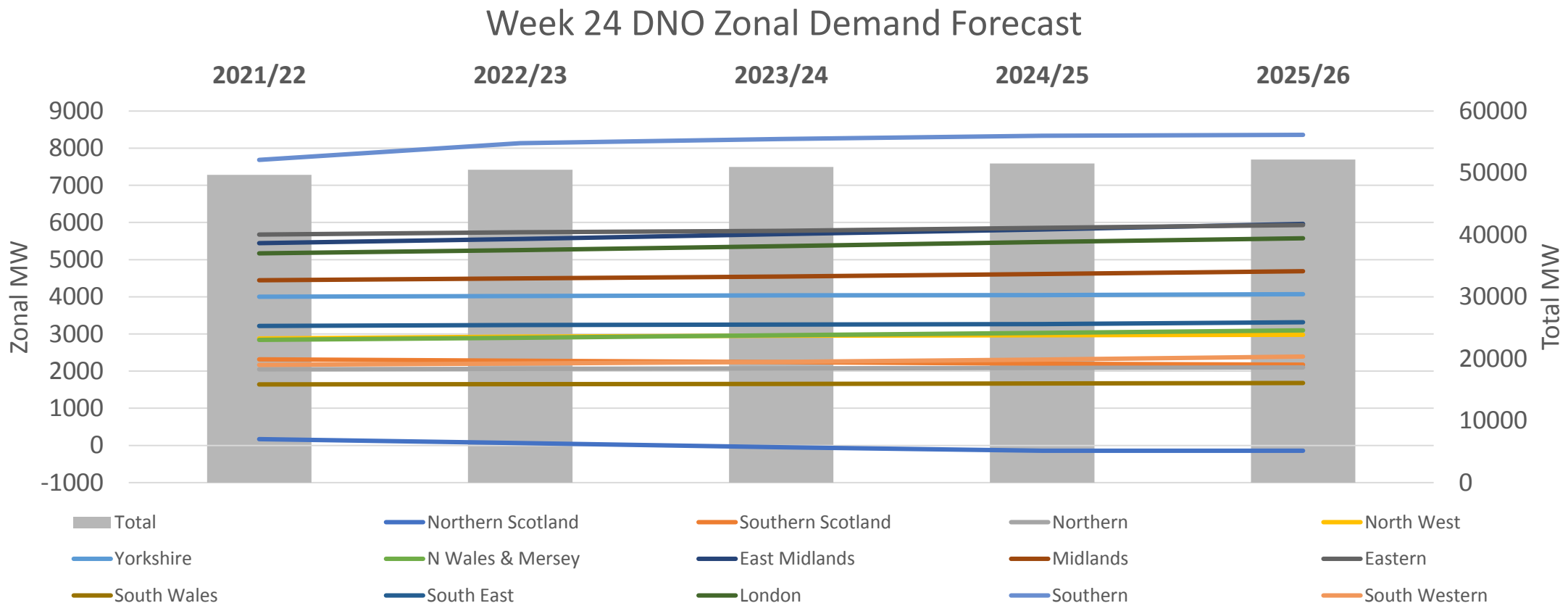
Charging Bases	2021/22 March	2021/22 August	Change
NHH Demand (4pm-7pm TWh)	23.97	24.43	0.46
Total Average Gross Triad (GW)	50.03	50.16	0.13
HH Demand Average Gross Triad (GW)	19.43	18.87	-0.56
Embedded Generation Export (GW)	6.82	7.31	0.49

System Peak, HH/NHH demand & Chargeable Export Forecast

	2021/22	2022/23	2023/24	2024/25	2025/26
Average System Demand at Triad (GW)	50.16	50.60	50.37	50.07	50.30
Average HH Metered Demand at Triad (GW)	18.87	18.97	19.64	19.61	19.49
Chargeable Export Volume (GW)	7.31	6.66	6.39	6.64	6.18
NHH Annual Energy between 4pm and 7pm (TWh)	24.43	24.57	23.87	23.64	23.90

- Transmission gross demand forecast fluctuates marginally
- Consumption from electrification of heating and transport remains broadly flat but expected to start increasing from 2022 onwards
- No significant demand shift between NHH and HH expected, broadly flat from 2021/22
- Adjustments related to CMP266, has seen an uplift in the NHH and a reduction in the HH charging base to reflect the re-allocation of costs attributed by measurement classes F&G, up until 2022/23

Modelled Demand – Week 24 Data



- Contracted demand at GSP used within transport model for locational signals for future energy consumption
- Based on transmission demand forecasts from DNO's & directly connected users (week 24 data)

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Demand Tariffs for 2021/22

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Demand Tariffs (2021/22)

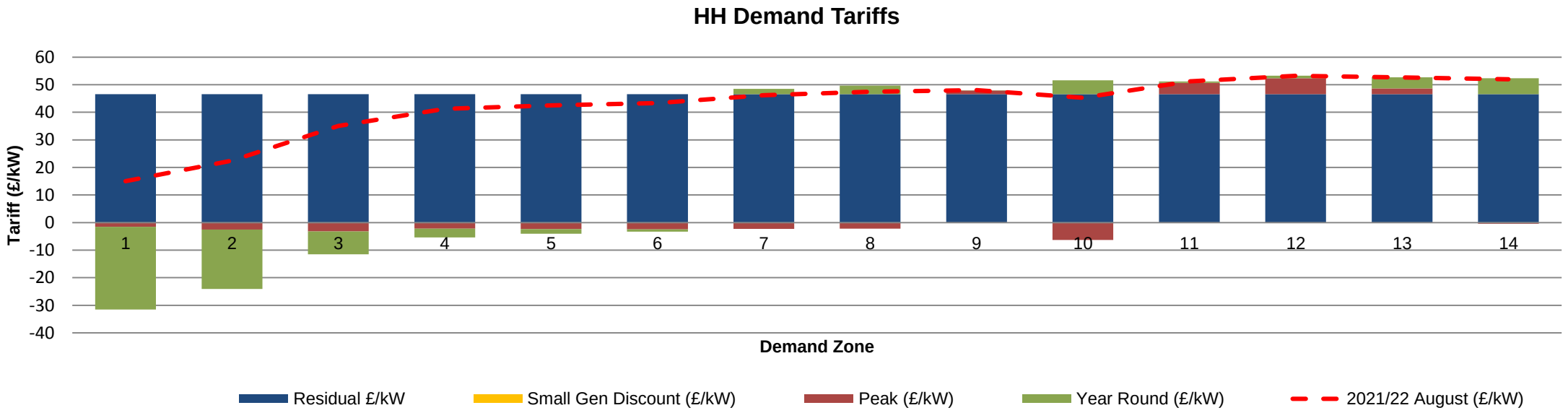
- TDR is not applicable to 2021/22 tariffs
- Revenue to be recovered for demand has decreased since March forecast resulting in an a reduction for HH and NHH tariffs
- 2021/22 Tariffs do not include the impact of SGD, which is expected to discontinue from 01 April 2021

Zone	Zone Name	HH Demand Tariff (£/kW)	NHH Demand Tariff (p/kWh)	Embedded Export Tariff (£/kW)
1	Northern Scotland	15.045719	2.045854	0.000000
2	Southern Scotland	22.489331	2.913497	0.000000
3	Northern	35.064719	4.357130	0.000000
4	North West	41.194336	5.207812	0.000000
5	Yorkshire	42.524945	5.257421	0.000000
6	N Wales & Mersey	43.295059	5.393179	0.000000
7	East Midlands	46.211767	5.897278	1.945563
8	Midlands	47.467277	6.131826	3.201072
9	Eastern	47.997633	6.576802	3.731428
10	South Wales	45.274604	5.259660	1.008400
11	South East	51.174255	7.062878	6.908051
12	London	53.255446	5.580801	8.989242
13	Southern	52.631157	6.795285	8.364952
14	South Western	51.929374	7.157069	7.663170

