TNUoS Tariffs Five Year View for 2022/23 – 2026/27 Webinar

NGESO Revenue Team

May 2021

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Agenda

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1	Introduction
2	Tariff timetable
3	Challenges for 5 Year View
4	Key messages
5	Revenue
6	Generation tariffs
7	Onshore and offshore local tariffs
8	Demand tariffs
9	Sensitivities to change
10	Next Steps
11	Q&A

TNUoS Tariff Forecasting & Setting Team

Rebecca Yang

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

Sarah Chleboun

(On Maternity Leave)

Jo Zhou

- Long term strategy development
- TGR
- Onshore Local Circuits

Alice McCormick

- Overall Tariff Setting
- Generation
- Offshore

Matt Wootton

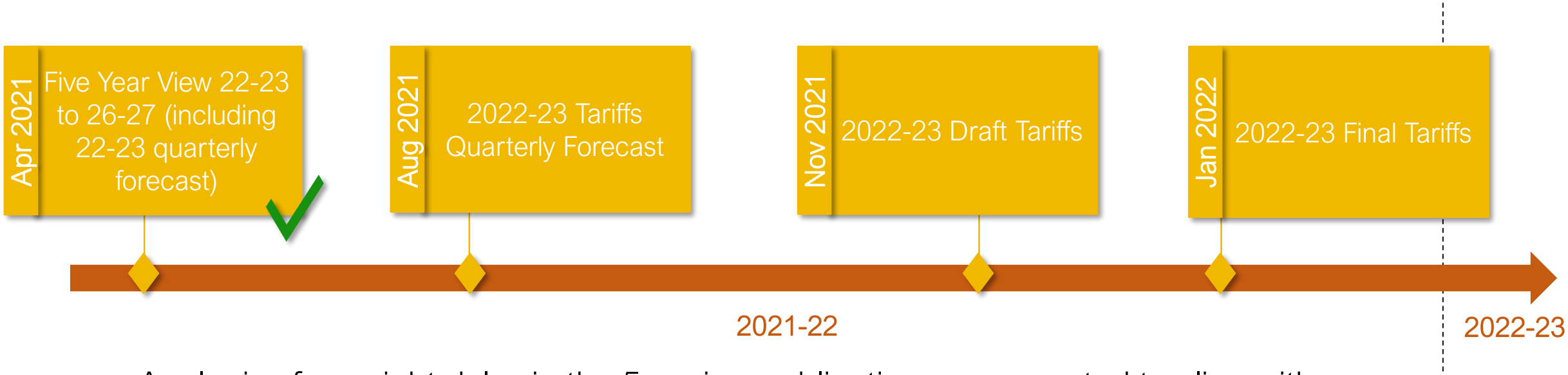
- Demand
- EET
- TDR
- Local substation

Heather Stratford

- Revenue
- Demand

Tariff Timetable

NGESO has a licence and CUSC obligation to publish quarterly TNUoS forecast and a 5 year review annually, to enable market participants to make efficient operational and investment decisions.



- Apologise for a sight delay in the 5 yr view publication as we wanted to align with CMA decision on TGR.
- The tariffs for 22/23 will be refined throughout the year
- The Final Tariffs will be published by 31st January 2022 and take effect from 1st April 2022.

TNUoS Forecast Uncertainties

There are several **uncertainties** over the next 5 years, some of which we have taken into account in our forecasts where we could. Due to lacking of data and clarity in the methodology changes, we cannot undertake meaningful analysis for some of the regulatory changes.

Regulatory Changes

- TDR delay and pending decisions (CMP343)
- Access SCR
- Onshore TOs CMA Appeal against RIIO2 decisions (RoR and K factor transfer)
- CUSC Mods with Ofgem's decision pending:
  - CMP344 TO revenue adjustment
  - CMP280 TNUoS charges for Storage
- Potential further SCR/ TNUoS Reform

Impact of COVID19

- COVID19 impact has been mainly factored into the 2022/23 demand forecast

Sensitivities

Having **consulted** the industry, we have also included sensitivities to provide industry with further information.

- TDR Sensitivities
  - Different T-Connected banding scenarios
  - Impact of Locational tariffs not being floored
- Impact of future interconnectors - Base on customer suggestion received at the recent Charging Forum
  - Individual interconnector impact
  - Combined two interconnectors impact

Key inputs and findings

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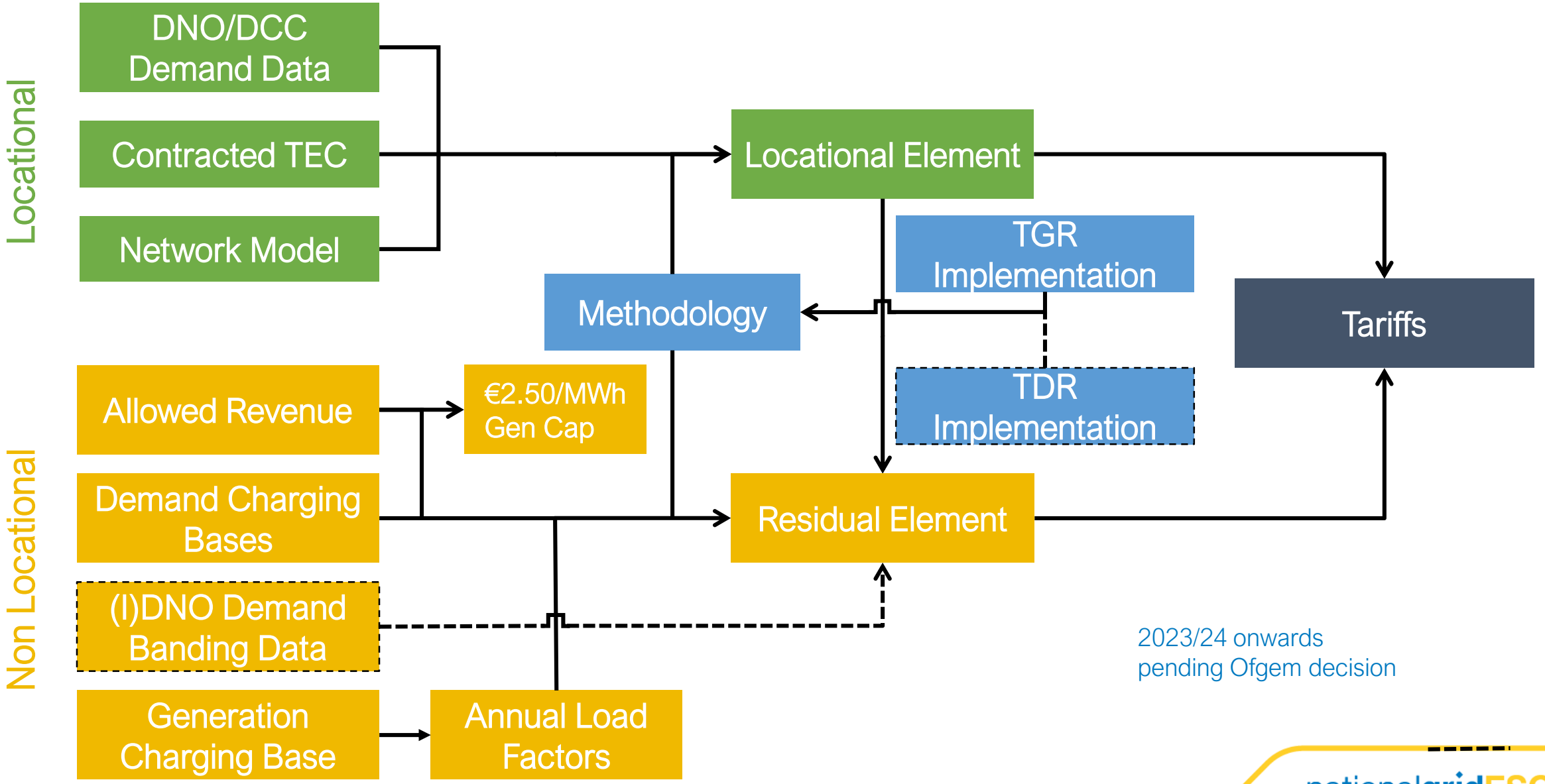
Key Inputs for TNUoS Tariffs



Input changes in 2022/23 tariff publication

		April 2021	August 2021	Draft Tariffs November 2021	Final Tariffs January 2022
Methodology		**Open to industry governance**			
Locational	DNO/DCC Demand Data	Initial update using previous year's data source		Week 24 updated	
	Contracted TEC	Latest TEC Register	Latest TEC Register	TEC Register Frozen at 31 October	
	Network Model	Initial update using previous year's data source (except local circuit changes which are updated quarterly)		Latest version based on ETYS	
	Inflation	Forecast	Forecast	Forecast	Actual
Residual/Adjustment	OFTO Revenue (part of allowed revenue)	Forecast	Forecast	Forecast	NG best view
	Allowed Revenue (non OFTO changes)	Initial update using previous year's data source	Update financial parameters	Latest TO forecasts	From TOs
	Demand Charging Bases	Initial update using previous year's data source	Revised forecast	Revised forecast	Revised by exception
	Generation Charging Base	NG best view	NG best view	NG best view	NG final best view
	Generation ALFs	Previous year's data source		New ALFs published	
	Generation Revenue (G/D split)	Forecast	Forecast	Forecast	Generation revenue £m fixed

- Green highlighting indicates that these parameters are fixed from that forecast onwards.

Key Findings

- Total Revenue
  - The total TNUoS revenue is forecast at **£3.4bn** for FY22/23 (an increase of £47.3m from 2021/22), rising to **£3.6bn** in 2026/27, based on TOs latest data.
- Generation
  - Generation revenue is forecasted to be **£836m** for FY22/23, an **increase of £61m** from FY21/22.
  - It would grow to £1.19bn by FY26/27, mainly driven by the increase in **offshore generation** local charges.
  - The generation charging base for FY22/23 has been forecasted as 75GW based on our best view.
- Demand
  - Demand revenue for FY22/23 has decreased slightly (£8m) to **£2.5bn** from FY21/22, mainly driven by the increase of generation revenue and subsequent reduction in demand revenue. Demand revenue is forecast to decrease year on year to £2.3bn by FY25/26 then a slight increase of £20m in FY26/27 due to increase in total TNUoS revenue.
- Consumer Bill
  - Based on the latest NHH tariffs, the TNUoS charge would have an impact of £36.38 per annum in 2022/23 on consumer bill, a decrease of 3p from 2021/22. This is **5.94%** of the average annual electricity consumer bill.
  - Assuming TDR is implemented in 2023/24, the TNUoS charge impact will reduce by ~£4 to £32.31 (**5.28%** of average total electricity bill).

