TNUoS Tariffs Five Year View for 2024/25 – 2028/29 Webinar

NGESO Revenue Team

May 2023

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Agenda

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8	Demand tariffs
9	Sensitivity Analysis
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Tariff Forecasting & Setting Team

Nick Everitt

Forecasting, setting and billing TNUoS to recover around £4.58bn of revenue per year from generators and demand; in addition to BSUoS Forecasting and Tariff Setting.

Sarah Chleboun

- Overall TNUoS tariff setting
- Offshore revenue & local tariffs
- Local substation
- NGET Networks /Generation
- ALFs

Jo Zhou

- Long term TNUoS strategy development
- Network Model
- Onshore Local Circuits

Ishtyaq Hussain

- Demand
- EET
- TDR
- SHET Networks /Generation

Al-Marwah Az-zahra

- Revenue
- BSUoS Forecasting
- BSUoS Tariff Setting

Amala Thomas

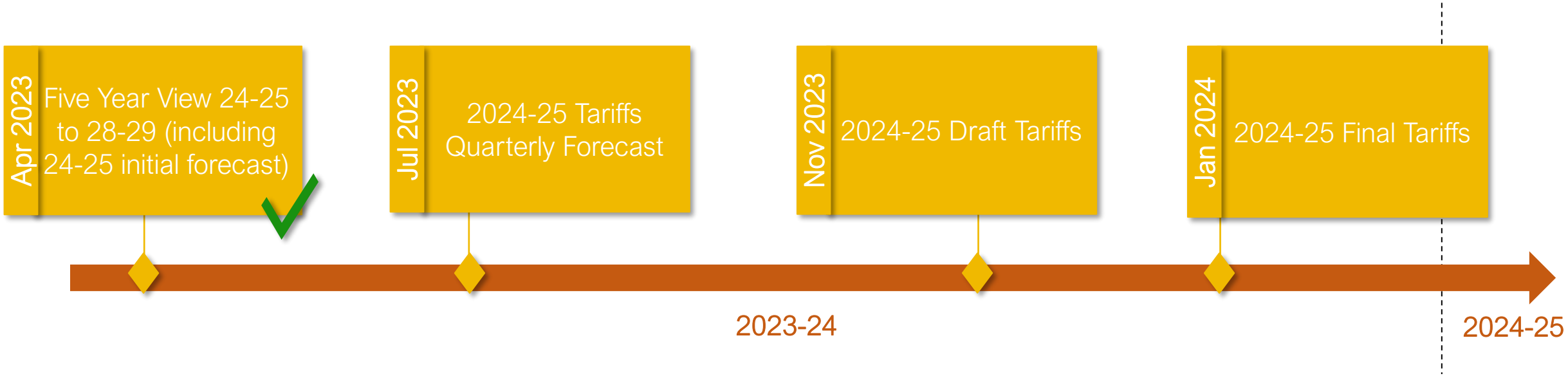
- SPT Networks / Generation

Katie Clark

- New Starter!
- BSUoS Forecasting
- BSUoS Tariff Setting

Tariff Timetable

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



- The tariffs for 2024/25 will be refined throughout the year.
- Final Tariffs for 2024/25 will be published by 31st January 2024 and will take effect from 1st April 2024.

TNUoS Forecast Changes & Uncertainties

There are several uncertainties over the next 5 years which we have taken into account in the setting of tariffs for 2024/25 onwards.

Regulatory Uncertainties

- A new price control will begin in 2026/27 which brings uncertainty regarding onshore TO revenues and charging parameters which are reset ahead of a new price control (some of which are also subject to CUSC modifications). We have assumed the continuation of current parameters since data required to recalculate them is not available until the year ahead of the new price control.

Sensitivities

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

- Revenue changes (impact on 2024/25)
- Future Generation & HVDC Cables
- TDR - Transmission sites

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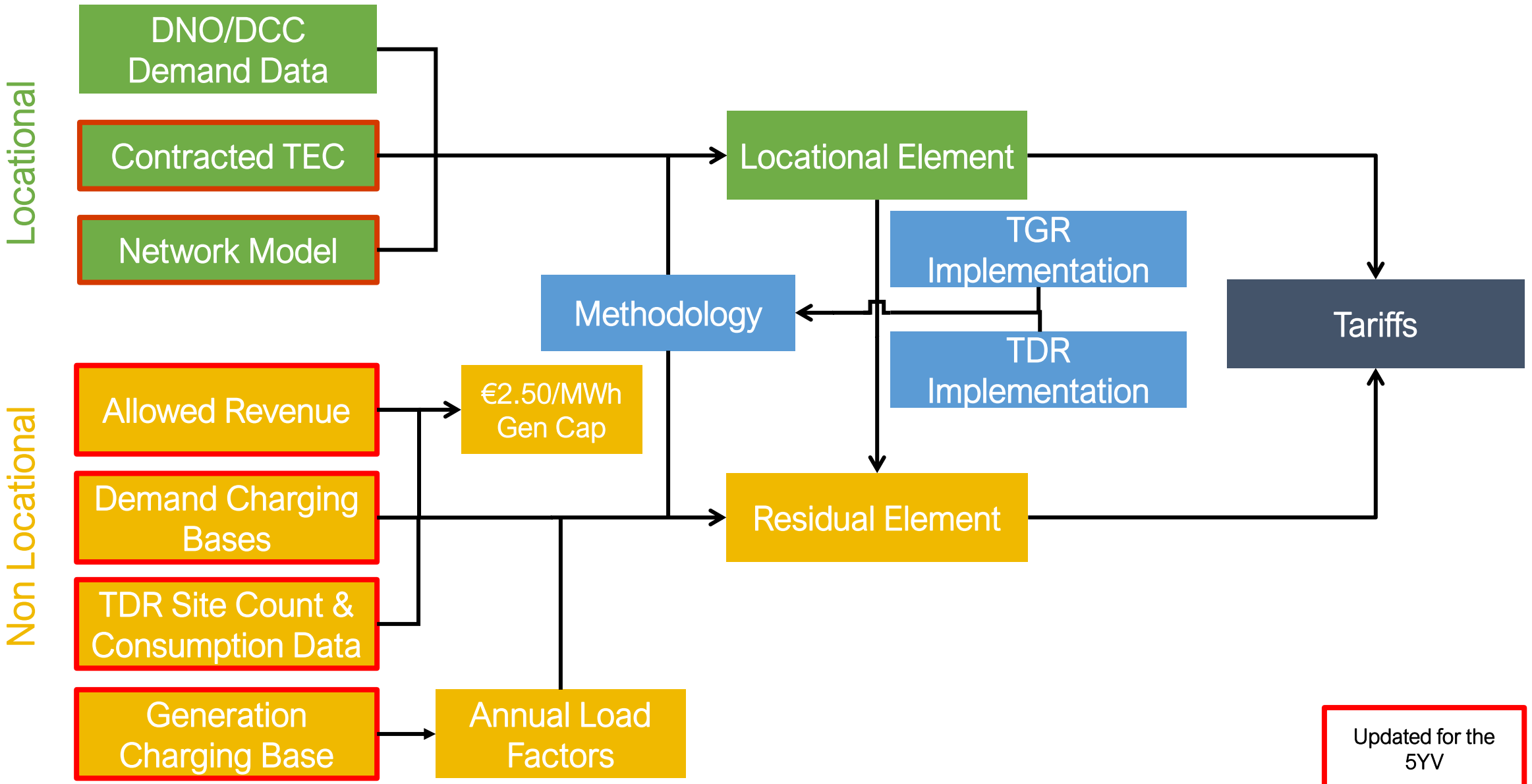
Key inputs and findings

Sarah Chleboun

Key Inputs for TNUoS Tariffs



Input changes in this tariff publication

		April 2023	July 2023	Draft Tariffs November 2023	Final Tariffs January 2024
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
Non-locational	OFTO Revenue (part of allowed revenue)	Forecast	Forecast	Forecast	NGESO 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	NGESO best view	NGESO best view	NGESO best view	NGESO final best view
	Generation ALFs	Previous year's data source		Draft ALFs published	Final ALFs published
	Generation Revenue (G/D split)	Forecast	Forecast	Forecast	Generation revenue £m fixed
	TDR Site Count and Consumption Data	Initial update using previous year's DN data		DN data updated	
		Transmission Data updated		Transmission Data updated	Transmission Data finalised

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

Key findings

Total Revenue

- The total TNUoS revenue is forecast at **£4.58bn** for FY24/25, (an increase of £159m from 2023/24). This is set to increase to **£5.32bn** in 2028/29, based on TOs latest data.

Generation

- Generation revenue is forecast to be **£1.01bn** for FY24/25, an increase of **£65.3m** from FY23/24 final tariffs.
- It is forecast to grow to **£1.36bn** by FY28/29, an increase of **£344.8m**, mainly driven by the increase in offshore generation local charges.
- The generation charging base for FY24/25 has been forecasted as **78GW** based on our best view, increasing to **109.9GW** in FY28/29.
- The average generation tariff for 2024/25 is forecast at **£12.94/kW**, an increase of £0.48/kW from 2023/24. It is expected to fluctuate with a high of **£13.12/kW** in 2025/26 and a low of **£11.30/kW** in 2026/27.