Residual charge for demand:	£ 46.554085

HH Demand Tariff (2021/22)

- The average tariff is £44.81/kW, a decrease of £0.45/kW compared to March forecast due to the decrease in revenue to be recovered and an updated demand charging base
- Less revenue is expected to be collected from HH demand due to the decrease in HH charging base for 2021/22, thus increasing the revenue to be collected via NHH demand
- The residual element of the tariffs has decreased by £0.26/kW for 2021/22 in this forecast



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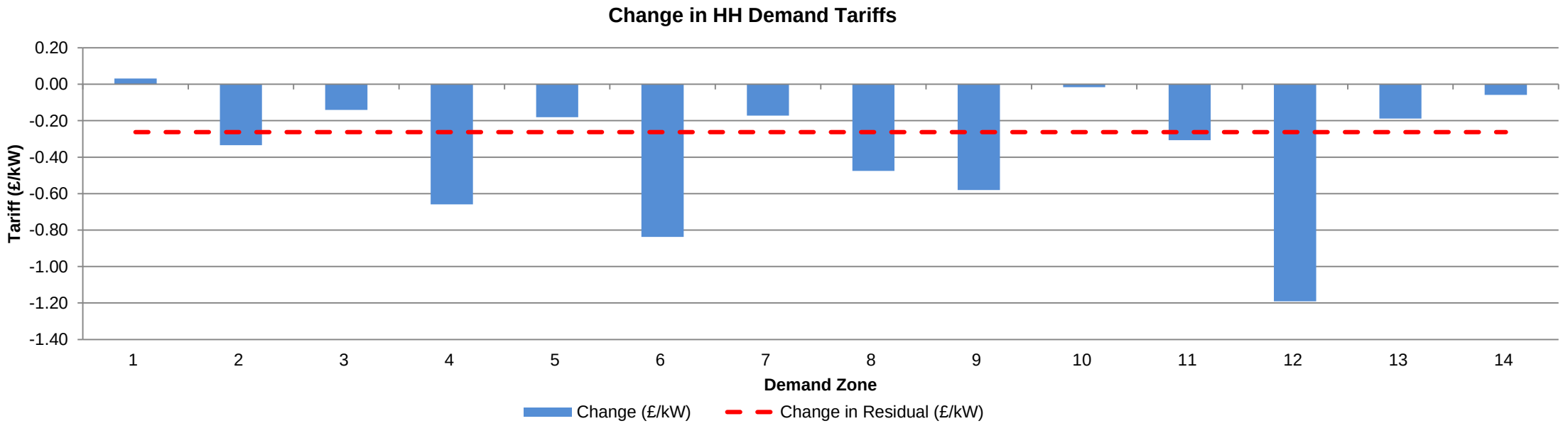
Changes to HH tariffs (2021/22)

- The tariff has decreased in all zones (excluding Zone 1) since March, the decrease varies across the 14 zones with a slightly greater reduction seen in zones 4,6 & 12
- Overall the HH demand tariffs have decreased due to due a reduction in demand revenue and an adjustment to the demand charging base split between HH and NHH.



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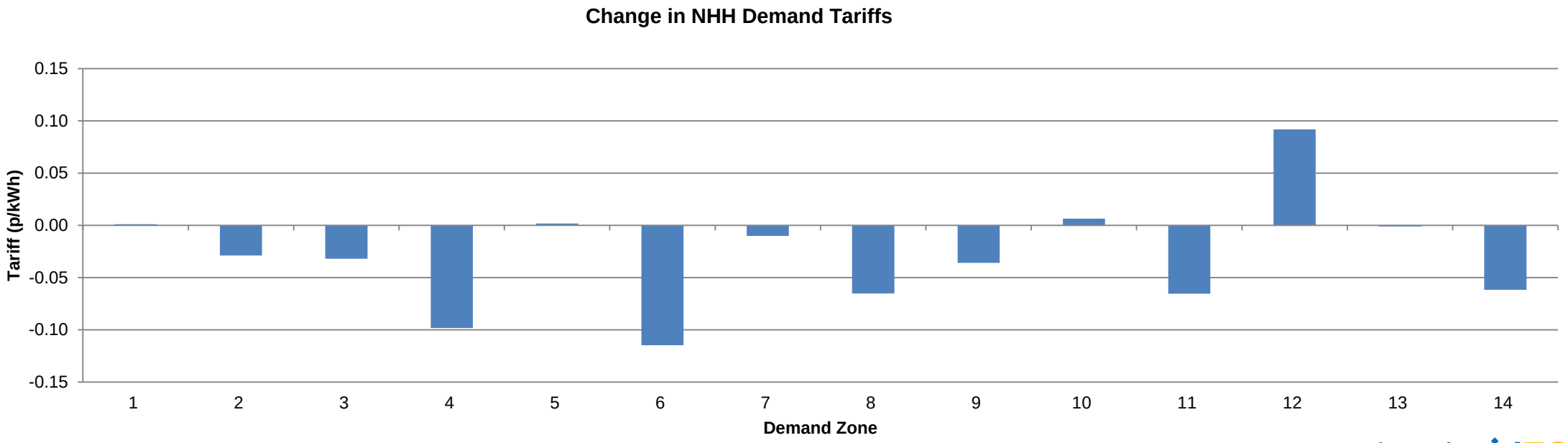
NHH Tariffs (2021/22)

- The average NHH tariff is 5.69p/kWh, which has decreased by 0.03p/kWh in comparison to March Tariffs.
- The decrease of the HH demand charging base and increase of NHH charging base has meant that the reduction in NHH has not been as significant
- The NHH tariffs have decreased by varying amounts across all zones, excluding zone 12 which has increased. Albeit



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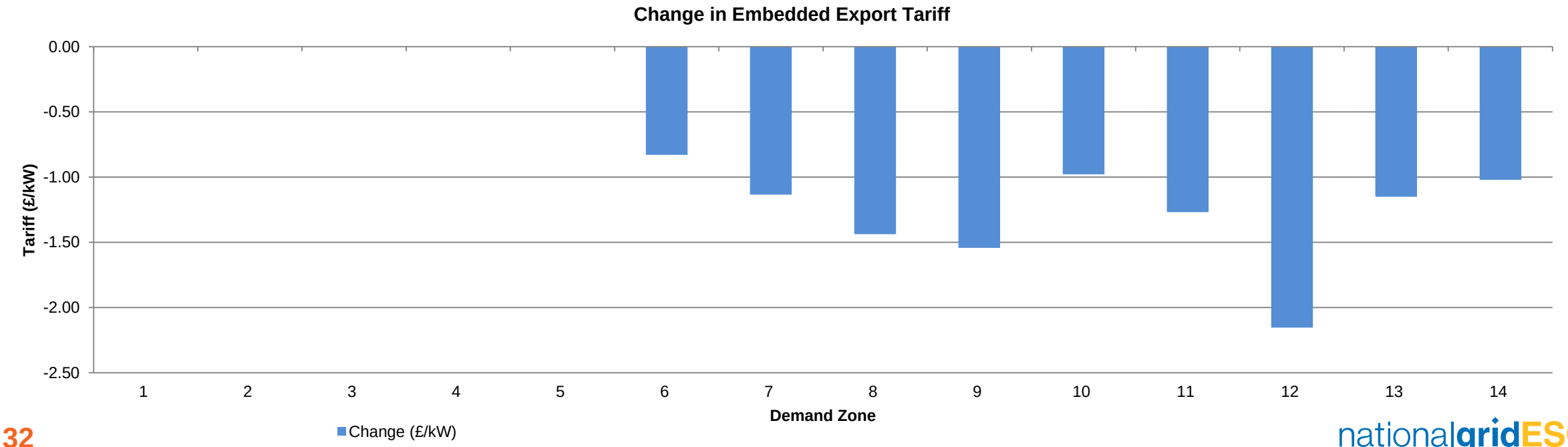
Embedded Export Tariff (2021/22)