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

Revenue

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TO Revenue

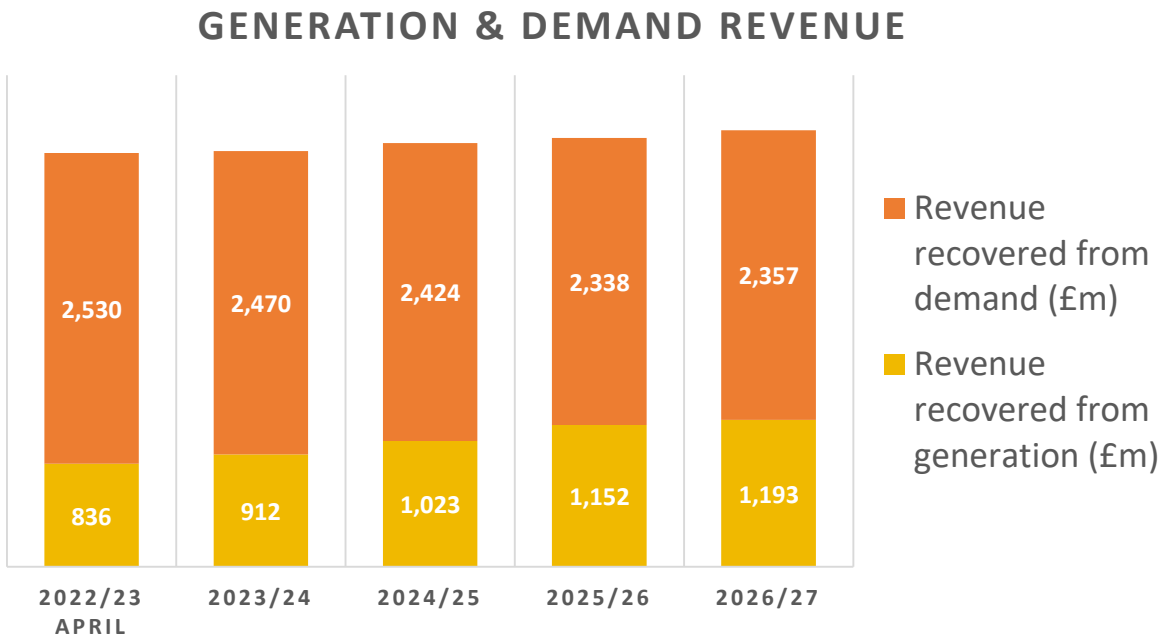
Allowed Revenues	2022/23	2023/24	2024/25	2025/26	2026/27
NGET Income from TNUoS	1764.5	1704.4	1674.6	1645.0	1645.0
SPT Income from TNUoS	348.7	370.9	361.6	337.6	337.6
SHETL Income from TNUoS	632.7	582.9	586.7	563.4	563.4
Embedded Offshore Pass-Through	0.6	0.6	0.6	0.6	0.6
Network Innovation Competition	30.9	30.9	30.9	30.9	30.9
Offshore and Interconnectors Cap&Floor	552.8	656.5	757.1	876.4	936.7
ESO Bad debt	3.3	3.3	3.4	3.4	3.5
ESO other pass-through items	32.6	32.6	32.6	32.6	32.6
Total	3366.0	3382.1	3447.4	3489.8	3550.2

- Total revenue is forecast to be £3,366m in 2022/23, increasing to £3,550m by 2026/27.
- It's worth noting that the onshore TOs' revenues are decreasing overall whilst offshore TOs' revenues are increasing significantly.
- These figures are highly indicative and are based on the January 2021 forecast submitted by onshore and offshore TOs.

Summary of revenue to be recovered

Revenue	The G/D Split				
	2022/23 April	2023/24	2024/25	2025/26	2026/27
Total Revenue (£m)	3,366	3,382	3,447	3,490	3,550
Generation Output (TWh)	210	207	208	214	214
% of revenue from generation	24.63%	26.74%	29.41%	32.75%	33.34%
% of revenue from demand	75.37%	73.26%	70.59%	67.25%	66.66%
Revenue recovered from generation (£m)	836	912	1,023	1,152	1,193
Revenue recovered from demand (£m)	2,530	2,470	2,424	2,338	2,357

- Generation revenue increased by £61m compared to 2021/22,
- CMP317/327 has been implemented, where “assets required for connection” has been removed from the calculation of “EU gen cap”, and removed the generation residual
- Over the next 5 years, driven by increased local charges, generation revenue will continue to grow to £3.55bn by 2026/27 whilst demand revenue is expected to decrease.



Generation Tariffs

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Transmission Generation Residual (TGR)

- This forecast includes the implementation of the TGR, which took effect from April 2021.
- All local onshore and local offshore tariffs are excluded in the European €2.50/MWh cap for generator transmission charges in line with the final decision on CMP317/327 with a few exceptions to be clarified under CMP368/389.
- To provide an indicative view of the likely tariffs under CMP368/389, we have included local charges associated with pre-existing transmission assets (based on our preliminary understanding of the concept, and the available data to us) when calculating the generation adjustment tariff.
- We have also excluded wider charges associated with TNUoS-liable large embedded generators
- The adjustment tariff has been introduced to ensure compliance with the European €2.50/MWh cap

Generation Tariffs (£/kW)	Final 2021/22	April 2022/23	Five-year View 2023/24	2024/25	2025/26	2026/27
Adjustment	-0.432600	-0.418310	-0.428579	-0.794656	-2.512418	-3.537638
Average Generation Tariff*	11.04	11.06	12.30	14.06	14.48	14.73

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

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

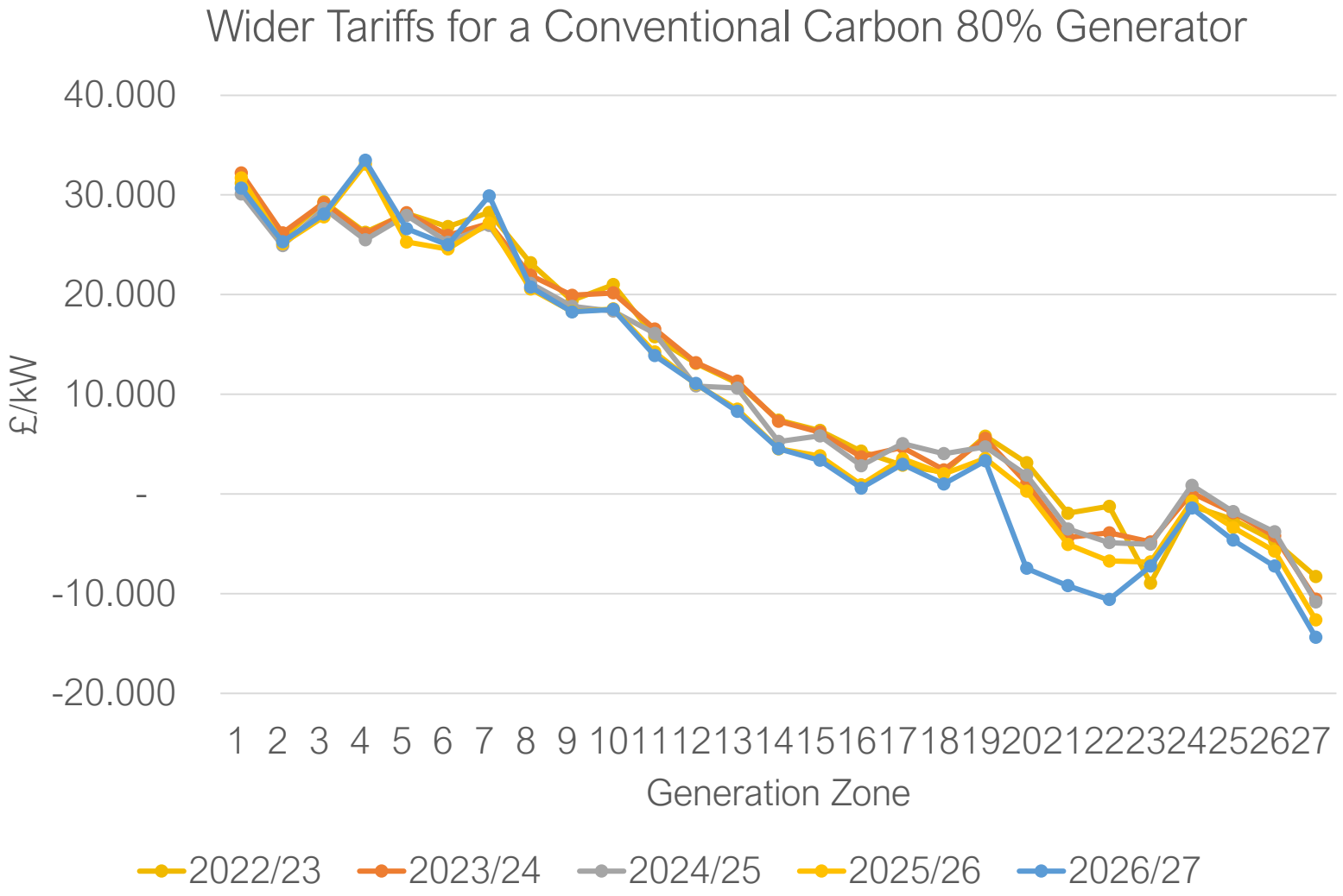
Year Round Shared and Year Round Not Shared elements are multiplied by Annual Load Factors (ALFs) dependent on generation type

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
Coal		Solar PV
OCGT/Oil		Tidal
Pumped storage (including battery storage)		