Demand

- Demand revenue for FY24/25 is forecast to be **£3.57bn,** an increase of **£94.6m** from FY23/24. This has been driven by the increase of total TNUoS revenue. From FY24/25 the demand revenue is forecast to increase year on year to **£3.96bn** by FY28/29 in-line with the year-on-year increase in total revenue.

Consumer Bill

- The impact on the end consumer is forecast to be **£46.60** for FY24/25, an increase of £1.45 from the 2023/24 Final tariffs. This is due to the increase in the demand revenue, driven by an overall increase in revenue. This is 4.03% of the average annual electricity consumer bill.

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Revenue

Marwah Az-zahra

TO Revenue

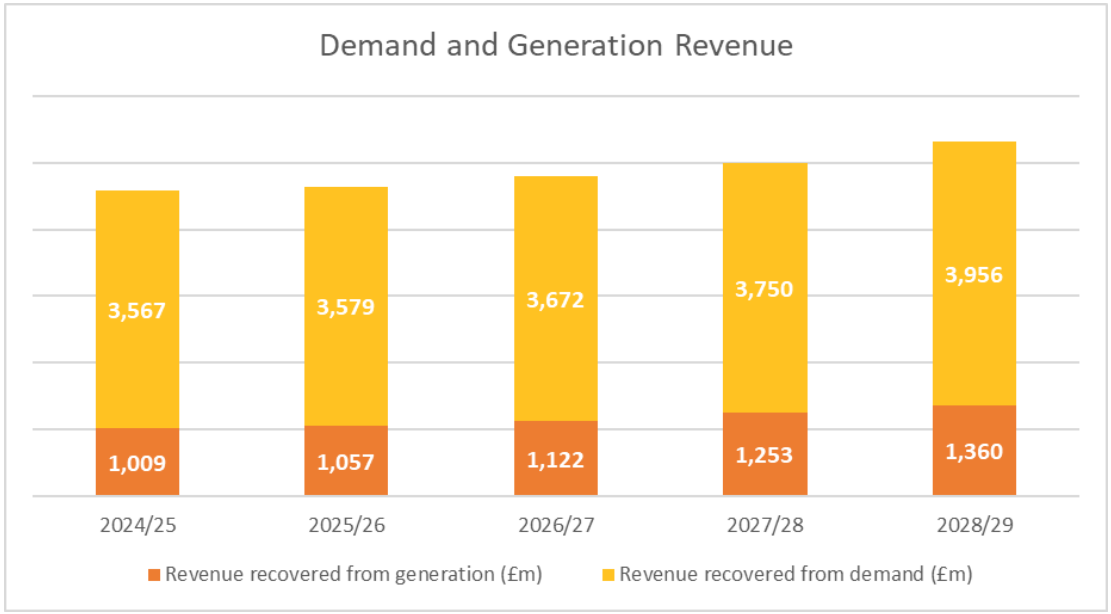
£m Nominal	2024/25	2025/26	2026/27	2027/28	2028/29
TO Income from TNUoS					
National Grid Electricity Transmission	2,223.1	2,254.1	2,358.6	2,405.8	2,453.9
Scottish Power Transmission	500.9	517.1	533.2	543.7	554.6
SHE Transmission	979.8	985.3	989.8	1,009.6	1,029.8
Total TO Income from TNUoS	**3,703.8**	**3,756.5**	**3,881.6**	**3,959.1**	**4,038.2**
Other Income from TNUoS					
Other Pass-through from TNUoS	120.2	92.2	92.2	92.2	92.2
Offshore (plus interconnector contribution / allowance)	751.9	786.9	819.3	951.1	1,185.6
Total Other Income from TNUoS	**872.1**	**879.0**	**911.5**	**1,043.2**	**1,277.7**
Total to Collect from TNUoS	**4,575.9**	**4,635.5**	**4,793.1**	**5,002.3**	**5,316.0**

- The total TNUoS revenue is forecast at £4.58bn for FY24/25, (an increase of £159m from 2023/24). This is set to increase to £5.32bn in 2028/29, based on TOs latest data.
- OFTO revenue is forecast to increase steadily in the next five years whilst onshore TOs revenues also increase (by a comparatively much smaller amount) under their RIIO-2 business plan.

Summary of revenue to be recovered

Revenue	2024/25	2025/26	2026/27	2027/28	2028/29
Total Revenue (£m)	4,575.87	4,635.53	4,793.12	5,002.28	5,315.95
Generation Output (TWh)	189.85	188.37	203.69	207.39	207.39
% of revenue from generation	22.1%	22.8%	23.4%	25.0%	25.6%
% of revenue from demand	77.9%	77.2%	76.6%	75.0%	74.4%
Revenue recovered from generation (£m)	1,009.27	1,056.53	1,121.56	1,252.76	1,360.37
Revenue recovered from demand (£m)	3,566.60	3,578.99	3,671.56	3,749.51	3,955.59

- The generation output is set to increase between 2024/25 and 2028/29. The % of revenue recovered from generation is set to increase by 3.5% from £1.01bn to £1.36bn.
- Despite the 3.5% decrease in revenue to be recovered from Demand, a £389m increase is forecasted between 2024/25 and 2028/29, which is in line with the year-on-year increase in total TNUoS revenue.



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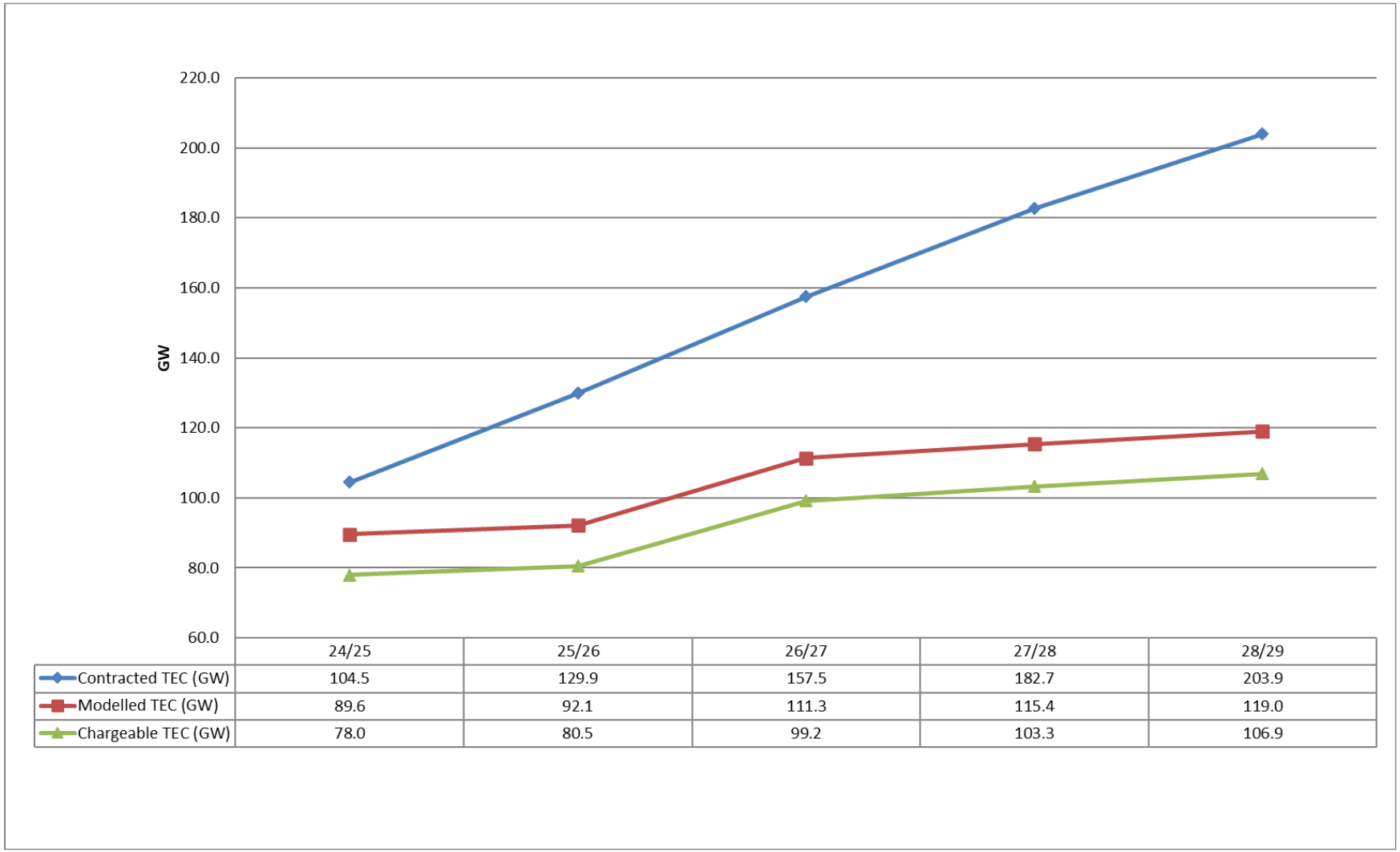
Generation Tariffs

Sarah Chleboun

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



	24/25	25/26	26/27	27/28	28/29
Contracted TEC (GW)	104.5	129.9	157.5	182.7	203.9
Modelled TEC (GW)	89.6	92.1	111.3	115.4	119.0
Chargeable TEC (GW)	78.0	80.5	99.2	103.3	106.9

Generation Tariffs

- The Limiting Regulation requires the total TNUoS recovery from generators to be within the range of €0-2.50/MWh on average.
- All local onshore and local offshore tariffs are excluded in the Limiting Regulation €2.50/MWh cap for generator transmission charges, except for TNUoS local charges associated with pre-existing assets following the approval of CMP391.
- The adjustment tariff was introduced to ensure compliance with the €2.50/MWh cap. It is forecast to decrease, to become more negative, changing from -£1.296/kW in 2024/25 to -£6.205/kW by 2028/29.