- There has been has been a considerable decrease in comparison to the March forecast, the average tariff has decreased by £0.66/kW to £1.86/kW, due to 'The Avoided GSP Infrastructure Credit' (AGIC) value being re-calculated as part of the RIIO-2 parameter update.
- The EET charging base has increased by 0.5GW to 7.3GW since the March forecast
- Zone 6 is now floored at £0/kW



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TDR & Demand Tariffs for 2022/23 – 2025/26

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TDR Implementation (Banding Breakdown)

- Breakdown of consumption, consumption proportion and site count
- Information based on workgroups June update
- Information related to TDR bandings can be found for:
  - Distribution connected users: http://www.chargingfutures.com/about-charging-futures/charging-futures-forum/16-july-2020-forum-webinars/
  - Transmission connected user: https://www.nationalgrideso.com/document/175726/download (annex 8)

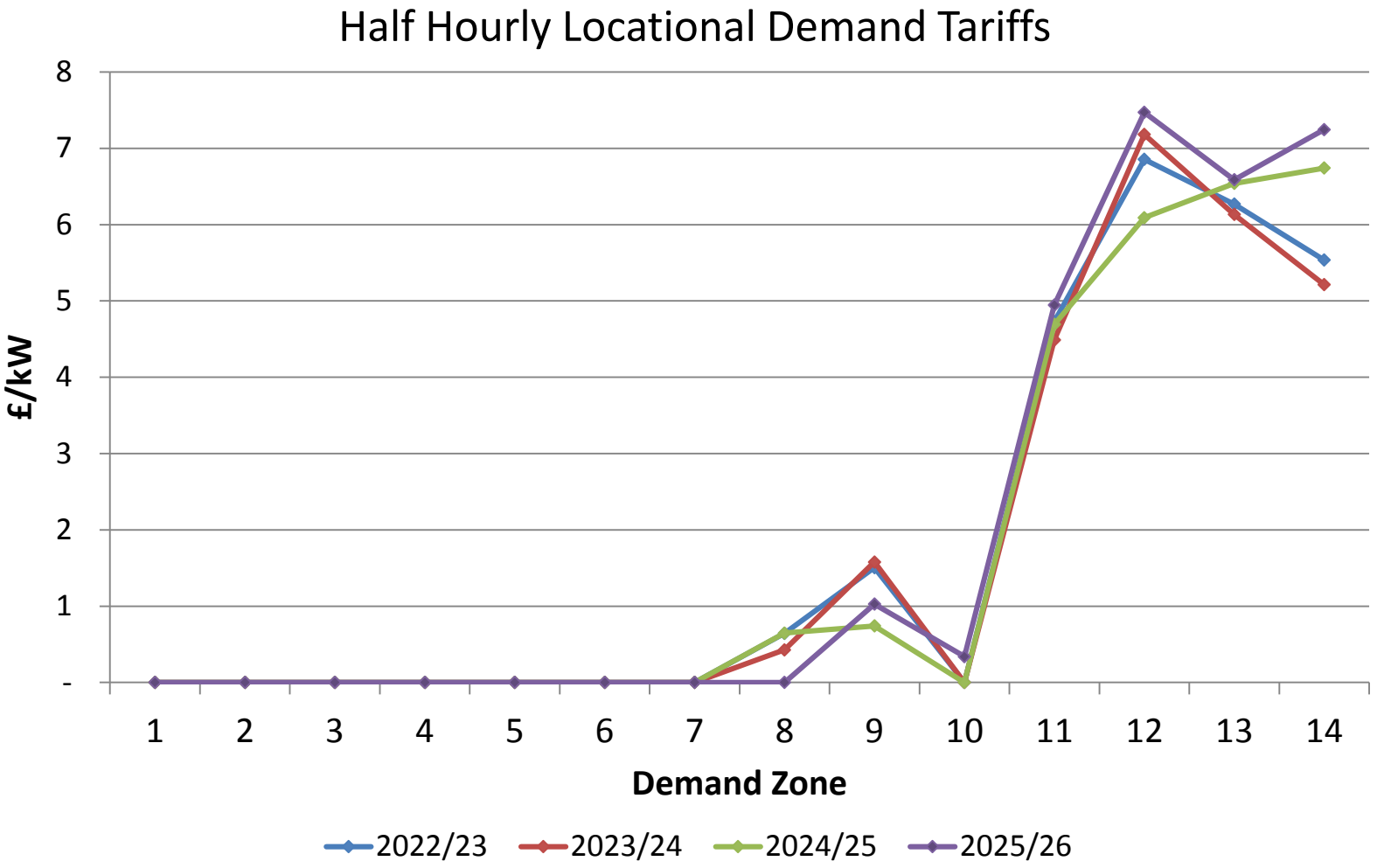
Band	Consumption (GWh)	Consumption_ portion (%)	SiteCount
Domestic	98,410	37.57%	29066451
LV_NoMIC_1	1,203	0.46%	732964
LV_NoMIC_2	4,618	1.76%	550994
LV_NoMIC_3	5,369	2.05%	273493
LV_NoMIC_4	16,093	6.14%	274842
LV1	8,904	3.40%	73131
LV2	12,011	4.59%	59237
LV3	6,818	2.60%	21649
LV4	19,050	7.27%	26904
HV1	4,648	1.77%	9165
HV2	13,104	5.00%	7462
HV3	9,156	3.50%	2680
HV4	28,674	10.95%	3407
EHV1	1,170	0.45%	396
EHV2	5,121	1.95%	290
EHV3	5,684	2.17%	151
EHV4	14,071	5.37%	139
T-Demand1	384	0.15%	25
T-Demand2	1,036	0.40%	19
T-Demand3	965	0.37%	9
T-Demand4	2,909	1.11%	9
Unmetered	2,566	0.98%	
Total	**261967**	100.00%	

TDR Band Tariffs

- Summary of Banded tariffs from 2022/23 onwards (expected year of implementation)
- Increase in tariffs reflective of:
  - Revenue to be collected from demand
  - Proportion of demand revenue not attributed to the locational element of demand tariffs
- Tariffs based on workgroups current view of banding, future updates will impact tariffs

Band		2022/23	2023/24	2024/25	2025/26
Domestic	Tariff - £/Site per year	28.18	29.85	30.97	31.81
LV_NoMIC_1		13.66	14.47	15.01	15.43
LV_NoMIC_2		69.77	73.90	76.66	78.76
LV_NoMIC_3		163.42	173.10	179.56	184.48
LV_NoMIC_4		487.42	516.27	535.55	550.24
LV1		1013.47	1073.47	1113.54	1144.09
LV2		1687.82	1787.74	1854.48	1905.35
LV3		2621.57	2776.76	2880.43	2959.44
LV4		5894.17	6243.10	6476.18	6653.82
HV1		4221.63	4471.55	4638.49	4765.73
HV2		14617.99	15483.37	16061.42	16501.99
HV3		28437.68	30121.18	31245.71	32102.79
HV4		70056.57	74203.88	76974.17	79085.60
EHV1		24595.92	26051.99	27024.60	27765.89
EHV2		146997.12	155699.27	161512.07	165942.41
EHV3		313355.45	331905.92	344297.13	353741.32
EHV4		842667.28	892552.74	925874.84	951271.92
T-Demand1		127818.59	135385.38	140439.79	144292.11
T-Demand2		453761.31	480623.74	498567.10	512242.98
T-Demand3		892643.23	945487.25	980785.58	1007688.88
T-Demand4		2690673.70	2849960.18	2956359.11	3037453.13
Unmetered demand	**p/kWh per year**				
Unmetered		0.832403	0.881681	0.914597	0.939685