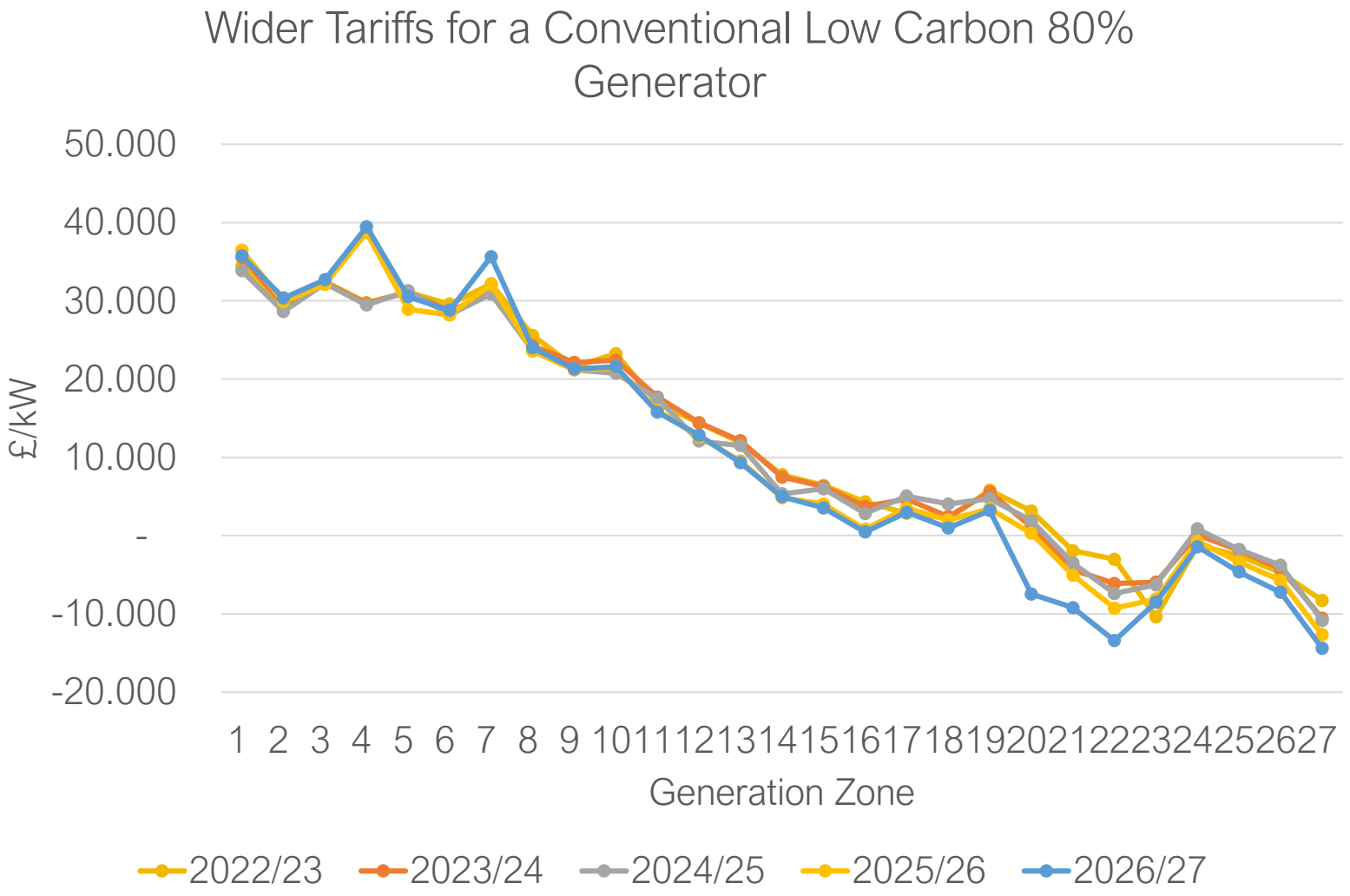
Generation Tariffs – Conventional Carbon

- Scotland
  - Tariffs are mainly consistent each year (except ‘flip’ in zone 4)
- England & Wales
  - Tariffs get more negative in line with the gradual reduction of the adjustment
  - There are some fluctuations in zones 20-22 due to a ~3GW drop in conventional carbon and conventional low carbon TEC in later years



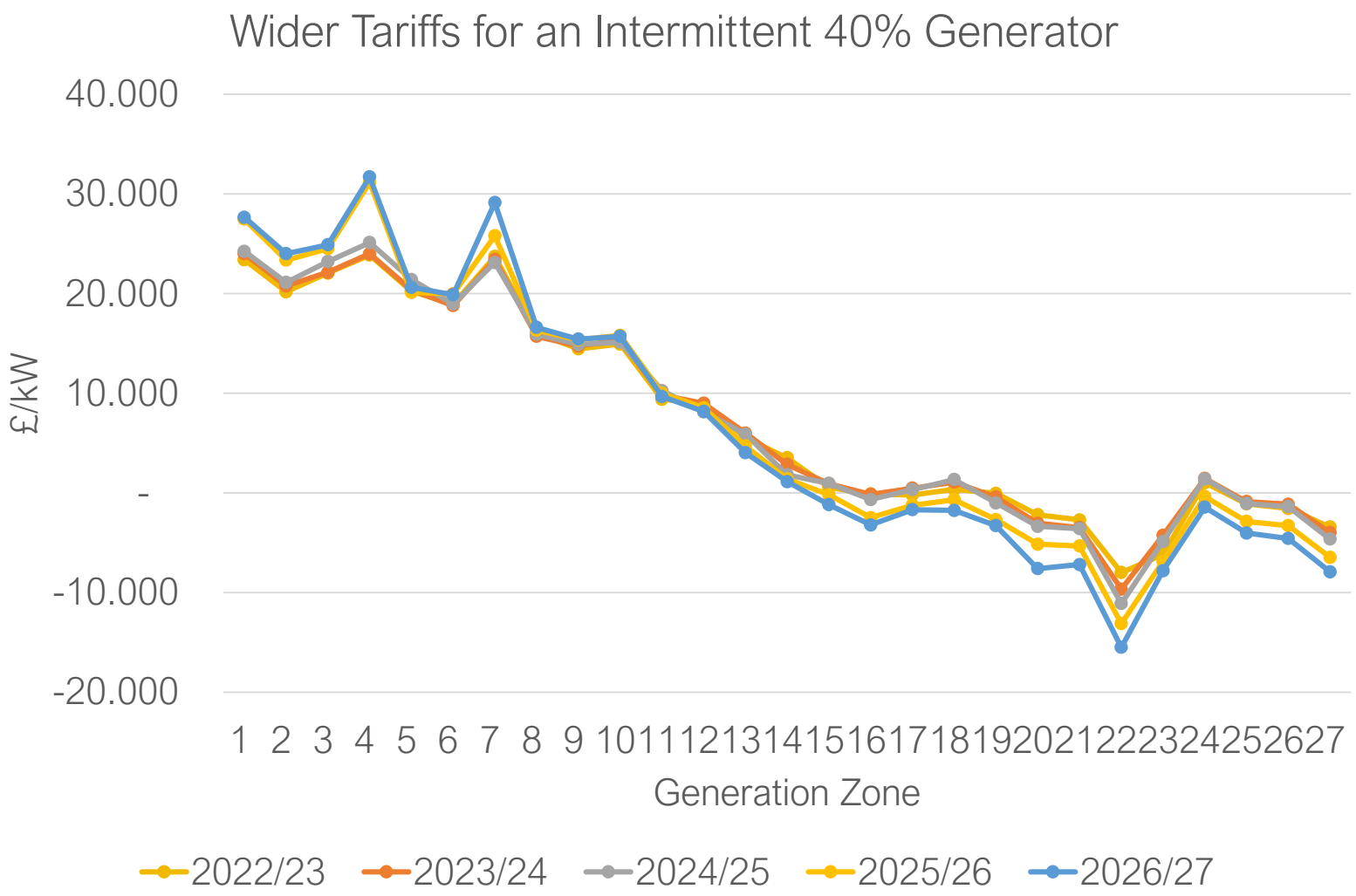
Generation Tariffs – Conventional Low Carbon

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



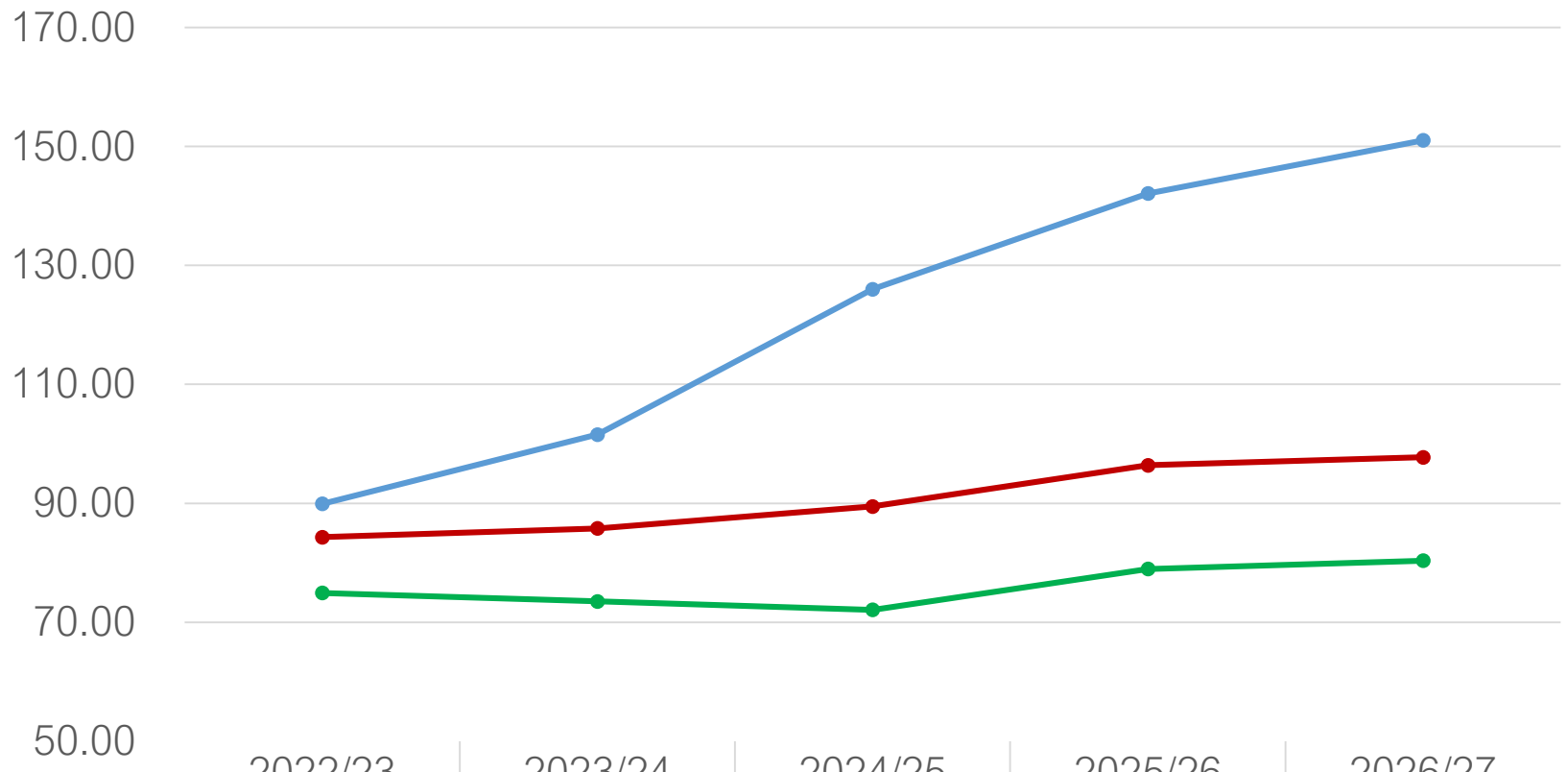
Generation Tariffs – Intermittent

- Scotland
  - Tariffs follow similar profile to Conventional generators
  - Zones 4 and 7 affected by renewable generation increases from 2025
- England & Wales
  - Decreases follow the decrease in the adjustment



Contracted, Modelled & Chargeable Generation Capacity

- CONTRACTED:
  - Full TEC register used
- MODELLED:
  - Reduction in TEC in line with FES forecast and internal best view
- CHARGEABLE:
  - Modelled TEC minus interconnector capacity



	2022/23	2023/24	2024/25	2025/26	2026/27
Contracted TEC (GW)	89.91	101.57	125.99	142.10	151.03
Modelled TEC (GW)	84.32	85.79	89.48	96.40	97.74
Chargeable TEC (GW)	74.93	73.51	72.09	78.96	80.35

Local Tariffs

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Onshore Local Substation Tariffs

- Local Substation tariffs have been recalculated for RIIO2 based on TO asset costs.
- In this 5 year view, tariffs have increased slightly, in line with our forecast of May-Oct CPIH from 2022/23.