Generation Tariffs (£/kW)	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Adjustment Tariff	- 0.928179	- 1.296387	- 2.167565	- 3.296961	- 5.281116	- 6.205011
Average Generation Tariff*	12.454583	12.937121	13.121493	11.303263	12.127407	12.721659

- *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*

- The average generation tariff is forecast to be £12.94/kW for 2024/25, an increase of £0.48/kW since 2023/24. It is expected to fluctuate with a high of £13.12/kW in 2025/26 and a low of £11.30/kW in 2026/27.

Generation TNUoS Tariffs – Wider tariffs

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

Peak Security

Year Round Shared

Year Round Not Shared

Generator Adjustment

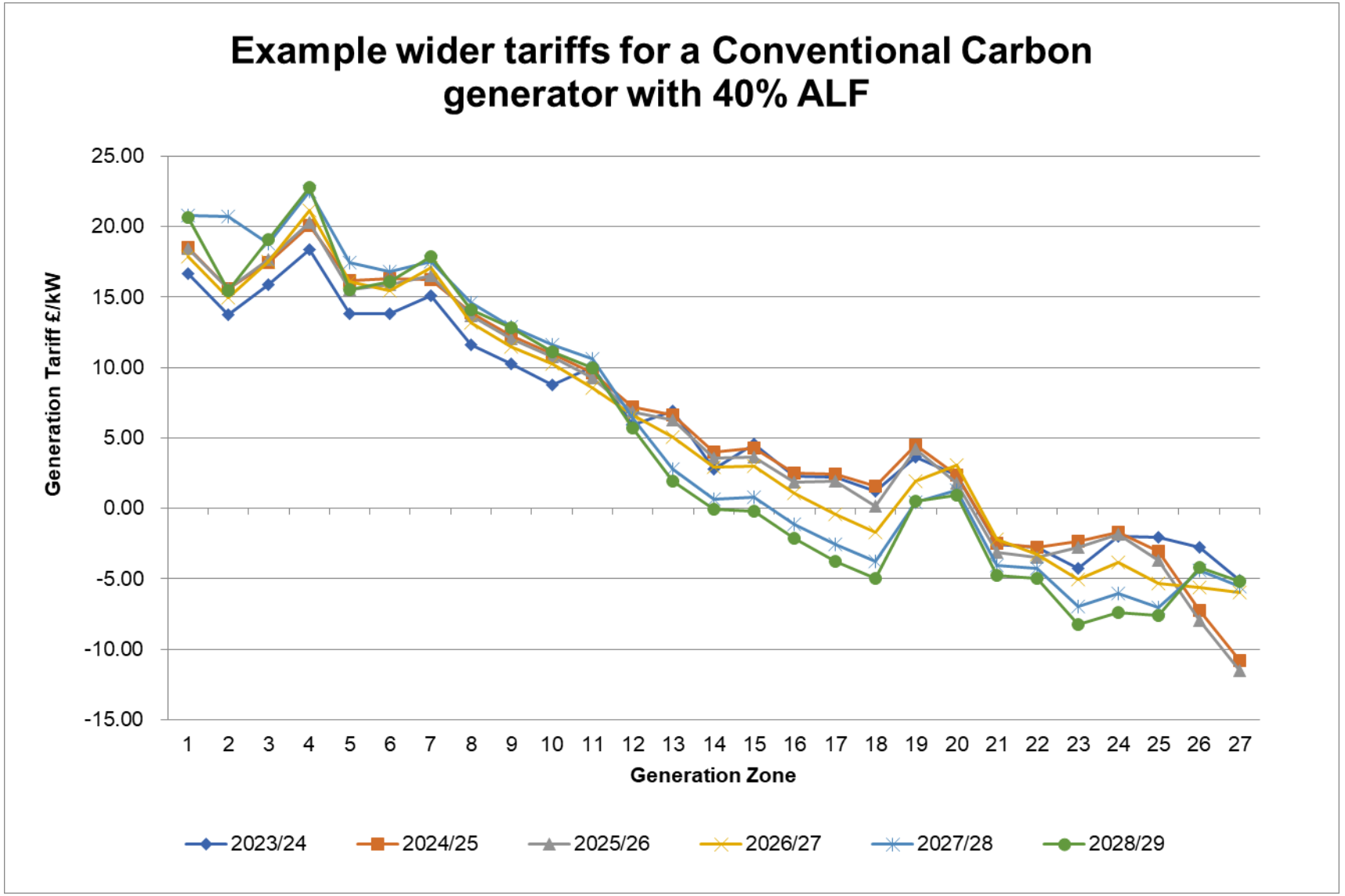
Year Round Shared and Year Round Not Shared elements are multiplied by Annual Load Factors (ALFs) dependent on generation type

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

Conventional Carbon 40%	Conventional Low Carbon 75%	Intermittent 45%
Biomass	Nuclear	Offshore wind
CCGT/CHP	Hydro	Onshore wind
Coal		Solar PV
OCGT/Oil		Tidal
Pumped storage		
Battery storage		
Reactive Compensation		

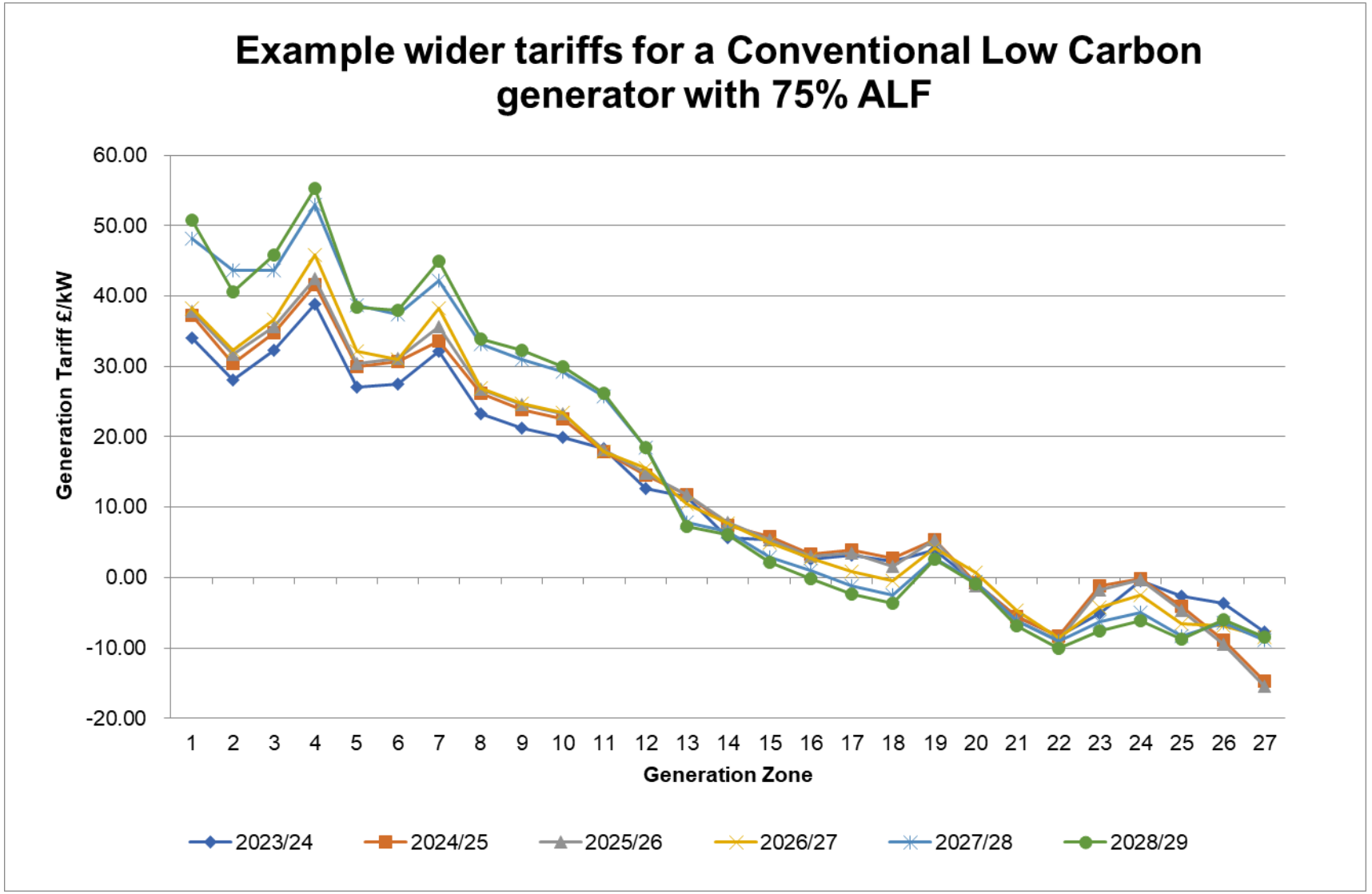
Generation Tariffs – Conventional Carbon