HH Gross Demand Tariffs (2022/23 – 2025/26)



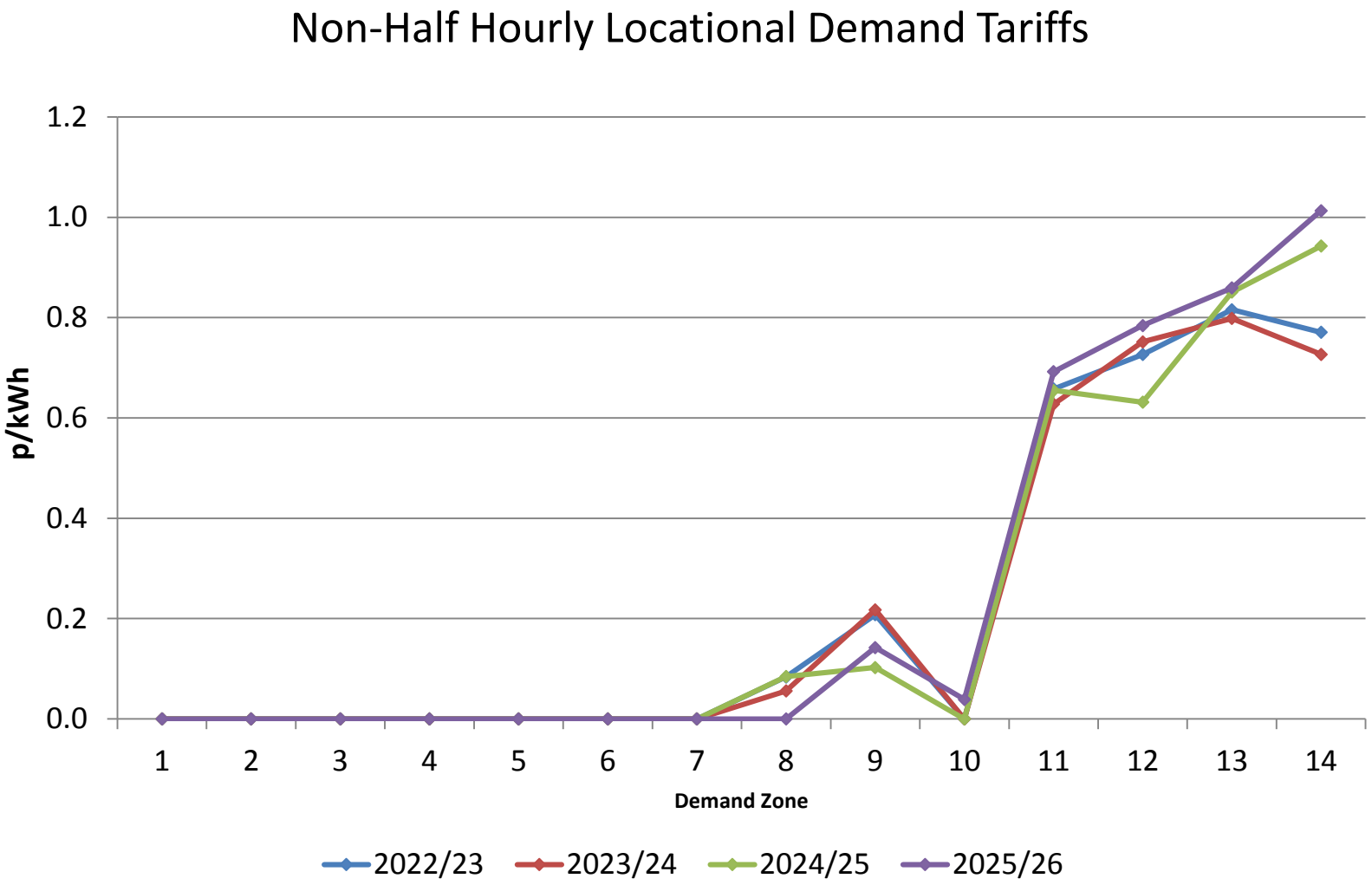
HH Tariffs	2022/23	2023/24	2024/25	2025/26
Average Tariff (£/kW)	2.18	2.16	2.08	2.28

From 2022/23 HH tariffs will no longer include the residual element of the demand charges

Average tariff for 2022/23 £2.18/kW dropping marginally over the following years, then increasing in 25/26 to £2.28/kW in 2025/26. The variance is impacted by

- The gross demand charging base and fluctuations in zonal demand
- Revenue to be recovered from locational element of demand tariffs

NHH Tariffs (2022/23 – 2025/26)



NHH Tariffs	2022/23	2023/24	2024/25	2025/26
Average (p/kWh)	0.27	0.26	0.26	0.28

The introduction of TDR adjusts NHH Tariffs from 2022/23

NHH will fluctuate marginally from 2022/23, decreasing by 0.1p/kWh to 0.26 p/kWh for 2023/24 – 24/25. Then increase in 2025/26 to 0.28p/kWh. The change in trend can be attributed to:

- Proportion of revenue collected increases following HH recovery
- NHH Charging base variation year on year

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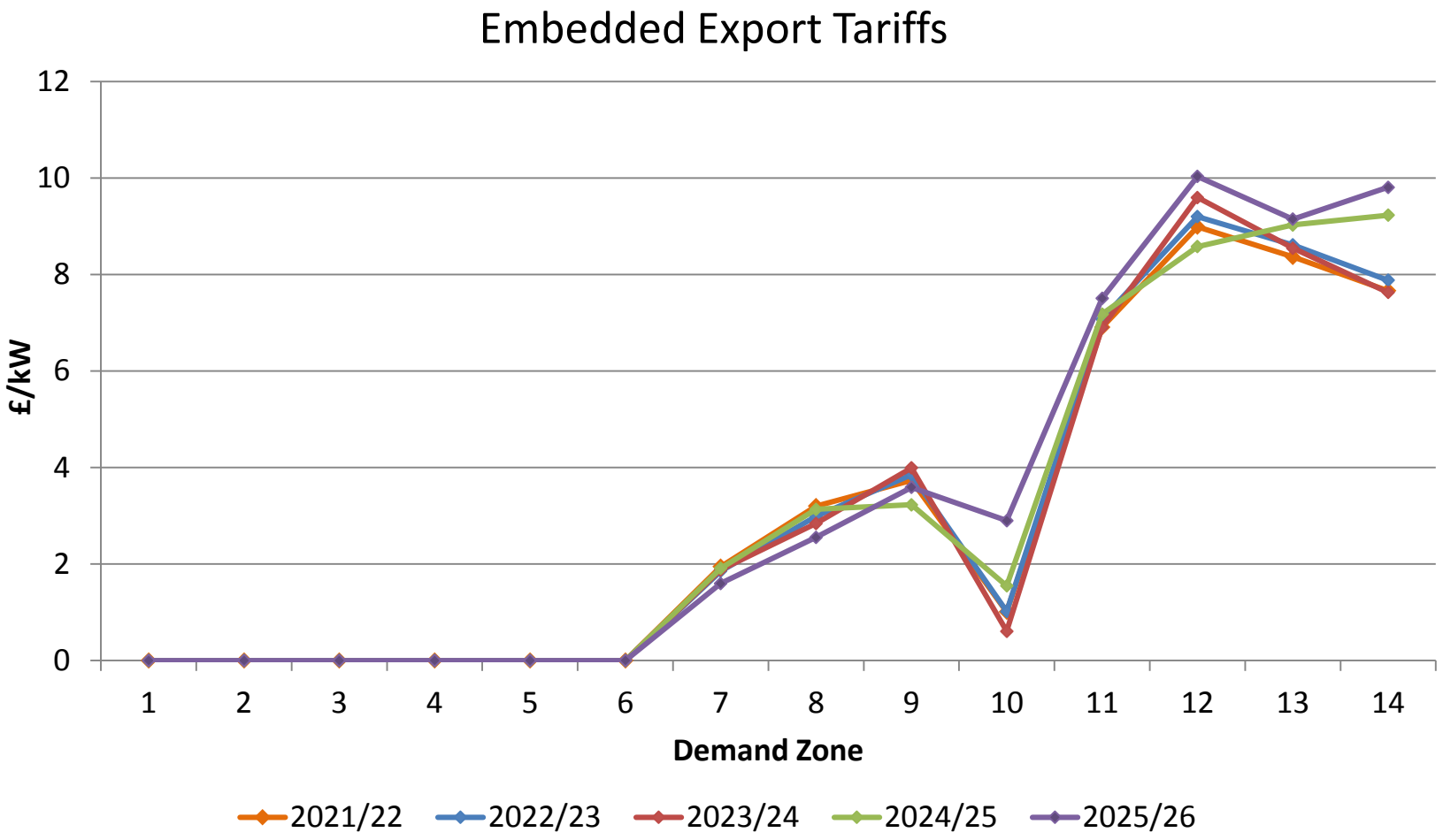
Embedded Export Tariffs (2021/22 – 2025/26)