Local substation tariffs for 2022/23

Substation Rating	Connection Type	Local Substation Tariff (£/kW)		
		132kV	275kV	400kV
<1320 MW	No redundancy	0.148953	0.074480	0.051372
<1320 MW	Redundancy	0.313861	0.159415	0.113195
>=1320 MW	No redundancy		0.218821	0.155794
>=1320 MW	Redundancy		0.329287	0.236838

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	2022/23 (£/kW)	2023/24 (£/kW)	2024/25 (£/kW)	2025/26 (£/kW)	2026/27 (£/kW)
Aberarder			1.782229	1.817873	1.853660
Aberdeen Bay	2.638819	2.691595	2.745427	2.800335	2.855462
Achruach	4.345866	4.432689 -	2.691973 -	2.745967 -	2.800377
Aigas	0.676967	0.690506	0.704316	0.718403	0.732545
An Suidhe	3.081284 -	0.990374 -	1.009744 -	1.030092 -	1.050721
Arecleoch	2.149791	2.192787	1.293751	1.319626	1.345604
Armadale				3.216910	3.274506
Beaw Field				52.199538	53.651914
Beinneun Wind Farm	1.554100	1.585189	1.616873	1.649212	1.681681
Bhlaraidh Wind Farm	0.668298	0.681664	0.695297	0.709203	0.723164
Black Hill	1.571742	1.603176	1.635240	1.667945	1.700780
Black Law	1.808664	1.844837	1.881734	1.919369	1.957153
Blackcraig Wind Farm	6.515858	6.883018	7.020678	7.161092	7.302064
Blacklaw Extension	3.835506	3.912216	3.990460	4.070270	4.150396
Blarghour				3.051115	3.111178
Branxton		0.381219	0.388968	0.398268	0.407531
Chirmorie			0.978088	0.997649	1.017289
Clash Gour			0.106934	0.109735	0.111921
Clauchrie				0.837421	0.853906
Cloiche				1.474572	1.503600

Offshore Local Tariffs

- Tariffs are set at asset transfer, or the beginning of a price control, and are indexed in line with the OFTO licence.
- Offshore tariffs will be refined in future forecasts as OFTO revenues and inflation data are updated.
- Projects expected to asset transfer during 2022/23 will have tariffs calculated later this year.

Offshore Generator	Tariff Component (£/kW)		
	Substation	Circuit	ETUoS
Barrow	8.981363	47.448077	1.178201
Burbo Bank	11.349149	21.934427	0.000000
Dudgeon	16.599924	26.045535	0.000000
Galloper	16.992267	26.875018	0.000000
Greater Gabbard	16.731766	38.718989	0.000000
Gunfleet	19.545355	18.024323	3.368849
Gwynt Y Mor	21.312321	21.071110	0.000000
Hornsea 1A	7.500569	26.538185	0.000000
Hornsea 1B	7.500569	26.538185	0.000000
Hornsea 1C	7.500569	26.538185	0.000000
Humber Gateway	12.542420	28.776625	0.000000
Lincs	17.411874	68.474947	0.000000
London Array	11.816070	40.512775	0.000000
Ormonde	27.613792	51.616163	0.411338
Race Bank	10.052457	27.920291	0.000000
Robin Rigg	-0.606088	34.402796	11.022437
Robin Rigg West	-0.606088	34.402796	11.022437
Sheringham Shoal	25.834847	30.427173	0.661397
Thanet	19.728152	36.960737	0.889775
Walney 1	23.849970	47.682154	0.000000
Walney 2	22.188899	45.156621	0.000000
Walney 3	10.325940	20.919735	0.000000
Walney 4	10.325940	20.919735	0.000000
West of Duddon Sands	9.234736	46.033950	0.000000
Westermost Rough	18.777289	31.956559	0.000000

Demand Forecasts

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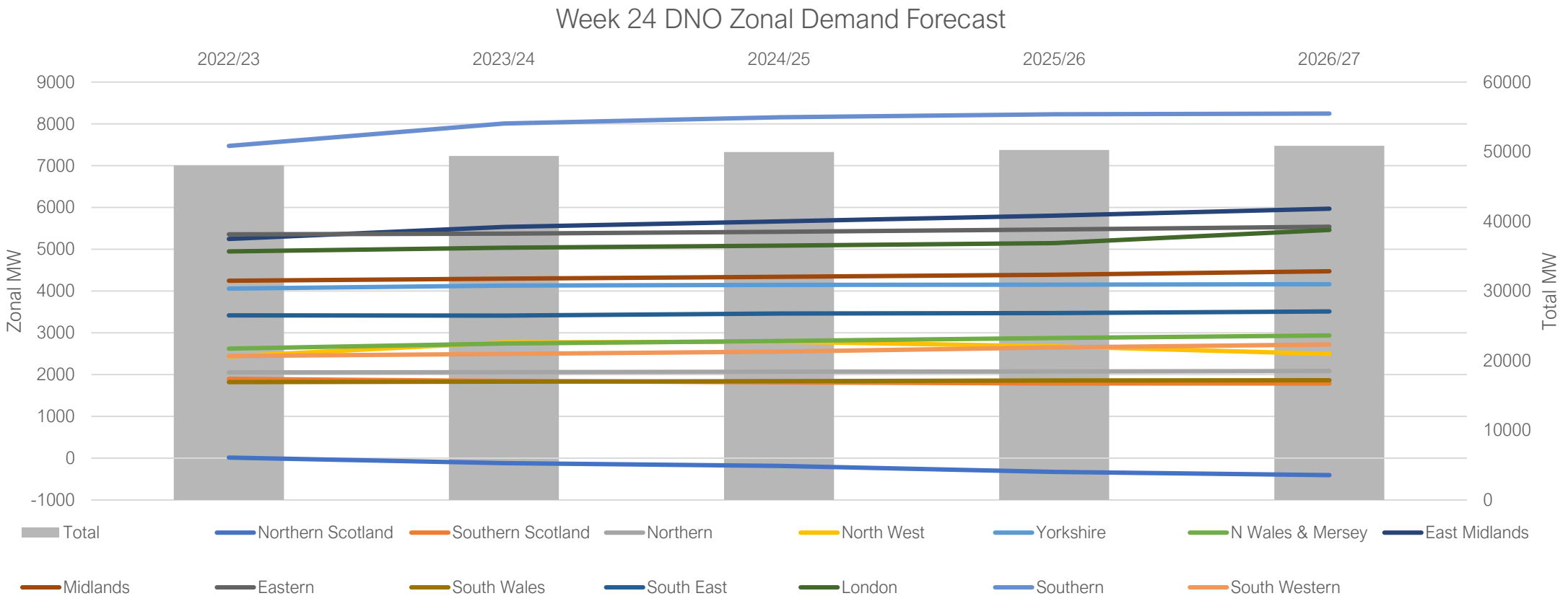
System Peak, HH/NHH demand & Chargeable Export Forecast

	2022/23	2023/24	2024/25	2025/26	2026/27
Average System Demand at Triad (GW)	49.83	49.75	49.79	49.78	49.89
Average HH Metered Demand at Triad (GW)	19.07	19.03	19.16	19.10	19.14
Chargeable Export Volume (GW)	6.54	6.66	6.76	6.18	6.85
NHH Annual Energy between 4pm and 7pm (TWh)	24.18	24.21	24.00	24.05	24.18

- There has been a slight reduction in the overall system demand forecast for the next 5 years compared to the last 5-year view, in line with the FES analysis.
- Transmission gross demand forecast fluctuates marginally, with a slight decrease in 2023/24, returning to similar levels to 2022/23 in 2026/27, as a result of increased electrification of heating and transport.
- No significant demand shift between NHH and HH, with biggest variation seen in 2024/25
- From 2022/23 HH demand remains consistent, however there is a slight overall drop in comparison to previous 5-year view
- NHH demand levels fluctuate marginally from 2022/23, however 2022/23 forecast is lower and 2023/24 onwards is higher vs previous 5-year view
- The impact of COVID-19;
  - The 'economic scaring' was factored into 2022/23 with a lesser impact seen in comparison to 2020/21 tariffs
  - HH demand is forecast to increase in 2022/23 vs 2021/22
  - NHH demand is forecast to decrease in 2022/23 vs 2021/22

Modelled Demand – Week 24 Data



- Week 24 data is contracted demand at GSP received from DNOs and directly connected users.
- It is used to calculate locational tariffs in the transport model.

Demand Tariffs for 2022/23

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Demand Tariffs (2022/23)

- In light of Ofgem's minded to decision, we continued with the current demand charging methodology for 2022/23 tariffs
- Demand revenue forecast for 2022/23 decreased slightly compared to 2021/22, however there has been minimal impact to HH and NHH average tariffs

Zone No.	Zone Name	HH Gross Demand Zonal Tariffs (£/kW)	NHH Demand Zonal Tariffs (p/kWh)	Embedded Export Tariffs (£/kW)
1	Northern Scotland	22.74	3.02	0.00
2	Southern Scotland	31.47	4.01	0.00
3	Northern	41.68	5.14	0.00
4	North West	47.56	6.04	0.00
5	Yorkshire	48.26	5.90	0.00
6	N Wales & Mersey	48.88	5.98	0.00
7	East Midlands	51.95	6.57	0.98
8	Midlands	53.50	6.90	2.53
9	Eastern	54.47	7.41	3.50
10	South Wales	55.01	6.26	4.04
11	South East	56.81	7.77	5.84
12	London	59.95	6.26	8.98
13	Southern	58.52	7.52	7.55
14	South Western	60.45	8.44	9.48

Residual charge for demand (£/kW)	**53.29**

TDR & Demand Tariffs for 2023/24 – 2026/27

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TDR Implementation (Banding Breakdown)

- The breakdown of consumption, consumption proportion and site count is based on the latest view of consumption and site count data (as per previous 5YV)
- We will be updating the banding breakdown based on the updated November 2020 thresholds in the next 5-year view once the data is provided later this year.
- 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)
  - Updated Thresholds – updated November 2020 (https://www.nationalgrideso.com/document/179706/download)

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%	

Summary of Demand Revenue and Residual

Component		2022/23	2023/24	2024/25	2025/26	2026/27
D %	Proportion of revenue recovered from demand (%)	75.4%	73.3%	70.6%	67.2%	66.7%
D	Revenue recovered from demand (£m)	2,537	2,478	2,433	2,347	2,366
R	Total TNUoS revenue (£m)	3,366	3,382	3,447	3,490	3,550
Gross Demand Residual						
RD (tariff)	Demand residual tariff (£/kW)	53.29				
RD	Demand residual (£m)	2,655	2,400	2,366	2,279	2,291
ZD	Revenue recovered from the locational element of demand tariffs (£m)	- 104.4	- 111.9	- 113.6	- 128.6	- 141.6
ZD (Floored)	**Revenue recovered from the locational element of demand tariffs (£m)**		**91.4**	**79.9**	**80.3**	**90.9**
EE	Amount to be paid to Embedded Export Tariffs (£m)	14.0	13.7	12.7	12.7	15.0
BD	Demand Gross charging base (GW)	49.8	49.7	49.8	49.8	49.9