- In general, tariffs increase in magnitude over the 5 years.
- The variance across years is more pronounced in negative tariff zones due to the impact of the adjustment tariff



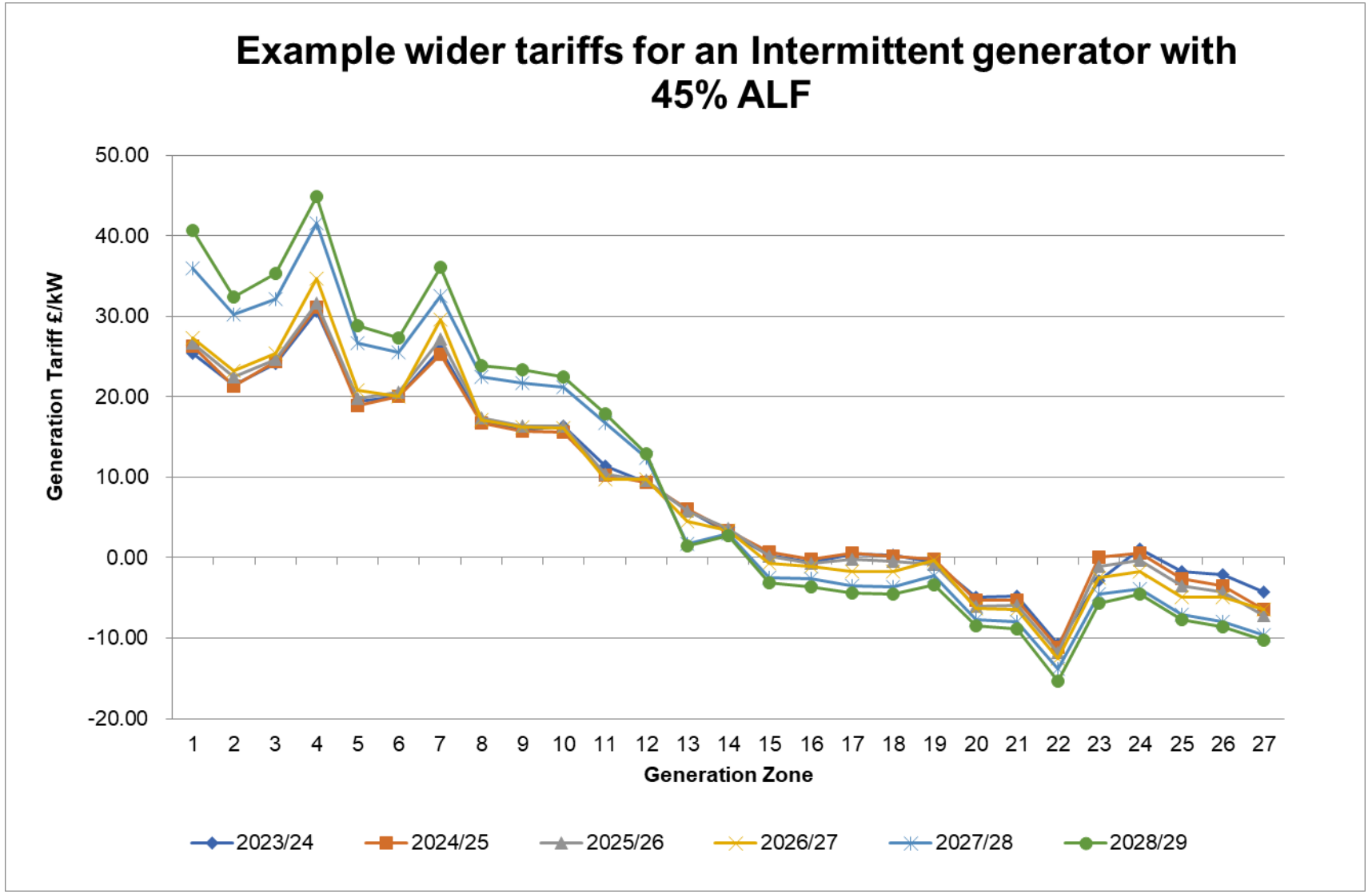
Generation Tariffs – Conventional Low Carbon

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



Generation Tariffs – Intermittent

- Tariffs largely follow a similar profile to Conventional Low Carbon generators, but tariffs are slightly lower since they do not pay peak security tariffs
- Increases in tariff for Scottish zones in 2027/8 onwards due to the new HVDC



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Local Tariffs

Jo Zhou/Sarah Chleboun

Onshore Local Substation Tariffs

- Onshore local substation tariffs will be inflated annually, in line with the increase of May-Oct CPIH
- The local substation tariffs for 2024/25 will be refined in July and finalised in the Draft forecast in November, and so remain unchanged in the Final tariffs

Indicative local substation tariffs for 2024/25

2024/25 Local Substation Tariff (£/kW)				
Substation Rating	Connection Type	132kV	275kV	400kV
<1320 MW	No redundancy	0.172296	0.086151	0.059423
<1320 MW	Redundancy	0.363046	0.184396	0.130933
≥1320 MW	No redundancy	-	0.253111	0.180208
≥1320 MW	Redundancy	-	0.380890	0.273953

Onshore Local Circuits Tariffs

- Local circuits models for 2024/25 will be refined and will be locked down by the Draft Tariffs in November.
- We list the local circuit tariffs for non-MITS sites that are forecast to have directly-connected generators in the specific charging year.
- Tariffs can be positive or negative, depending on the "incremental" impact on the local networks.

Connection Point	2024/25 (£/kW)	2025/26 (£/kW)	2026/27 (£/kW)	2027/28 (£/kW)	2028/29 (£/kW)
Aberarder	0.912782	0.933776	0.958055	0.982006	1.006556
Aberdeen Bay	3.212994	3.286893	3.372352	3.456661	3.543078
Achruach	- 2.977959	- 3.045935	- 3.123723	- 3.204249	- 3.283797
Aigas	0.811716	0.830386	0.851976	0.873275	0.895107
An Suidhe	- 1.109392	- 1.134394	- 1.162487	- 1.193979	- 1.223268

For full details of this table see Table 11 in the report / published tables file

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.
- Most tariffs have increased, due to updates to the inflation forecast.
- Projects expected to asset transfer during 2023/24 onwards will have tariffs calculated once asset transfer has taken place.

Offshore Generator	2024/25 April Tariff Component (£/kW)		
	Substation	Circuit	ETUoS
Barrow	11.134985	58.825554	1.460719
Beatrice	9.010706	24.705826	-
Burbo Bank	13.995676	27.049353	-
Dudgeon	20.470887	32.119137	-
East Anglia 1	12.117844	51.140519	-
Galloper	20.954722	33.142047	-
Greater Gabbard	20.746588	48.009690	-
Gunfleet	24.232095	22.346339	4.176659
Gwynt y mor	26.282176	25.984717	-
Hornsea 1A	9.354532	33.097796	-
Hornsea 1B	9.354532	33.097796	-
Hornsea 1C	9.354532	33.097796	-
Humber Gateway	15.467207	35.487094	-
Lincs	21.472178	84.442733	-
London Array	14.571479	49.960015	-
Ormonde	34.235246	63.993096	0.509971
Race Bank	12.396606	34.431070	-
Rampion	10.126833	26.491366	-
Robin Rigg	- 0.751420	42.652171	13.665484
Robin Rigg West	- 0.751420	42.652171	13.665484
Sheringham Shoal	32.029732	37.723242	0.819992
Thanet	24.458725	45.823477	1.103133
Walney 1	29.568906	59.115760	-
Walney 2	27.509530	55.984634	-
Walney 3	12.733863	25.798043	-
Walney 4	12.733863	25.798043	-
West of Duddon Sands	11.388199	56.768683	-
Westermost Rough	23.155996	39.408562	-

For a full breakdown of each of the five years please see Table 13 in the published tables file