EET	2021/22	2022/23	2023/24	2024/25	2025/26
Average Tariff (£/kW)	1.86	2.04	2.10	2.10	2.35
AGIC (£/kW)	2.29	2.34	2.41	2.49	2.56
Total Credit (£m)	13.60	13.56	13.43	13.95	14.53

The EET is not impacted by the TDR

The EET for 21/22 reduced due to AGIC reset and then increases year on year in line with RPI

The largest jumps seen in 2022/23 and 2056/26 in relation to the change in the chargeable export volumes

Sensitivity Analysis

Go to: www.slido.com
Event code: #TNUOS5YV

Sensitivity analysis

We are conscious that there is considerable uncertainty given the changes to the underlying framework. We believe that it would be helpful to provide a number of sensitivity scenarios, including:

1. phased implementation of the Transmission Generation Residual (TGR) over three years
2. inclusion of congestion management costs in the TNUoS generation cap calculation
3. different numbers of generation zones are applied
4. apply CPIH to the onshore TOs' revenue instead of RPI
5. Inclusion of remote islands in North Scotland as part of the wider network

Sensitivity 1 - Phased implementation of the TGR over three years

The workgroup has not been concluded yet and one of the options being considered is a phased implementation to remove the generation residual over three years by including a £/kW Transition Allowance Tariff (TAT) in addition to the negative generation residual as below:

- For charging year 2021/22: -£3.71/kW
- For charging year 2022/23: -£1.85/kW
- For all subsequent charging years: £0/kW

		2021/22	2022/23	2023/24	2024/25	2025/26
Generation Residual	£/kW	- 3.942751	- 2.749494	- 1.598413	- 3.052436	- 3.263235
	Change	- 3.710000	- 1.850000	-	-	-
Average Generation Tariff*	£/kW	7.030461	9.281187	11.077140	10.986968	11.962772
	Change	- 3.710000	- 1.881594	-	-	-
Average HH demand tariff	£/kW	50.504205				
	Change	5.691477				
Average NHH demand tariff	p/kWh	6.419032				
	Change	0.728839				
Average EET tariff	£/kW	1.859122	2.035501	2.102387	2.102971	2.350862
	Change	-	-	-	-	-
Revenue from Generation	£m	540.95	735.47	937.21	1,056.20	1,199.79
	Change	- 285.46	- 149.10	-	-	-
Revenue from Demand	£m	2,507.64	2,423.35	2,401.43	2,484.35	2,558.27
	Change	285.46	149.10	-	-	-

We have assumed a negative adjustment is still required to ensure compliance with the EU cap, and the TAT is in addition to the negative adjustment.

Sensitivity 2 - Inclusion of congestion management costs in the TNUoS generation cap calculation

As part of CMP317/327 it is thought according to EU definitions congestion management costs may be included in the EU cap.

For this sensitivity, we have included £463.7m of congestion management costs for 2021/22 based on BSUoS forecasts.

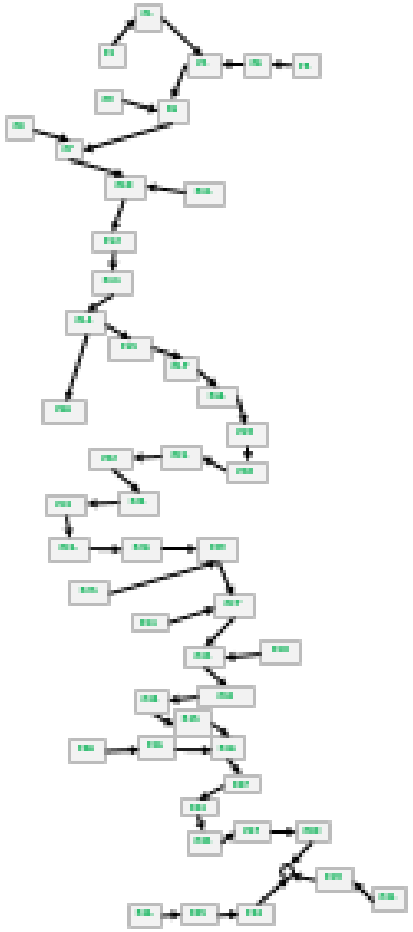
		2021/22 Base Case	2021/22 Congestion Management Sensitivity	Change
Generation Residual	£/kW	- 0.232751	- 6.258778	- 6.026026
Average Generation Tariff*	£/kW	10.740461	4.714435	- 6.026026
Average HH demand tariff	£/kW	44.812728	54.057199	9.244471
Demand Residual	£/kW	46.554085	55.798556	9.244471
Average NHH demand tariff	p/kWh	5.690194	6.874021	1.183828
Average EET tariff	£/kW	1.859122	1.859122	-
Revenue from Generation	£m	826.40	362.74	- 463.661378
Revenue from Demand	£m	2,222.18	2,685.84	463.661378

*N.B These generation tariffs include local tariffs

Sensitivity 3 - Generation zoning (48 zones)

- We are required under the CUSC to review generation zones at each price control
- Generation zones are then usually fixed within the price control period