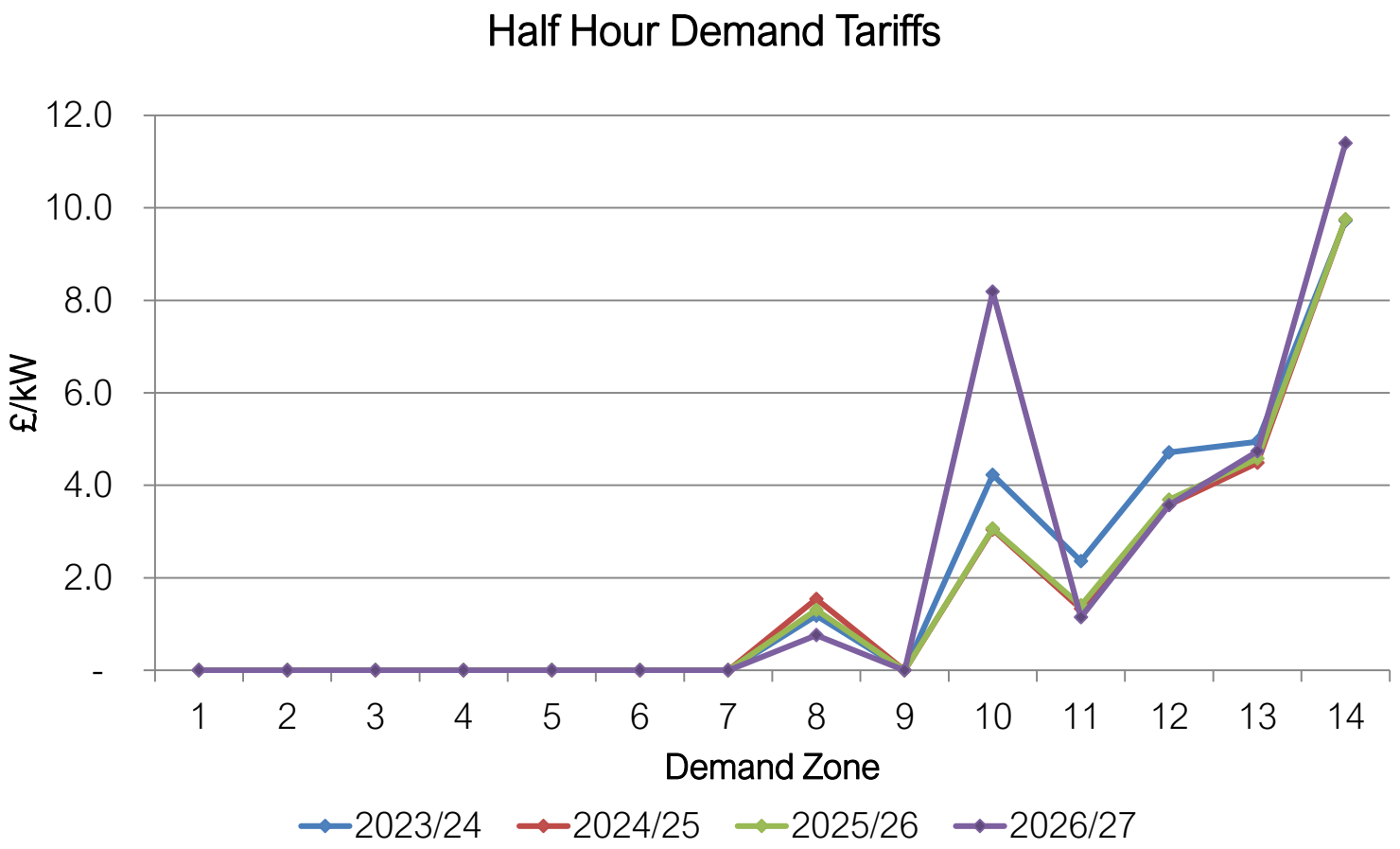
- Over the next 5 years, total demand revenue decreases year on year, due to the proportional increase in generation revenue vs total revenue (changing the G/D % split).
- In 2026/27, there is a slight increase in demand revenue due to (increase in total revenue > proportional increase in generation revenue)
- The demand residual follows the same trend as the total demand revenue
  - From 2023/24 we have assumed floored locational demand in our base case which decreases the demand residual further vs 2022/23.
- The change in demand residual can be seen in the demand residual banded charges from 2023/24

TDR Banded Charges

- Summary of banded tariffs from 2023/24 onwards (expected TDR implementation timescales)
- Changes in residual tariffs are in line with
  - Changes in overall demand revenue
  - Changes in demand residual revenue - *Proportion of demand revenue not attributed to the locational element of demand tariffs*
- Tariffs based on current view of bandings, future updates and pending decisions through CMP343 will impact these charges
- Our base case assumes floored locational demand tariffs and 4 T-connected bands
- No assumptions have been made in changes in consumptions and site counts year on year

Band		2023/24	2024/25	2025/26	2026/27
Domestic	Tariff - £/Site per year	31.02	30.58	29.46	29.60
LV_NoMIC_1		15.04	14.83	14.28	14.35
LV_NoMIC_2		76.79	75.71	72.92	73.29
LV_NoMIC_3		179.87	177.33	170.81	171.66
LV_NoMIC_4		536.47	528.91	509.44	511.99
LV1		1115.47	1099.75	1059.26	1064.56
LV2		1857.69	1831.51	1764.08	1772.91
LV3		2885.40	2844.74	2740.01	2753.72
LV4		6487.36	6395.93	6160.47	6191.30
HV1		4646.50	4581.02	4412.37	4434.45
HV2		16089.15	15862.41	15278.43	15354.89
HV3		31299.66	30858.56	29722.49	29871.24
HV4		77107.09	76020.42	73221.71	73588.14
EHV1		27071.26	26689.75	25707.16	25835.81
EHV2		161790.97	159510.85	153638.42	154407.30
EHV3		344891.66	340031.11	327512.77	329151.80
EHV4		927473.65	914402.76	880738.79	885146.42
T-Demand1		140682.30	138699.67	133593.40	134261.97
T-Demand2		499428.03	492389.59	474262.14	476635.58
T-Demand3		982479.21	968633.13	932972.65	937641.69
T-Demand4		2961464.19	2919728.27	2812237.73	2826311.49
Unmetered demand			p/kWh per year		
Unmetered		0.92	0.91	0.86	0.82
Demand Residual (£m)		2,400	2,366	2,279	2,290

HH Demand Tariffs (2023/24 – 2026/27)

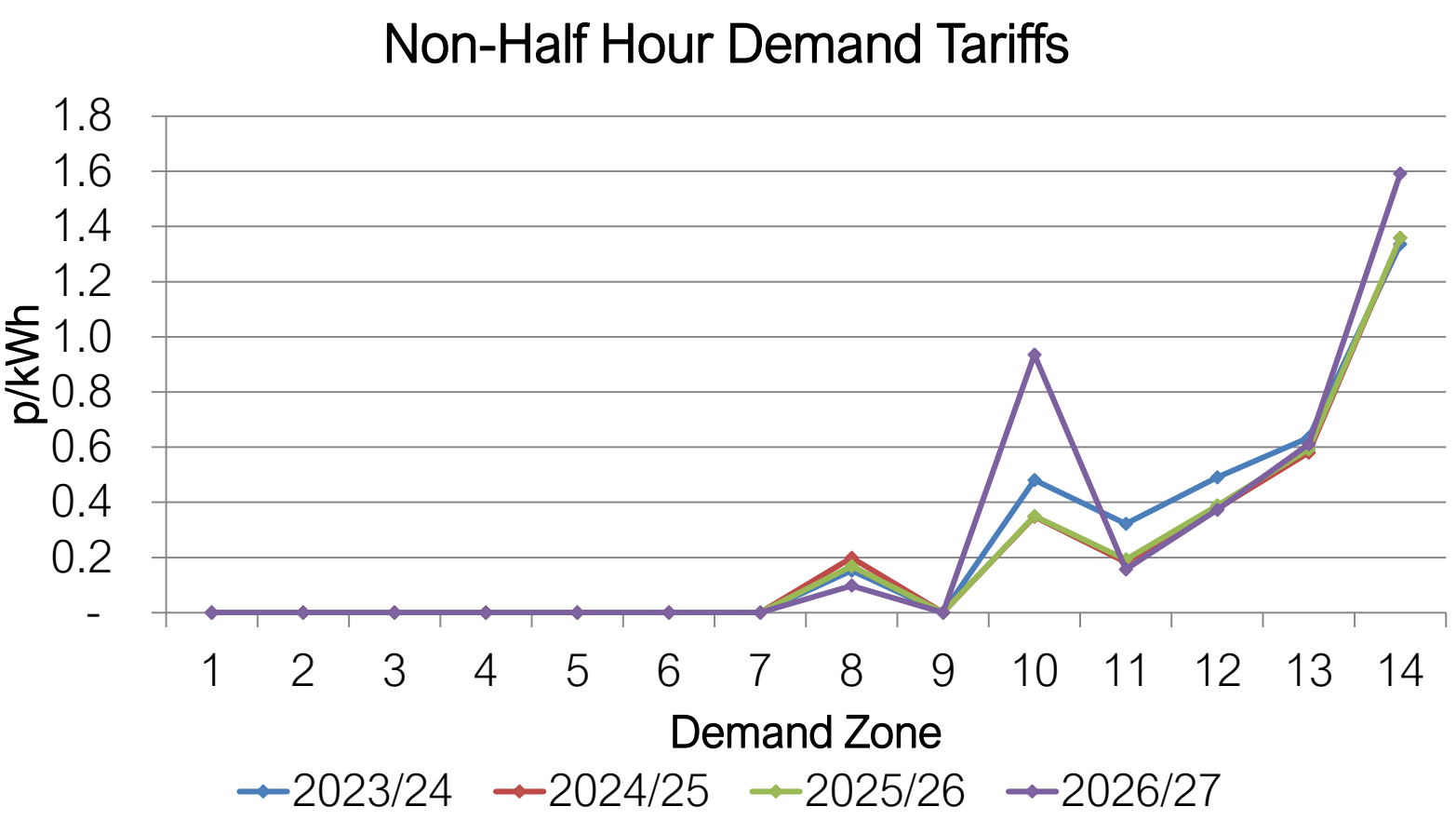


HH Tariffs	2023/24	2024/25	2025/26	2026/27
Average Tariff (£/kW)	1.87	1.60	1.61	1.84

From 2023/24 HH tariffs will no longer include the residual element of the demand charges

- Average tariff for 2023/24 £1.87/kW dropping marginally over the following years, then increasing in 2026/27 to £1.84/kW. 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
  - 2026/27 increase coincides with the increase overall demand revenue for that year