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Demand Forecasts

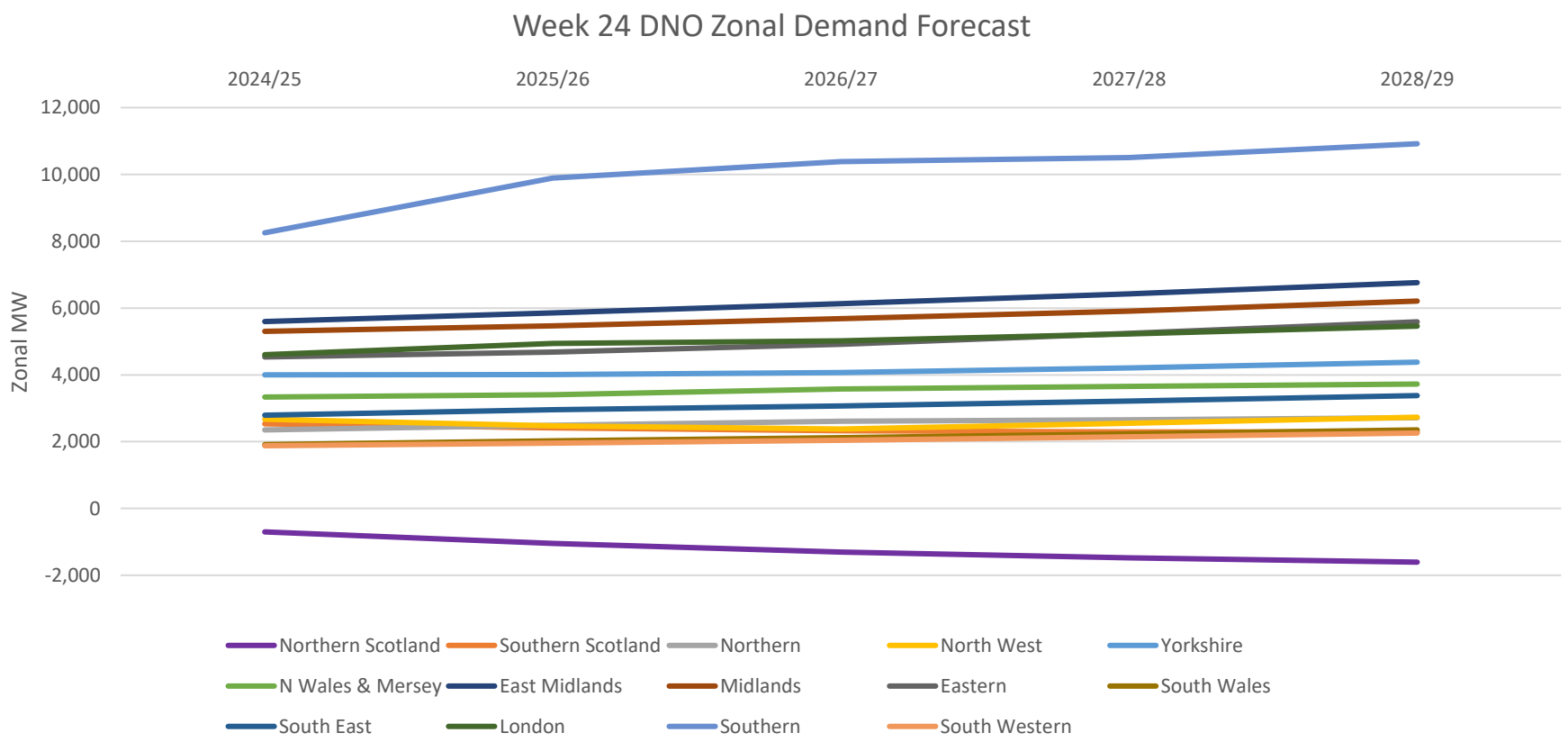
Ishtyaq Hussain

System Peak, HH/NHH demand & Chargeable Export Forecast

		5yr Tariffs				
Charging Bases	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Average System Demand at Triad (GW)	49.96	49.65	50.60	51.30	51.99	53.37
Average HH Demand at Triad (GW)	18.46	18.16	18.48	18.74	18.93	19.54
Chargeable Export Volume (GW)	7.63	7.11	7.72	7.94	9.08	8.93
NHH Demand (4pm-7pm TWh)	24.23	24.91	25.19	25.56	25.82	26.08

- There has been a reduction of 0.31GW in the overall system demand forecast in 2024/25 since the Final forecast. We then see a year-on-year increase overall system demand.
- Chargeable Export Volume forecast has reduced in 2024/25 since Final Tariffs with a 0.52GW reduction to 7.11GW. The export volumes will then increase year-on-year to 9.08GW in 2027/28 before reducing slightly to 8.93GW for 2028/29.
- NHH forecast has seen an increase by 0.68GW to 24.91GW in 2024/25 compared to Final tariffs. We then see a year-on-year increase to 26.08TWh in 2028/29.
- HH forecast has seen a reduction by 0.3GW to 18.16GW in 2024/25 compared to Final tariffs. We then see a year-on-year increase to 19.54GW in 2028/29.

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.

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Demand Tariffs

Ishtyaq Hussain

Demand Tariffs

- Since the publication of 2023/24 charging year, average HH & NHH demand tariffs have seen a small increase for 2024/25, the main driver being the increase in the total amount of revenue to be recovered through TNUoS locational element of demand tariffs.

- The current tariffs indicate that the HH/NHH locational tariffs will reduce year on year. HH tariffs will reduce from £6.38kW in 2024/25 to £4.65kW in 2028/29. NHH tariffs will reduce from £0.30p/kWh in 2024/25 to £0.20p/kWh in 2028/29. This is due to locational HH/NHH revenue recovery reducing year on year.

Non-locational Banded Tariffs	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Average (£/site/annum)		107.454341	108.055308	111.392763	113.838488	120.257821
Unmetered (p/kWh)		1.281006	1.288170	1.327957	1.357114	1.433641
Demand Residual (£m)	3,388	3,470	3,490	3,597	3,676	3,884

HH Tariffs (Locational)	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Average Tariff (£/kW)	5.589311	6.380539	5.931152	4.918141	4.867896	4.658341
Residual (£/kW)						

EET	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Average Tariff (£/kW)	2.546101	2.803593	2.677215	2.321281	2.140200	2.187894
Phased residual (£/kW)	-	-	-	-	-	-
AGIC (£/kW)	2.547308	2.679246	2.740869	2.812132	2.882435	2.954496
Embedded Export Volume (GW)	7.629109	7.109080	7.722083	7.942164	9.083504	8.931698
Total Credit (£m)	19.4	19.9	20.7	18.4	19.4	19.5

NHH Tariffs (locational)	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Average (p/kWh)	0.267067	0.304654	0.286364	0.230580	0.224899	0.216648

TDR Banded Charges

- Changes in demand residual banded tariffs are impacted by;
  - Changes in overall demand revenue
  - Changes in demand residual revenue - *Proportion of demand revenue not attributed to the locational element of demand tariffs*
  - *Prior year site counts and consumptions as per band thresholds. i.e. 2024/25 final tariffs will be based on 2022/23 final site counts and consumptions across each band*
- As per the CMP343 decision, locational demand tariffs are floored with 4 T-connected bands
- Site counts and consumptions have been updated since the previous 5YV inline with the published thresholds and using 2021/22 out-turn data. 2023/24 tariffs will be refined for Draft tariffs with 2021/22 out-turn data.

Band		2024/25	2025/26	2026/27	2027/28	2028/29
Domestic	Tariff - £/Site/Day	0.122804	0.123491	0.127305	0.129745	0.137437
LV_NoMIC_1		0.062712	0.063063	0.065011	0.066257	0.070185
LV_NoMIC_2		0.285396	0.286992	0.295856	0.301526	0.319402
LV_NoMIC_3		0.680577	0.684383	0.705521	0.719041	0.761669
LV_NoMIC_4		2.113158	2.124976	2.190610	2.232590	2.364947
LV1		3.413915	3.433008	3.539042	3.606863	3.820693
LV2		6.267853	6.302908	6.497583	6.622100	7.014685
LV3		10.200939	10.257990	10.574824	10.777476	11.416409
LV4		22.978865	23.107381	23.821088	24.277587	25.716860
HV1		17.780681	17.880125	18.432380	18.785611	19.899299
HV2		57.233281	57.553373	59.330998	60.467996	64.052784
HV3		112.375399	113.003889	116.494188	118.726641	125.765237
HV4		285.210732	286.805849	295.664290	301.330294	319.194375
EHV1		134.582173	135.334860	139.514886	142.188499	150.618009
EHV2		661.728347	665.429240	685.982047	699.127960	740.575098
EHV3		1,334.256581	1,341.718768	1,383.159819	1,409.666197	1,493.236920
EHV4		3,633.571743	3,653.893466	3,766.749595	3,838.934229	4,066.521803
T-Demand1		346.713214	348.652301	359.420964	366.308778	388.025047
T-Demand2		1,431.991398	1,440.000193	1,484.476818	1,512.924798	1,602.617109
T-Demand3		3,990.924147	4,013.244459	4,137.199697	4,216.483504	4,466.453728
T-Demand4		10,429.434588	10,487.763993	10,811.694742	11,018.886172	11,672.130384
Unmetered demand				**p/kWh**		
Unmetered		1.281006	1.288170	1.327957	1.357114	1.433641
Demand Residual (£m)		**3,470.11**	**3,489.52**	**3,597.30**	**3,676.28**	**3,883.59**