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round Tariff	Residual Tariff	Conventional Carbon 80% Load Factor	Conventional Low Carbon 80% Load Factor	Intermittent 40% Load Factor
Gen Zone (Sensitivity)	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	Zone 1	3.453949	16.023343	47.596230	0.000000	55.301299	64.820545	54.957258
2	Zone 2	1.666866	16.023343	13.821971	0.000000	26.494809	29.259203	21.183000
3	Zone 3	3.754486	16.023343	41.039376	0.000000	50.356352	58.564228	48.400405
4	Zone 4	-2.534198	24.466591	12.495561	0.000000	27.987215	30.486327	23.233888
5	Zone 5	3.302341	16.153658	13.821971	0.000000	28.234536	30.998930	21.235125
6	Zone 6	4.093634	24.049580	14.420878	0.000000	35.821691	38.705867	24.992401
7	Zone 7	4.197987	24.466591	14.466342	0.000000	36.296025	39.189293	25.204670
8	Zone 8	1.780010	20.044145	13.821971	0.000000	29.824594	32.588988	22.791320
9	Zone 9	4.378223	24.798942	14.546533	0.000000	36.806295	39.715602	25.417802
10	Zone 10	2.378456	16.377872	11.752194	0.000000	25.834200	28.184639	19.255034
11	Zone 11	4.520116	16.377872	15.075723	0.000000	30.634682	33.649827	22.578563
12	Zone 12	4.365612	19.269289	14.069768	0.000000	32.004550	34.822503	22.749175
13	Zone 13	4.103723	17.493424	12.579371	0.000000	29.113649	31.629524	20.528431
14	Zone 14	3.847798	17.035831	12.177814	0.000000	28.170405	30.605968	19.943838
15	Zone 15	3.495382	22.591964	15.010652	0.000000	34.529167	37.531297	24.999129
16	Zone 16	2.689152	12.167710	12.177814	0.000000	23.117262	25.552825	17.996589
17	Zone 17	3.051995	14.459122	10.739874	0.000000	24.162882	26.310857	17.475214
18	Zone 18	2.417404	13.331048	10.270643	0.000000	22.250448	24.304576	16.554753
19	Zone 19	2.640099	13.936724	10.552648	0.000000	23.183288	25.293818	17.079029
20	Zone 20	2.950624	9.641421	8.074403	0.000000	18.074975	19.689855	12.882662
21	Zone 21	2.810165	10.095897	8.534949	0.000000	18.666533	20.373523	13.524999
22	Zone 22	2.458474	11.773063	10.305692	0.000000	21.073169	23.134308	15.966609
23	Zone 23	2.406169	8.096024	6.288092	0.000000	14.865153	16.122772	10.478193
24	Zone 24	2.129143	7.194956	5.328174	0.000000	13.099339	14.164974	9.157848
25	Zone 25	3.340269	11.910792	0.000000	0.000000	13.820594	13.820594	5.716008
26	Zone 26	3.746953	5.187767	3.147705	0.000000	11.367023	11.996564	6.174503
27	Zone 27	2.523661	6.896323	0.000000	0.000000	8.992410	8.992410	3.710221
28	Zone 28	4.109303	2.215734	0.000000	0.000000	6.833581	6.833581	1.837985
29	Zone 29	3.385476	0.263788	0.000000	0.000000	4.548198	4.548198	1.057206
30	Zone 30	2.027682	0.475674	0.000000	0.000000	3.359912	3.359912	1.141961
31	Zone 31	5.341524	-0.019083	0.000000	0.000000	6.277949	6.277949	0.944058
32	Zone 32	3.454155	-2.287733	0.000000	0.000000	2.575659	2.575659	0.036598
33	Zone 33	2.275993	-3.306590	0.000000	0.000000	0.582413	0.582413	-0.370945
34	Zone 34	0.320683	1.557598	0.000000	0.000000	2.518453	2.518453	1.574730
35	Zone 35	-1.621055	1.479813	0.000000	0.000000	0.514487	0.514487	1.543617
36	Zone 36	9.620800	-4.990935	0.000000	0.000000	6.579744	6.579744	-1.044683
37	Zone 37	-4.303495	-2.145766	0.000000	0.000000	-5.068417	-5.068417	0.093385
38	Zone 38	-1.818412	0.166452	0.000000	0.000000	-0.733559	-0.733559	1.018272
39	Zone 39	-4.741778	4.819837	0.000000	0.000000	0.065782	0.065782	2.879626
40	Zone 40	-4.777454	3.113251	0.000000	0.000000	-1.335162	-1.335162	2.196991
41	Zone 41	-4.443633	4.369996	0.000000	0.000000	0.004055	0.004055	2.699690
42	Zone 42	-3.360975	-2.229923	0.000000	0.000000	-4.193222	-4.193222	0.059722
43	Zone 43	-0.360040	-3.798350	0.000000	0.000000	-2.447029	-2.447029	-0.567649
44	Zone 44	-3.934827	-0.072664	0.000000	0.000000	-3.041267	-3.041267	0.922625
45	Zone 45	-1.967715	-3.181280	0.000000	0.000000	-3.561048	-3.561048	-0.320821
46	Zone 46	-0.426135	-5.821013	0.000000	0.000000	-4.131254	-4.131254	-1.376714
47	Zone 47	2.658519	-5.142814	0.000000	0.000000	-0.504041	-0.504041	-1.105434
48	Zone 48	6.144564	-5.110799	0.000000	0.000000	3.007616	3.007616	-1.092626

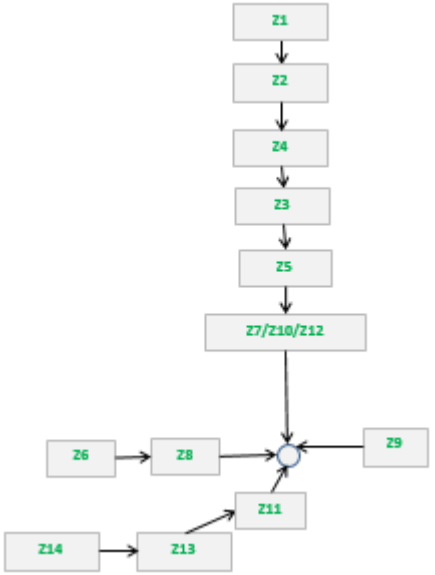


- These are the indicative generation zones under the current CUSC zoning criteria, and the connectivity map,
- Larger variations in zonal tariffs under 48 zones, compared to 27 zones as today
- Indicative node- zone mapping table was published as part of March 2020 forecast
- Indicative tariffs under 48 zones have been calculated for 2021/22 and 2025/26

Sensitivity 3 - Generation zoning (14 zones)

- CUSC mods CMP324/325 have been raised to review zoning criteria
- One of the options is to align generation zones with demand zones (14 in total)
- The indicative tariffs and connectivity map are given below (also published on our website)
- We have also published a table that maps sites to generation zones, in March 2020 forecast
- Indicative tariffs under 14 zones have been calculated for 2021/22 and 2025/26

Generation Tariffs		System Peak Tariff	Shared Year Round Tariff	Not Shared Year Round Tariff	Residual Tariff	Conventional Carbon 80% Load Factor	Conventional Low Carbon 80% Load Factor	Intermittent 40% Load Factor
Gen Zone (Sensitivity)	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)
1	Northern Scotland	3.702670	17.198452	16.137980	-0.139237	30.232578	33.460174	22.878123
2	Southern Scotland	3.068363	11.725641	9.569646	-0.139237	19.965355	21.879284	14.120664
3	Northern	3.610116	6.934381	3.135932	-0.139237	11.527129	12.154315	5.770447
4	North West	2.523208	4.796191	0.660405	-0.139237	6.749247	6.881328	2.439644
5	Yorkshire	4.046460	2.138685	0.043164	-0.139237	5.652702	5.661335	0.759401
6	N Wales & Mersey	3.807137	0.113387	0.000000	-0.139237	3.758609	3.758609	-0.093883
7	East Midlands	3.366833	-0.228741	0.000000	-0.139237	3.044603	3.044603	-0.230734
8	Midlands	2.344208	-4.155185	0.000000	-0.139237	-1.119177	-1.119177	-1.801311
9	Eastern	-1.148604	1.728907	0.000000	-0.139237	0.095285	0.095285	0.552325
10	South Wales	7.434049	-0.228741	-4.751205	-0.139237	3.310855	2.360614	-4.981938
11	South East	-4.606003	3.870421	0.000000	-0.139237	-1.648904	-1.648904	1.408931
12	London	-2.949541	-0.228741	-0.468143	-0.139237	-3.646286	-3.739914	-0.698876
13	Southern	-1.690669	-2.553012	0.000000	-0.139237	-3.872316	-3.872316	-1.160442
14	South Western	0.737476	-5.113731	0.000000	-0.139237	-3.492746	-3.492746	-2.184730