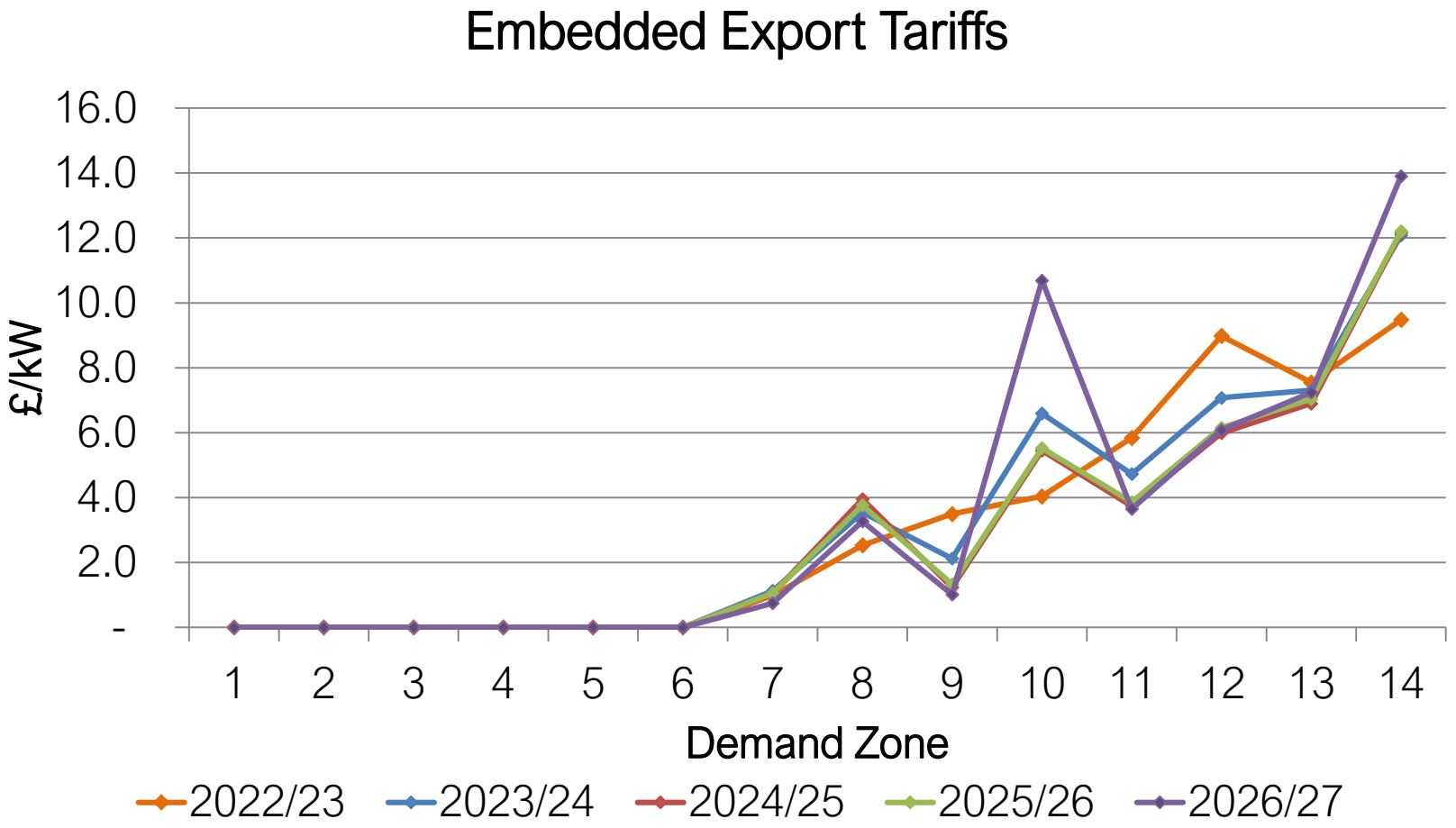
NHH Tariffs (2023/24 – 2026/27)



NHH Tariffs	2023/24	2024/25	2025/26	2026/27
Average (p/kWh)	0.23	0.21	0.21	0.23

- The introduction of TDR adjusts NHH Tariffs from 2023/24
- NHH will fluctuate marginally from 2023/24, decreasing by 0.2p/kWh to 0.21 p/kWh for 2024/25 – 2025/26. Then increase in 2026/27 back to 0.23p/kWh. The change in trend can be attributed to:
  - Proportion of revenue collected increases following HH recovery
  - NHH Charging base variation year on year
  - Fluctuations in overall demand revenue

Embedded Export Tariffs (2022/23 – 2026/27)



EET	2022/23	2023/24	2024/25	2025/26	2026/27
Average Tariff (£/kW)	2.14	2.06	1.88	2.05	2.18
Phased residual (£/kW)	-	-	-	-	-
AGIC (£/kW)	2.32	2.36	2.41	2.46	2.51

- The EET is not impacted by the TDR
- The EET for 22/23 has reduced vs 2021/22 due to the change locational demand.
- AGIC increases year on year in line with forecast inflation (CPIH)
- The largest jumps seen in 2022/23 and 2026/27 in relation to the change in the chargeable export volumes

Sensitivity Analysis

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Sensitivity analysis

- To help the industry to understand the potential implications of the ongoing proposed changes, we have undertaken further modelling around TDR
- included some sensitivities around connecting new interconnectors, based on customer feedback from our recent Charging Forum in February 2021

The sensitivity analysis that we undertook for 2022/23-2026/27 tariffs include –

- A scenario where the demand location tariffs are not floored when the TDR is implemented
- A scenario where we have different T-connected bandings for TDR
- A scenario where Gridlink interconnector does not connect in 2024/25
- A scenario where Eurolink interconnector does not connect in 2024/25

TDR – Floored / Unfloored locational tariffs Impact

- In current methodology the locational tariffs are floored, but are offset by the residual, so no charges/tariffs are negative (result in a credit)
- With the implementation TDR and the 'removal' of the demand residual from tariffs, CMP343 is considering;
  - Floored scenario, all tariffs <0 set at 0
  - Unfloored scenario, no adjustment to locational demand tariffs (both negative and positive tariffs)
- These two scenarios will result in a difference in revenue recovery through locational demand tariffs
  - Floored Total = £91m
  - Unfloored Total = - £112m
- This variance impacts the revenue to be recovered through the demand residual

		HH		NHH	
Zone	Zone Name	Floored (£/kW)	Unfloored (£/kW)	Floored (p/kWh)	Unfloored (p/kWh)
1	Northern Scotland	-	- 30.675279	-	- 4.084160
2	Southern Scotland	-	- 21.912795	-	- 2.788139
3	Northern	-	- 11.943236	-	- 1.469239
4	North West	-	- 5.710426	-	- 0.726413
5	Yorkshire	-	- 4.882721	-	- 0.598099
6	N Wales & Mersey	-	- 4.029323	-	- 0.493468
7	East Midlands	-	- 1.233411	-	- 0.155795
8	Midlands	1.183251	1.183251	0.152274	0.152274
9	Eastern	-	- 0.238656	-	- 0.032322
10	South Wales	4.227343	4.227343	0.480909	0.480909
11	South East	2.362135	2.362135	0.322148	0.322148
12	London	4.711316	4.711316	0.490426	0.490426
13	Southern	4.945049	4.945049	0.634257	0.634257
14	South Western	9.719020	9.719020	1.335608	1.335608
Revenue Recovery (£m)		35.63	-39.39	55.74	-72.49

Based on 2023/24 tariff forecast

TDR – Floored / Unfloored locational tariffs Impact – Banded tariffs

- The impact the unfloored / floored scenarios can be seen in the change in demand residual and the revenue to be recovered;
  - Floored = £2.4bn
  - Unfloored = £2.6bn
- Circa 8% increase in demand residual value Floored vs Unfloored
- This increase can be seen in the annual £/site charges
- Table shows distribution connected TNUoS demand residual banded charges

Band	Floored £/site	Unfloored £/site
Domestic	31.02	33.65
LV_NoMIC_1	15.04	16.31
LV_NoMIC_2	76.79	83.30
LV_NoMIC_3	179.87	195.10
LV_NoMIC_4	536.47	581.90
LV1	1,115.47	1,209.92
LV2	1,857.69	2,015.00
LV3	2,885.40	3,129.74
LV4	6,487.36	7,036.72
HV1	4,646.50	5,039.97
HV2	16,089.15	17,451.60
HV3	31,299.66	33,950.15
HV4	77,107.09	83,636.60
EHV1	27,071.26	29,363.69
EHV2	161,790.97	175,491.61
EHV3	344,891.66	374,097.48
EHV4	927,473.65	1,006,013.16
	p/kWh	p/kWh
Unmetered (UMS)	0.916177	0.993760
Demand Residual (£m)	2,400.1	2,603.3
Locational Rev. Recovery (£m)	91.4	- 111.9
Embedded Export (£m)	13.7	
Total Demand Revenue (£m)	2,477.7	

Based on 2023/24 tariff forecast

TDR – Floored / Unfloored locational demand tariffs Impact – T-connected Banded tarrifs

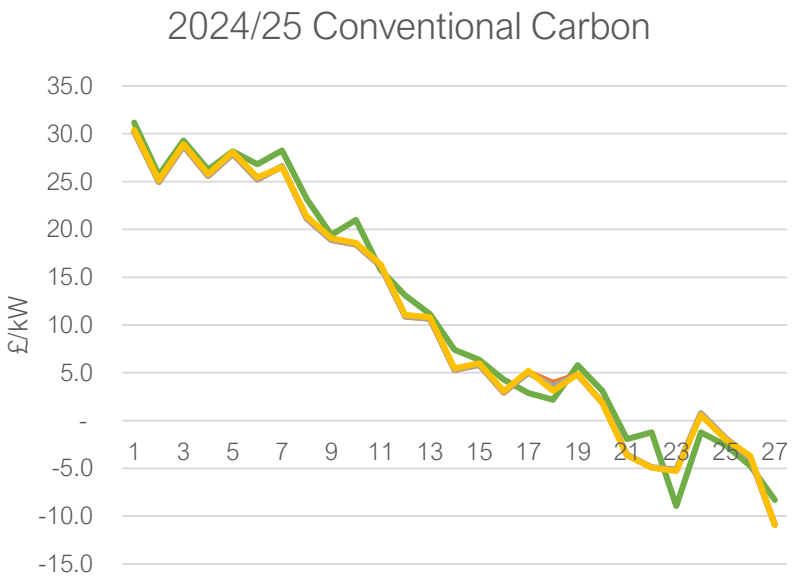
- Transmission connected banding options being considered through CMP343;
  - Based on consumption percentiles
    - Single band
    - 2 bands (85th)
    - 4 bands (40th, 70th and 85th)
  - Based on connection voltage
    - 2 bands (<=132kV, >132kV)
- Thresholds show how a final demand site will be allocated on a consumption basis
- Impact of floored and unfloored scenario on T-connected banding options shows circa 8% increase in annual £/site charge