TDR Banded Charges

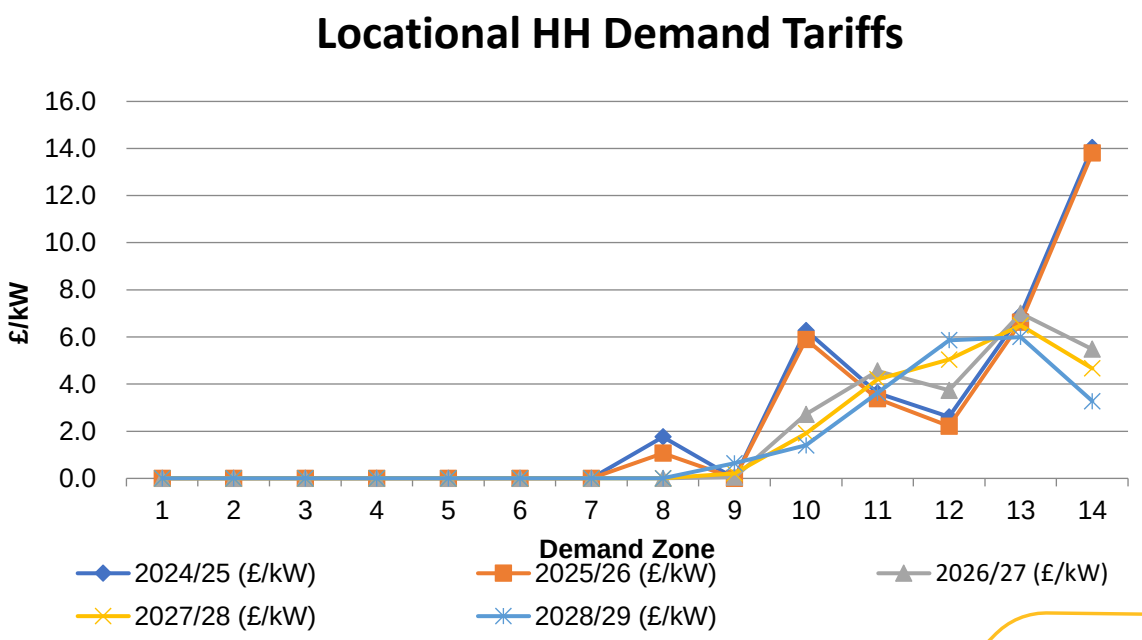
	Band	Tariff	Percentile	Threshold (kWh/MWh or kVA)		Consumption (GWh)	Consumption Proportion %
				Lower	Upper		
	Domestic	Tariff - £/Site/Day				103,177	38.09%
kWh	LV_NoMIC_1		<= 40%	-	<= 3,571	1,631	0.60%
	LV_NoMIC_2		40 - 70%	> 3,571	<= 12,553	5,647	2.08%
	LV_NoMIC_3		70 - 85%	> 12,553	<= 25,279	6,733	2.49%
	LV_NoMIC_4		> 85%	> 25,279	∞	20,450	7.55%
kVA	LV1		<= 40%	-	<= 80	7,935	2.93%
	LV2		40 - 70%	> 80	<= 150	11,785	4.35%
	LV3		70 - 85%	> 150	<= 231	7,305	2.70%
	LV4		> 85%	> 231	∞	19,707	7.27%
	HV1		<= 40%	-	<= 422	4,301	1.59%
	HV2		40 - 70%	> 422	<= 1,000	12,616	4.66%
	HV3		70 - 85%	> 1,000	<= 1,800	9,733	3.59%
	HV4		> 85%	> 1,800	∞	27,313	10.08%
	EHV1		<= 40%	-	<= 5,000	1,879	0.69%
	EHV2		40 - 70%	> 5,000	<= 12,000	4,827	1.78%
	EHV3		70 - 85%	> 12,000	<= 21,500	5,132	1.89%
	EHV4		> 85%	> 21,500	∞	14,287	5.27%
MWh	T-Demand1		<= 40%	-	<= 33,548	286	0.11%
	T-Demand2		40 - 70%	> 33,548	<= 73,936	775	0.29%
	T-Demand3		70 - 93%	> 73,936	<= 189,873	1,478	0.55%
	T-Demand4		> 93%	> 189,873	∞	1,486	0.55%
Unmetered demand							
	Unmetered	p/kWh				2,404	0.89%

- Site counts and consumption data has remained the same since Final tariffs for DNO bandings.
- Our next update to DNO/IDNO site count / consumption data is expected in October 2023.
- The transmission connected out-turn demand data 2021/22 has been used to update the 5YV forecast.

HH Demand Tariffs

- The HH tariff (£/kW) will continue to be based on average demand taken over the triad periods but will only be reflective of the zonal locational demand tariffs. As such, the majority of the HH revenue would be collected through the demand residual banded tariffs on a fixed £ per site per day basis.
- In 2024/25 the average locational HH tariffs is forecast at £6.38/kW, which will then decrease to £4.65/kW in 2028/29.

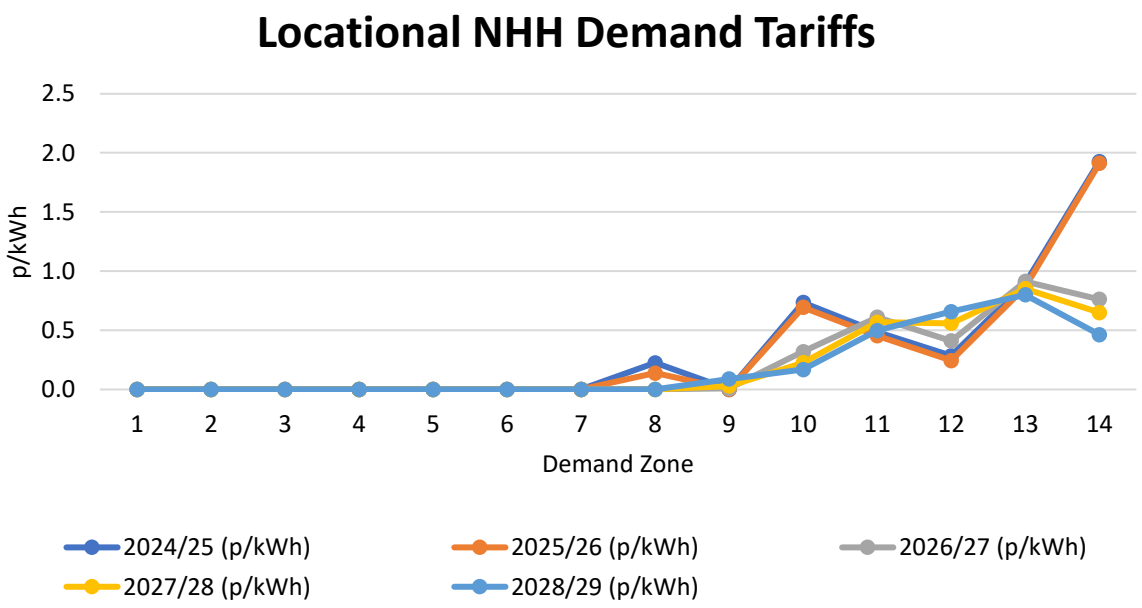
Zone	Zone Name	2024/25 (£/kW)	2025/26 (£/kW)	2026/27 (£/kW)	2027/28 (£/kW)	2028/29 (£/kW)
1	Northern Scotland	-	-	-	-	-
2	Southern Scotland	-	-	-	-	-
3	Northern	-	-	-	-	-
4	North West	-	-	-	-	-
5	Yorkshire	-	-	-	-	-
6	N Wales & Mersey	-	-	-	-	-
7	East Midlands	-	-	-	-	-
8	Midlands	1.763180	1.068878	-	-	-
9	Eastern	-	-	0.052917	0.209739	0.637507
10	South Wales	6.278841	5.896957	2.719665	1.912830	1.401975
11	South East	3.623300	3.375723	4.556362	4.203869	3.629039
12	London	2.609311	2.214430	3.737599	5.037798	5.864258
13	Southern	6.926894	6.619773	7.002205	6.490086	6.000318
14	South Western	14.042811	13.802001	5.484301	4.668582	3.275265



NHH Tariffs

- The average NHH tariff forecast for 2024/25 is 0.30p/kWh, a 0.04p/kWh increase compared to 2023/24 final tariffs, due to the change in NHH locational demand revenue recovery. The locational NHH tariff is forecast to reduce year-on-year through from 0.30p/kWh in 2024/25 to 0.22p/kWh in 2028/29.
- Fluctuations in zonal tariffs can be attributed to:
  - Increase in overall demand revenue
  - Changes in the HH and NHH charging bases (overall and zonal changes) and the proportion of demand revenue to be recovered across each, respectively.