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Sensitivity 4 - Onshore TOs revenue (MAR)

- Onshore TOs' maximum allowed revenue (MAR) are subject to Ofgem's price control review (including, among other items, review on the inflation indexation for MAR)
- In the RIIO-2 draft determination (DD) published by Ofgem, CPIH indexation was proposed, instead of RPI. Under this sensitivity, we have applied CPIH to the onshore TOs' Base Revenue.
- The revenue figure would be lower by up to £107m (by 2025/26) compared to the values with RPI, reducing consumer bill by £1.38 per household per year
- We are also aware of the proposed change to rate of return on Ofgem's DD, however we do not have adequate information to break down the base revenue, and to apply the proposed rate of return for onshore TOs

Base Case		2021/22	2022/23	2023/24	2024/25	2025/26
Total TNUoS Revenue	£m	3,048.6	3,158.8	3,338.6	3,540.6	3,758.1
where Onshore TOs' Base Revenue (inflation index-linked)	£m	2,422.9	2,526.9	2,610.8	2,704.1	2,785.4
Inflation Index Assumption						
RPIF forecast (base year 2009/10)		1.399	1.423	1.459	1.503	1.549
CPIH forecast (re-base from 2021/22 RPIF)		1.399	1.409	1.431	1.459	1.489
CPIH Sensitivity						
Onshore TO Base Revenue linked to CPIH	£m	2,422.9	2,502.1	2,559.9	2,625.6	2,678.4
Reduction to the revenue from Base Case	£m	n/a	24.8	50.9	78.4	107.0
Reduction to TDR tariffs						
Domestic reduction	£/Site		0.32	0.66	1.02	1.38

Sensitivity 5 - Include remote islands in North Scotland as part of the wider network

- Orkney, Shetland and Western Isles will be connected to the wider network via undersea cables / HVDC links by 2025/26.
- These links are treated as local circuits but may become part of the “wider” network if GSPs are built on the remote islands. The indicative wider tariffs under this sensitivity are listed below
- CMP320 (Island MITS radial link security factor) and CMP337/338 (impact of DNO contributions on actual project costs and expansion factors) have been approved. Thus we have incorporated them in this five year view.

Including remote island links in Zone 1 wider network

Zone	Zone Name	System Peak Tariff (£/kW)	Shared Year Round Tariff (£/kW)	Not Shared Year Round Tariff (£/kW)	Residual Tariff (£/kW)	Example tariffs for a generator of each technology type: Conventional Carbon 80% Tariff (£/kW)	Conventional Low Carbon 80% Tariff (£/kW)	Intermittent 40% Tariff (£/kW)
1	North Scotland	3.095193	24.100185	34.613541	-3.367858	46.662020	53.584728	40.849461

Creating individual wider zones for the three remote islands

Zone	Zone Name	System Peak Tariff (£/kW)	Shared Year Round Tariff (£/kW)	Not Shared Year Round Tariff (£/kW)	Residual Tariff (£/kW)	Example tariffs for a generator of each technology type: Conventional Carbon 80% Tariff (£/kW)	Conventional Low Carbon 80% Tariff (£/kW)	Intermittent 40% Tariff (£/kW)
0_1	Orkney	2.822946	18.790392	104.651511	-2.982535	98.593933	119.524235	109.185132
0_2	Shetland	1.836392	18.790392	80.679698	-2.982535	78.429929	94.565868	85.213320
0_3	Western Isles	3.136614	18.790392	102.471173	-2.982535	97.163330	117.657565	107.004795
1	North Scotland	3.095193	18.790392	27.041569	-2.982535	36.778226	42.186540	31.575190

Next Steps

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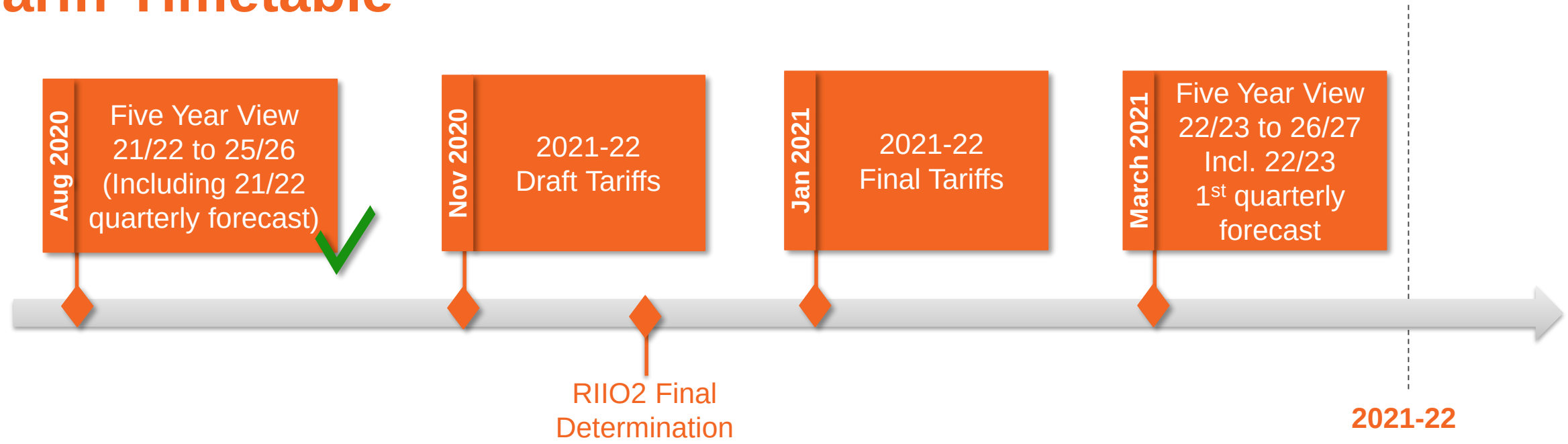
Tariff Timetable



- The next tariff forecast for 2021/22 is due November 2021
- The final tariffs for 2021/22 are due January 2021
- We endeavour to publish the next five-year view in March 2021.

Getting involved

Transmission Charging Methodology Forum (TCMF)

- We will continue to engage with you on our TNUoS forecast via the monthly TCMF meetings.

Interested? Further details can be found on the NGESO website

Charging Future Forum

- One place to learn, contribute and shape the reform of GB's electricity network access and charging arrangements

Interested? Further information can be found on the Charging Futures **Website** or sign up to receive more information **here**.

If you're not already subscribed to our mailing list you can **subscribe here**

Q&A

Go to: www.slido.com
Event code: #TNUOS5YV

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Q&A

Q1. I thought the sensitivity in 5 did include the island links in the wider network. Please can you confirm.

Yes, sensitivity 5 treats the island links as part of the wider network. There are two varieties under sensitivity 5: (1) the island links are included in generation zone 1; (2) networks on the three remote islands (including island links) are separated from generation zone 1, to create three new gen zones.

Q2. What are NGESO assumptions for ongoing compliance with the euro cap and how NGESO assumes that to endure (or not)?

We have assumed that there is still a requirement for compliance with the European law in terms of generation cap and as such in our base case, we assumed that there is still a requirement for a negative adjustment factor to ensure generation tariffs are still compliant.

Q3. I thought the workgroup had concluded on 317/327 and the decision is now with Ofgem. What did Alice mean by saying the workgroup is still ongoing?

The workgroup concluded in August 2020 and the code modifications are now with Ofgem for final decision.

Q&A

Q4. Residual in 5 year is shown going more negative for generators? Thought this was going to £0?

We have assumed in our base case that there is still a requirement for a negative adjustment factor to ensure generation tariffs are compliant with the EU cap whilst implementing Ofgem's decision for the TGR. For the purpose of our 5 year view we have called this negative adjustment factor the generation residual.