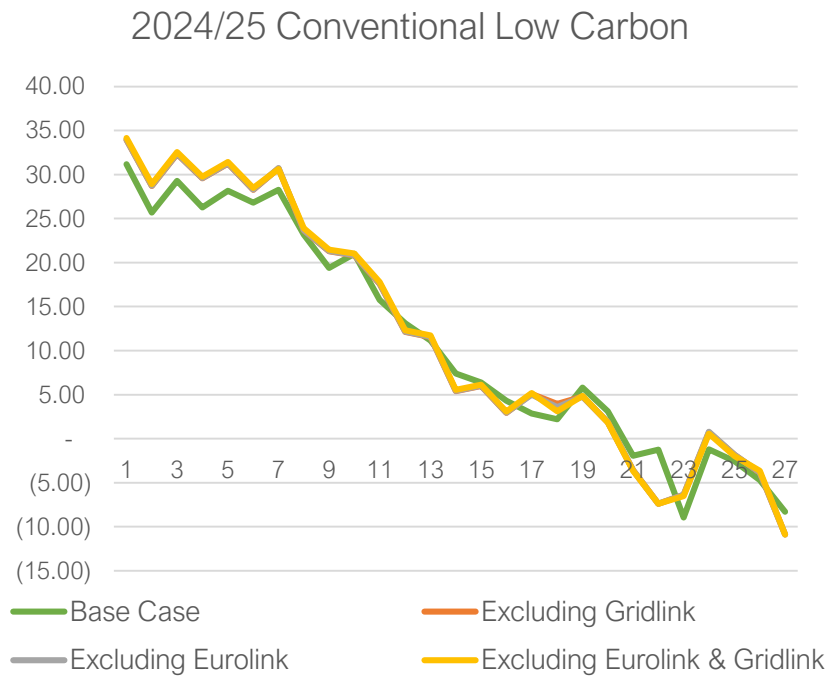
		Band (Percentiles/Volatge)	Floored £/site	Unfloored £/site	Thresholds (MWh) Lower	Thresholds (MWh) Upper
Transmission Connected	1 Band	T-Demand1 (No Split)	782,285.17	848,529.96		
	2 Bands (MWh)	T-Demand1 (<=85%)	412,235.91	447,144.51	-	139,931
		T-Demand2 (>85%)	2,961,464.19	3,212,244.29	139,932	∞
	4 Bands (MWh)	T-Demand1 (<=40%)	140,682.30	152,595.44	-	31,177
		T-Demand2 (>40% <=70%)	499,428.03	541,720.16	31,178	83,801
		T-Demand3 (>70% <=85%)	982,479.21	1,065,676.65	83,802	139,931
		T-Demand4 (>85%)	2,961,464.19	3,212,244.29	139,932	∞
	2 bands (Voltage)	T-Demand1 (<=132kV)	423,931.64	459,830.65		
		T-Demand2 (>132kV)	940,627.43	1,020,280.81		

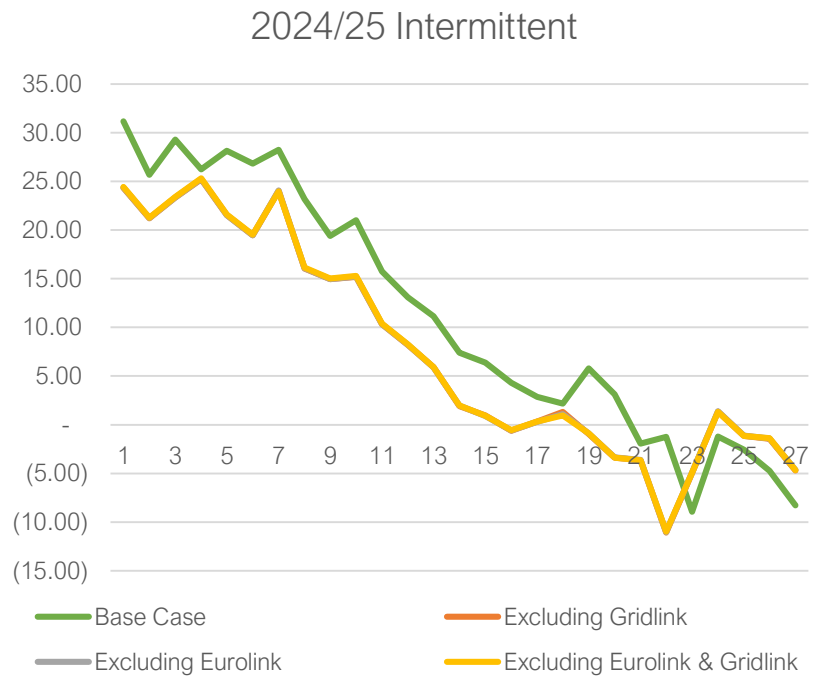
Demand Residual (£m)	2,400.1	2,603.3
Locational Rev. Recovery (£m)	91.4	- 111.9
Embedded Export (£m)	13.7	
Total Demand Revenue (£m)	2,477.7	

Based on 2023/24 tariff forecast

Impact of 2 new interconnectors connecting in 2024/25

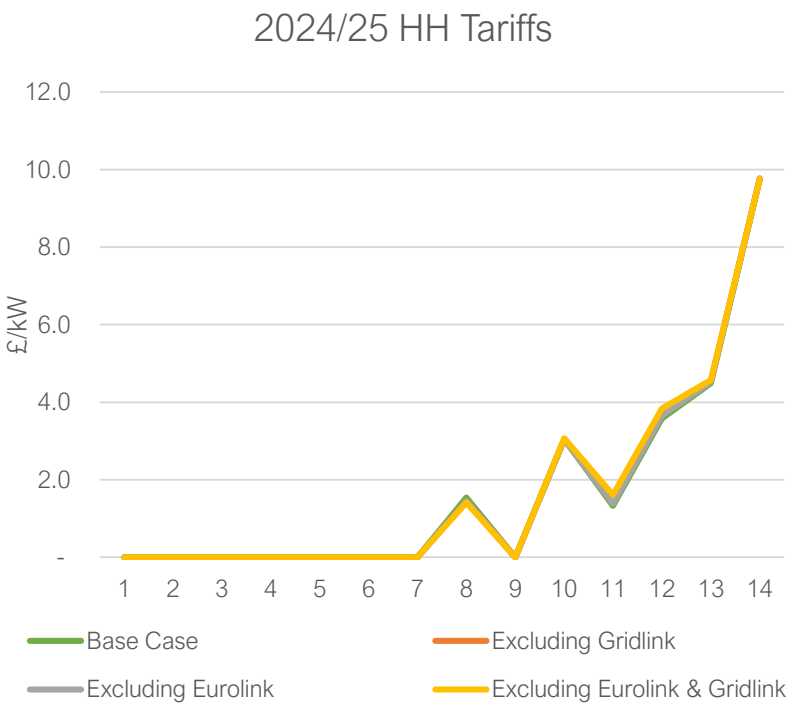


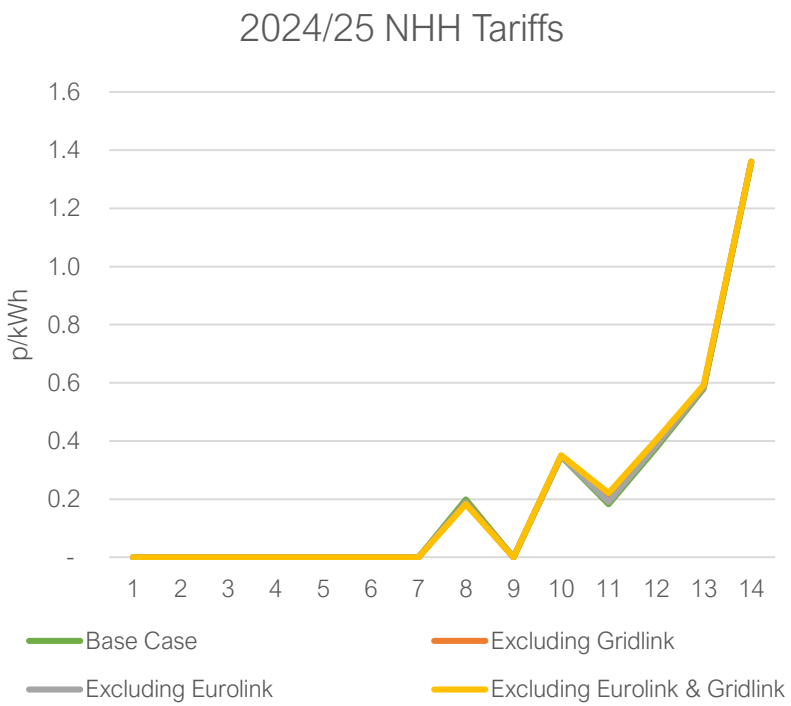


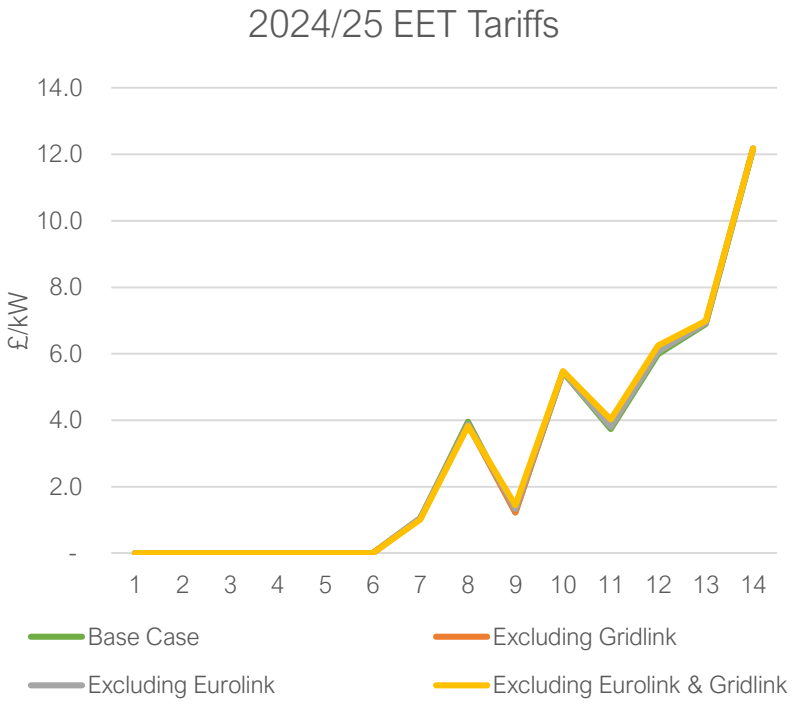


- The base case assumes Gridlink and Eurolink will connect in 2024/25
- For conventional carbon and conventional low carbon tariffs, there is little impact of the 2 interconnectors connecting
- There is a considerable increase in the intermittent tariffs due to the 2 interconnectors connecting, this is due to the year round shared decreasing and the year round not shared tariff increasing, causing the intermittent tariff to increase.
- The decrease in the south for intermittent is driven by the adjustment tariff decreasing and there not being a year round not shared tariff is most southern zones