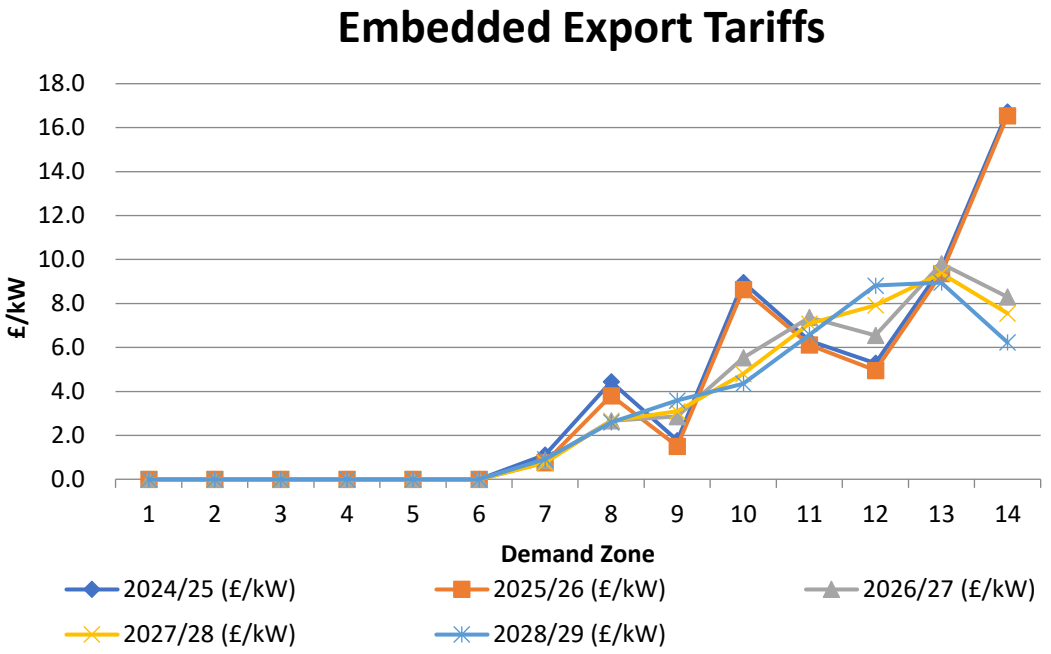
Zone	Zone Name	2024/25 (p/kWh)	2025/26 (p/kWh)	2026/27 (p/kWh)	2027/28 (p/kWh)	2028/29 (p/kWh)
1	Northern Scotland	-	-	-	-	-
2	Southern Scotland	-	-	-	-	-
3	Northern	-	-	-	-	-
4	North West	-	-	-	-	-
5	Yorkshire	-	-	-	-	-
6	N Wales & Mersey	-	-	-	-	-
7	East Midlands	-	-	-	-	-
8	Midlands	0.224463	0.137521	-	-	-
9	Eastern	-	-	0.007201	0.028560	0.087993
10	South Wales	0.733922	0.693944	0.319452	0.225166	0.166640
11	South East	0.484006	0.452938	0.609142	0.568071	0.496822
12	London	0.283072	0.242708	0.410134	0.558288	0.656625
13	Southern	0.896341	0.863105	0.913203	0.851039	0.799172
14	South Western	1.925577	1.910831	0.761119	0.649512	0.462259



Embedded Export

- In this forecast of the EET, one of the key changes is the continuing inflation of the AGIC. In 2024/25 the AGIC is forecast at £2.67/kW (an increase of £0.13/kW from 2023/24 final tariffs), increasing to £2.95/kW by 2028/29.
- The fluctuation in the demand locational tariffs over the next 5 years also play their part, as well the changes in the forecast of embedded export. In 2024/25 the average EET is forecast at £2.80/kW, which is an increase of £0.26/kW in comparison to 2023/24 Final tariffs. Over the 5 years the average EET will reduce from £2.80/kW in 2024/25 to £2.19/kW in 2028/29.

Zone	Zone Name	2024/25 (£/kW)	2025/26 (£/kW)	2026/27 (£/kW)	2027/28 (£/kW)	2028/29 (£/kW)
1	Northern Scotland	-	-	-	-	-
2	Southern Scotland	-	-	-	-	-
3	Northern	-	-	-	-	-
4	North West	-	-	-	-	-
5	Yorkshire	-	-	-	-	-
6	N Wales & Mersey	-	-	-	-	-
7	East Midlands	1.116608	0.766376	0.872950	0.752346	0.921762
8	Midlands	4.442426	3.809747	2.667411	2.668943	2.591426
9	Eastern	1.769153	1.507452	2.865049	3.092174	3.592003
10	South Wales	8.958087	8.637826	5.531797	4.795265	4.356471
11	South East	6.302546	6.116592	7.368494	7.086304	6.583535
12	London	5.288557	4.955299	6.549731	7.920233	8.818754
13	Southern	9.606140	9.360642	9.814337	9.372521	8.954814
14	South Western	16.722057	16.542870	8.296433	7.551017	6.229761



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Sensitivity Analysis

Marwah Az-zahra, Jo Zhou & Ishtyaq Hussain

Sensitivity analysis

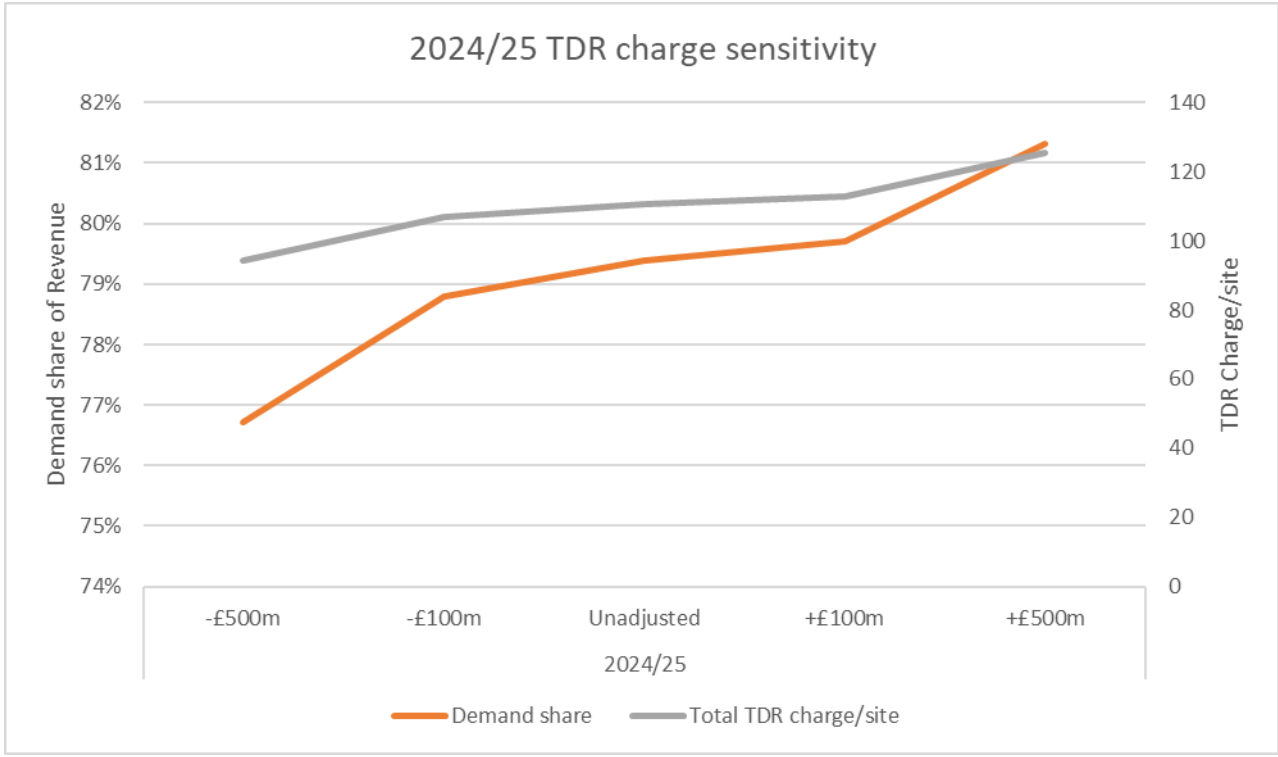
Having consulted customers, we have provided a number of sensitivity scenarios to help customers to understand the potential implications of changes to parameters that affect TNUoS Tariffs.