Q5. What is the deadline for the definition of the congestion management costs (sensitivity 2) to be decided?

From a tariff setting process perspective, we need to implement TGR incl. the definition of the congestion management in the final tariffs by the 31st January. Ideally, we would like to receive the clear definition to support our draft TNUoS tariffs forecast in November.

Q6. Any thoughts on the future of Triads re RAFLC SCR?

At the moment, there are no policy decisions published re RAFLC.

Q&A

Q7. When will any under-recovery in 2020/21 (as a result of Covid) be recovered?

According to the transmission licence, any under- or over- recovery in 2020/21 will be adjusted in 2022/23.

Q8. Has the recovery of the 20/21 under recovery (due to Covid) been included in these forecasts?

We have not modelled Covid impacts in these forecasts. We would provide further insight in the next tariff forecast in November.

Q9. Is sensitivity 5 analysis based on 600MW link assumptions for all RIW connections?

Two of the remote island wind connections (Shetland and Western Isles HVDC links) are assumed to have 600MW capacity each; the Orkney undersea cable is assumed to have 220MW capacity, based on NOA (Network Options Assessment) report.

Q10. Can you include a 14-Zone sensitivity with remote islands included in the wider network?

The 14 zones sensitivity is one of the options under CMP324/325, which has been concluded by the workgroup. Once the decision on CMP317/327 is made, we will build further sensitivities in the next 5-year forecast (due by March 2021).

Q&A

Q11. Are wider tariffs indexed for the particular year? So building an overall tariff, we should index the substation and local circuit tariff and add to wider?

Wider generation tariffs and local circuit tariffs have been calculated and indexed for future years as per our usual approach for our forecasts. We published the local substation tariff for 2021/22 only and it will need to be increased by RPI each year to estimate what the local substation tariffs will be in future years.

Q12. Has Ofgem provided a recommendation on TGR through CMP 317/327 to feed into this update? If not why has another update been released?

CMP317/327 has been submitted to Ofgem for decision. There are various options in the workgroup report, and at the moment, it is not clear which option will be chosen. We are trying to be helpful by including a few options in the sensitivity analysis, to show the likely impact on tariffs.

Q13. It was mentioned that the expansion constant/factor received from the TOs is significantly higher than the assumed figure in the forecast. Is there any update?

The ESO is working with the TOs to progress on this. We expect to provide further update on the expansion constant/factor in the November draft tariffs.

Q&A

Q14. The MAR used in the forecast is not based on the current update by Ofgem, does this mean that when the updated MAR is incorporated, local tariffs are reduced?

The Maximum Allowed Revenue figure will impact residual tariffs. Local tariffs (including local substation tariffs and local circuit tariffs) are not dependent on MAR.

Q15. Why are the rezoning sensitivity forecasts only shown for 21/22 and 25/26 in the tables and not the in between years?

The rezoning sensitivity forecasts have demonstrated the trend: more tariff volatility in the 48 zones option, and more stability in the 14 zones option. We picked up 2021/22 and 25/26 to illustrate the trend, without having to add more tables into the report. We are happy to provide the tariffs for the years in between. The additional three years' generation tariffs are published here (download spreadsheet link).

Q16. Why has revenue to be recovered from demand reduced?

The revenue recovered from demand is forecast to reduce mainly due to the implementation of Transmission Generation Residual (TGR) changes via CMP317/327.

Q&A

Q17. What is the likely impact on generation tariffs if there is an under-recovery of revenue due to COVID? And will the Nov forecast include the impact?

We have not modelled Covid impacts in these forecasts. We would provide further insight in the next tariff forecast in November. According to the transmission licence, any under- or over- recovery in 2021/22 will be adjusted in 2023/24 tariffs.

Q18. Which potential solution from CMP317/327 have you used in the 5-year forecast? Is this the same as March forecast?

We have used the same assumptions in our 5-year view as the March forecast. We have assumed there is still the requirement for a negative adjustment factor to ensure compliance with the EU cap. We have also assumed that all local onshore and offshore tariffs are excluded from the EU cap.

Q19. When will the T&T models be made available?

The T&T model would be made available externaly by 2nd October.

Q20. Has generation capacity been scaled in the latter years, similarly to the previous 5YF?

Yes, the generation has been scaled as per previous 5-year views.

Q&A

Q21. Which FES scenario(s) have been used for transmission electricity & TEC assumptions? Average of all four as in previous versions?

As in the previous forecasts, we have used an average of the four Future Energy Scenarios (FES) for our assumptions.

Q22. Why does forecast for TDR have 4 T bands? Surely should use original proposal? Different approach from 317/327. Should ESO should be consistent and independent?

We thought that it would be helpful to provide more granularity with four transmission connected demand bands. This is also based on the feedback we received from some industry parties. We will take the suggestion on board for future forecast.

Q23. TDR what are your assumptions for the treatment of the negative locational? (Flooring, No Floor, or correction)

With the implementation of TDR, the demand locational element in this 5-year forecast has been floored at £0/kW from 2022/23 onwards.

Q&A

Q24. Will more sensitivities be provided once the outcome of CMP324/325 is known (i.e. 14 generation zones with remote island links in wider network)?

Once the decision on CMP317/327 is made, we will build further sensitivities in the next 5-year forecast (due to be published by March 2021). Please also see Q11.

Q25. How could the reduction in demand from Covid-19 feed into TNUoS, and would this just hit the demand element or generators as well?

The reduction in demand from COVID would mainly affect the demand tariffs, which will be considered for the future tariff forecasts.

Q26. What banding and flooring assumptions have you made for the TDR?

For more information regarding the breakdown of the demand residual banding assumptions, please see page 4 of CMP343 proposal (Link here).

The number of T-connected bands are still being discussed by the workgroup and the options being considered are 1,2 & 4 bands. In our forecast we have used 4 T-connected bands to give the greatest level of granularity.

In regard to flooring assumptions, see Q25.

Q&A

Q27. What is your level of confidence on CPIH replacing RPI? If CPIH is used, can we expect a future rate increase to compensate?

CPIH was published in Ofgem's draft determination (DD) on RIIO-T2, therefore we felt it was a valid sensitivity case in calculating TOs' allowed revenue. The final determination (FD) will be published in December this year, and will be incorporated in the final tariffs by January 2021.

The sensitivity case we did, only affect the revenue figure, and thus only affect non-locational (residual) tariffs. According to the CUSC, those locational tariffs are related to the "unit cost" of moving 1MW over 1km of the circuits, and the "unit cost" (called Expansion Constant) is inflated annually by RPI.

Q28. Are the banded residual standing charges expected to be the same across all TNUoS zones?

Yes, the charges are £/site and the same charges apply to all final demand users within the same band, irrespective of where the user is located.

Q29. Will the €2.50/MWh cap be kept regardless of Brexit?

At this moment, we assume that the requirement for generations tariffs to be within the range of €0-€2.50/MWh would be written in UK legislation and we will still be required to be compliant with it.

Q&A

Q30. What are your feelings concerning TNUoS trend beyond RIIO-T2?

With the number of ongoing changes and the possibility of future modifications it is very difficult to know what the TNUoS trends will be beyond the RIIO-2 period.

Getting in touch

Your Questions

We will publish a Q&A document on our website, including the questions received regarding this five year view report

Your Feedback

We are continuously looking at ways we can improve the experience of our customers

We welcome your feedback on the TNUoS tariff forecasting and setting process

Your Questions & Feedback survey:

Go to: www.slido.com
Event code: #TNUOS5YV
Respond to 3 questions under 'Polls'

TNUoS Queries

E: Tnuos.Queries@nationalgrideso.com

Thank You

Go to: www.slido.com
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