Impact of 2 new interconnectors connecting in 2024/25







- There is little impact on demand tariffs

Next Steps

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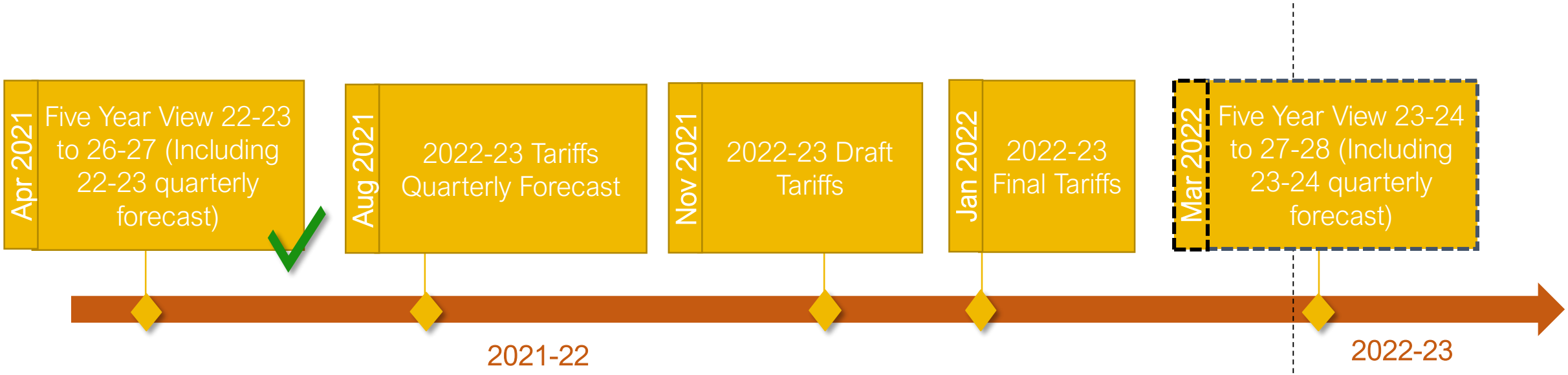
Tariff Timetable



- The next tariff forecast for 2022/23 is due August 2021
- The final tariffs for 2022/23 will be published in January 2022 and will apply from April 2022
- The TNUoS forecast timetable for 2023/24 will be published end of January 2022
- We endeavour to publish the next five-year view in March 2022 subject to the final forecast timetable

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.

Transport and Tariff Model Training

- We plan on running a Transport and Tariff Model training session this **June**. More details to be announced soon.
- Please provide suggestions and register your interest via TNUoS.queries@nationalgrideso.com

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

Q&A

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Impact of Covid-19 on tariffs: is the forecast assuming that the demand returns to pre-Covid levels from 23/24 onwards?

- We expect that the demand forecast from 23/24 would return towards the levels anticipated for these years before Covid. It should be noted however that we do anticipate some level of ongoing economic scarring to continue, therefore ongoing levels of demand are slightly down from previous forecast levels.

How are the "local charges associated with pre-existing transmission assets" within the EU cap determined, and how much revenue do these charges account for?

- The revenue from local charges associated with pre-existing asset are listed in table 24 and table 40, and the indicative figures are as below

	2022/23	2023/24	2024/25	2025/26	2026/27
Revenue from local charges associated with pre-existing assets (indicative) (£m)	1.94	2.10	3.69	18.42	19.27

- As the CUSC modification proposal is still being developed, we have made some assumptions when forecasting this item, based on our preliminary understanding of the proposal, and the data available to us. When the CUSC mod is implemented, we will revisit the assessment again.

Is the £41m under-recovery from 2020/21 included in allowed revenue for 2022/23? This is not identifiable in Table 35. Is the magnitude higher than prior years?

- The £41m under-recovery from 2020/21 was not included in 2022/23 revenue forecast, as we normally incorporate the final value in the forecast. We shared the figure in the report as we understand that the industry would like the early view.
- This figure is still indicative. Once it is refined and confirmed, we will include it in 2022/23 revenue forecast. The magnitude is roughly in line with prior years.

Generation revenue in the published report is shown as £829m; is this correct?

- Unfortunately, there was a reporting error in the published report. The correct number is £836m value quoted within these slides and the latest released of the report here. The tariffs are still correct.

Is it possible to get any high/low forecasts for the revenue to give an indication of what future changes might look like?

- The revenue figures are governed by Ofgem, and confirmed by TOs, as an input for tariff setting.
- Unfortunately, we do not have access to any additional information source (other than public-domain information) that enables us to predict the likely revenue figures. We therefore do not wish to mislead the industry by making “speculative” revenue forecast.
- Based on our knowledge on charging methodology, we have undertaken sensitivities that translate each +-£100m of revenue variation into the demand tariff delta. Hope this “rule of thumb” figure is useful for customers (please also see slide 60).

The E-HVDC link may cost £130m+/yr from 2024 (£3.4bn / 25 years). Will an estimate be included in the tariff forecasts/sensitivities given high materiality?

- If this project goes ahead, it will indeed have material impacts on (1) the total revenue figures during construction of the link (this impact may last 4 years), and (2) once the link is built, the ongoing impact on locational tariffs, particularly for zones that are close to the link.
- Changes to the total revenue figure have direct impact on the TDR tariffs (please see slide 60 for the sensitivity). As it is not clear (at this stage) whether this project will be given “greenlight” in the next five years, we have not included it in the revenue forecast.
- If the need case is approved and we know that the link will be completed within the next five years, we will also model the impacts on locational tariffs from the year it is expected to be completed.

There is a significant difference between 2020's 5 years forecast vs 2021's on gen tariffs due to the chargeable TEC assumptions. What is the driver for that?

- we have reviewed our generation forecasting process since the last 5YV. We now use a central case from the FES team to inform our best view. We believe this is a more accurate approach and it has caused a drop in expected TEC in future years.

Was NGESO using FES capacity assumptions for the chargeable TEC previously or this is a new approach for 2021's?

- We have previously used the published FES figures to make changes to our best view, however, the FES team now provide us with a detailed nodal view of generation which has allowed us to align more closely with the FES central case for generation capacity.

Could you expand on the new generation forecast process mentioned. Are you also aligning with other ESO publications e.g. summer/winter outlook for next year?

- To create our generation forecast, we take the published TEC, Embedded and Interconnector registers to create our contracted TEC forecast. We then contact the ESO Connections Team, to understand from the Customer Contract Managers if any generators are considering moving or terminating their connection but have not yet made a formal application. This is commercially sensitive information and is not published.
- The FES team then annually provide a central case generation forecast at a nodal level which we use to further refine our generation forecast. We do not use other publications ,like the summer/winter outlook. This is our modelled TEC forecast.
- We then remove TEC that is not chargeable, which are interconnectors, and this gives our chargeable TEC forecast.

Can NGESO share the tariff transport models with the data for this 5 years forecast?

- The external Transport and Tariff model will be published week commencing 31st May.

You have not done a sensitivity for Remote Island Wind this time showing the islands included in wider tariffs. is this now not a likely scenario?

- In the baseline forecast, one of the links (Orkney) is modelled as a wider circuit, and thus is included in wider tariff calculation.
- This is because according to the “embedded register”, published on the ESO’s website, and the planned work according to the construction agreements, both ends of the link will be “MITS nodes” under the CUSC definition, and therefore the link is part of the wider network.
- The latest five year forecast has not included sensitivities for remote island links. It is still possible that the flip between wider and local circuits will happen, based on the CUSC definition, however as we have undertaken the same sensitivity analysis in the past two years, we are hoping that impacts on tariffs because of this “flip” have now been recognised by the industry. In the TCMF when we discuss the sensitivities that people would like us to undertaken, this sensitivity was not mentioned, and therefore we have not included it this time.
- We are happy to undertake some sensitivities to support developers. Please contact us via the team .box if you would like to discuss.

Is it possible to have some industry input on the generation forecast approach e.g. through TCMF?

- We are happy to discuss our generation forecast further at TCMF.

Do you expect an increase to Triad demand from 23/24 once the triad avoidance benefit is removed by the TCR? If so, to what extent?

- Whilst this has not been factored into our latest 5-year view for TNUoS. We will be reviewing the impact that Triad avoidance (which is seen under current methodology) will have on demand in our future forecasts as we approach the introduction of the new charging methodology for demand and the implementation of the demand residual charging bands. There is an expectation that the benefit of Triad avoidance will be diminished with the new methodology and that peak demand will fluctuate with a potential for higher peaks and higher overall demand over the triad period.

Is there a similar rule of thumb for NHH customers to the +/- £50m revenue = +/- £1/kW? Both for current p/kWh and future £/site/year (domestic band)?

- For year 2022/23, based on the HH&NHH charging base forecast, the impacts of +£50m revenue on NHH tariffs are

Zone	Change (p/kWh)
1	0.133377
2	0.127925
3	0.123634
4	0.127473
5	0.122739
6	0.122798
7	0.126915
8	0.129333
9	0.136448
10	0.114270
11	0.137174
12	0.104711
13	0.129000
14	0.140172

- For year 2023/24, based on the TDR charging base forecast, the impacts of +£50m revenue on TDR domestic band is £0.646/site/year

How does Ofgem's recent direction on mandatory HH settlement impact TNUoS tariff setting (HH/NHH split?)

- There needs to be a review of the methodology for demand charges in light of the MHHS reform. We will provide updates via TCMF as this thinking develops.

Do local tariffs include or exclude the local charges from transmission assets which are within the EU gen cap?

- Ofgem has directed the ESO to raise a CUSC mod, to include local charges associated with pre-existing assets into the calculation of the EU gen cap. At the moment according to the CUSC methodology, we excludes local tariffs when forecasting the EU gen cap.
- This CUSC mod is still being discussed and developed by the workgroup, and we have made preliminary forecast on the figure, based on our preliminary understanding, and the data available to us.
- For individual generator users, the only impact (if the CUSC mod is implemented) is slight change to the “adjustment tariff”. Local tariffs for each generator will remain the same before and after this CUSC mod.

Will you be publishing the methodology used to calculate the fixed charge per site, and include a table similar to residual charging table in forecasts?

- We will be looking to publish guidance material on how the fixed charges are calculated soon. Visibility of these calculations can be seen in the eternal Transport and Tariff (DCFL ICRP) Models that we publish post publication.

What are the definitions of each band for the fixed charges (i.e. kV range)? And have these changed at all?

- The thresholds for the demand residual bandings for RIIO-2 can be found here. These were finalised and published in November 2020 by the ESO as the banding agent for TNUoS and DUoS (previous 5-year forecast was based on CMP343 workgroup June 2020 banding update). The banding / criteria for Transmission connected sites are still to be confirmed and the sensitivity analysis provided in the latest TNUoS 5-year view forecast publication shows the various options and potential thresholds.

Demand price signal between North and South has been flattened significantly. Can a similar reduction for generation zonal differences be expected soon?

- There are no upcoming changes that are expected to make a large impact to the generation tariffs now the Transmission Generation Residual (TGR) has been implemented. The Expansion Constant may impact how polarised the generation tariffs are, which could flatten the North-South curve.

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

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