The sensitivity analysis that we undertook for 2024/25-2028/29 tariffs include:

- A scenario which tests the impact of additional revenue on TDR
- Three scenarios which test the impact of delay on construction of a new HVDC bootstrap, deferral of the new HVDC due to slow generation capacity growth, and a second additional HVDC Bootstrap for 2028/29
- A scenario which tests the Impact of incremental transmission site per band for each forecast year

Impact of additional revenue on TDR

- Impact of revenue change is proportional across the years so focus has been on 2024/25 as a representation of behaviour for the full 5 years
- Assumes revenue increase stems from onshore TO or pass-through items alone rather than offshore
- Model run 5 times with £1b variation
- For every additional £100m, TDR £/site will increase by ~2.8%
- For every reduction of £100m this equates to an ~3% decrease

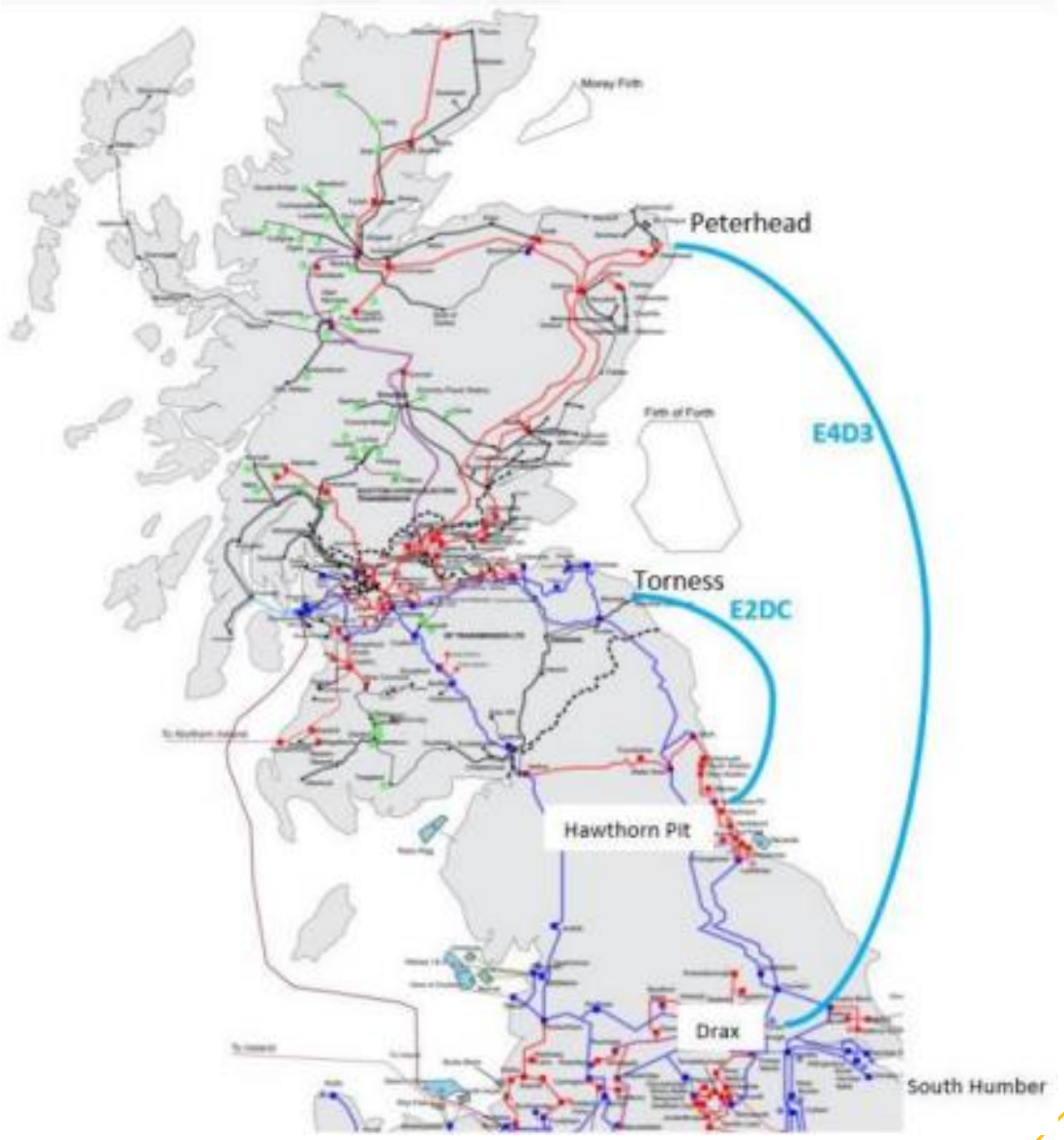


	2024/25				
	-£500m	-£100m	Unadjusted	+£100m	+£500m
Revenue (£m)	4,075.17	4,475.17	4,575.17	4,675.17	5,075.17
Generation	7.96%	7.25%	7.09%	6.94%	6.39%
Demand share	76.72%	78.80%	79.26%	79.71%	81.31%
Total TDR charge/site	£94.39	£106.78	£109.75	£112.97	£125.36

Impact of HVDC Bootstraps for 28/29

HVDC “bootstraps” are built to move energy across network operational boundaries (“ETYS boundaries”. They have impact on TNUoS locational tariffs, and the magnitude is dependent on circuit cost (project-specific), the associated ETYS boundaries, and the generation-demand scenarios

- Baseline: E2DC only, built in 28/29 as per NOA recommendation
- Sensitivity S2: E2DC is delayed. In 28/29, neither E2DC nor E4D3 is built
- Sensitivity S3: E2DC is deferred. Generation capacity growth (north of B6 boundary) is slower than expected by 2GW. In 28/29, neither E2DC nor E4D3 is built
- Sensitivity S4: both E2DC and E4D3 are built by 28/29



Impact of incremental transmission site per band for each forecast year

- This sensitivity looks at the impact of adding an incremental transmission site for each T-connected band for each forecast year. Each forecast year has 1 additional transmission site compared to the previous year. For example, the current forecast year 2024/25 will have 1 additional transmission site per band compared to base case, 2025 will have 2 additional sites per band compared to base case and 2028/29 will have 5 additional sites per band compared against base case. For each incremental site an average consumption per site figure was used for each band.

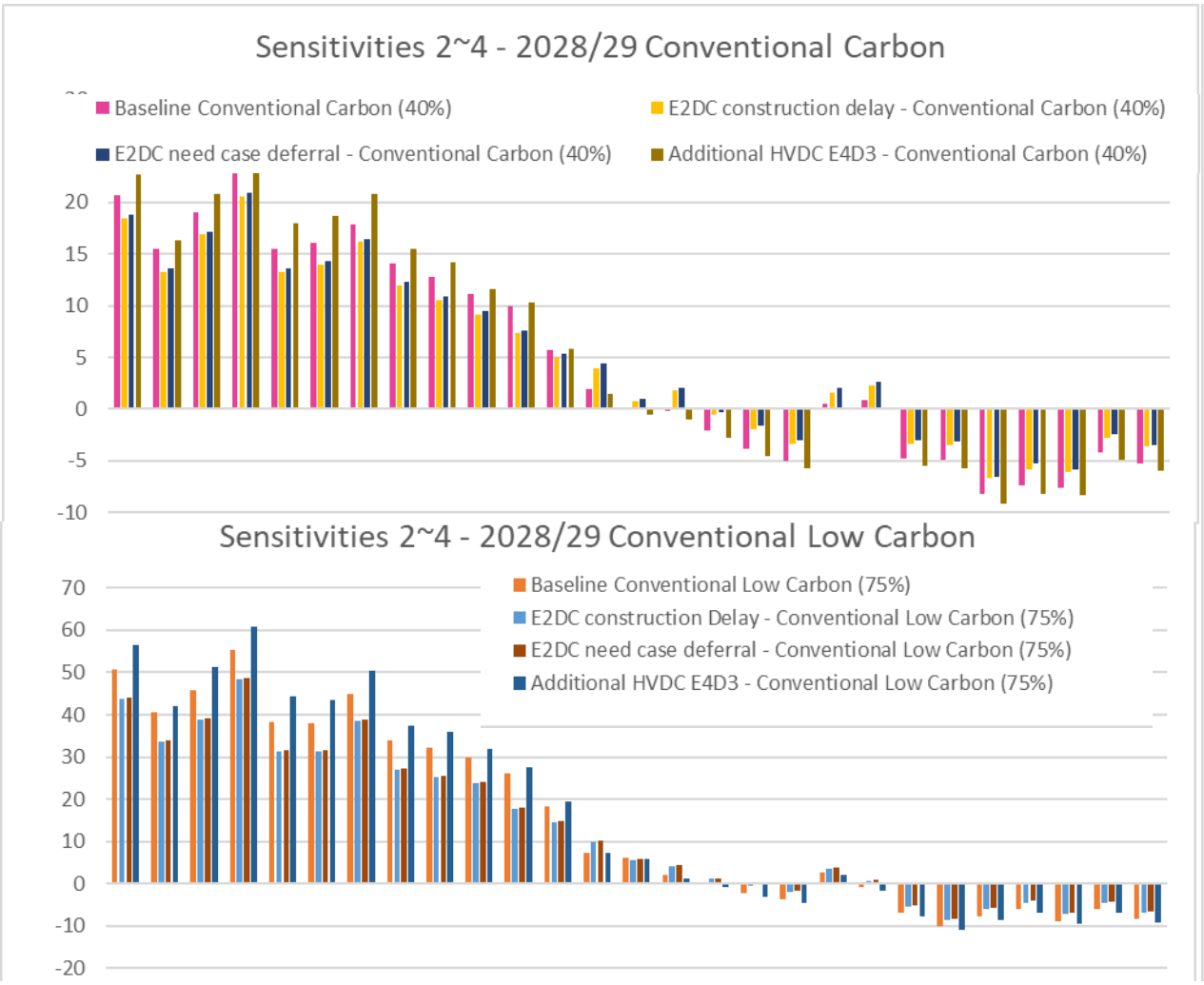
T-connected Site Count	2024/25	2025/26	2026/27	2027/28	2028/29
T-Demand1	30	31	32	33	34
T-Demand2	20	21	22	23	24
T-Demand3	14	15	16	17	18
T-Demand4	6	7	8	9	10
Total transmission sites	70	74	78	82	86

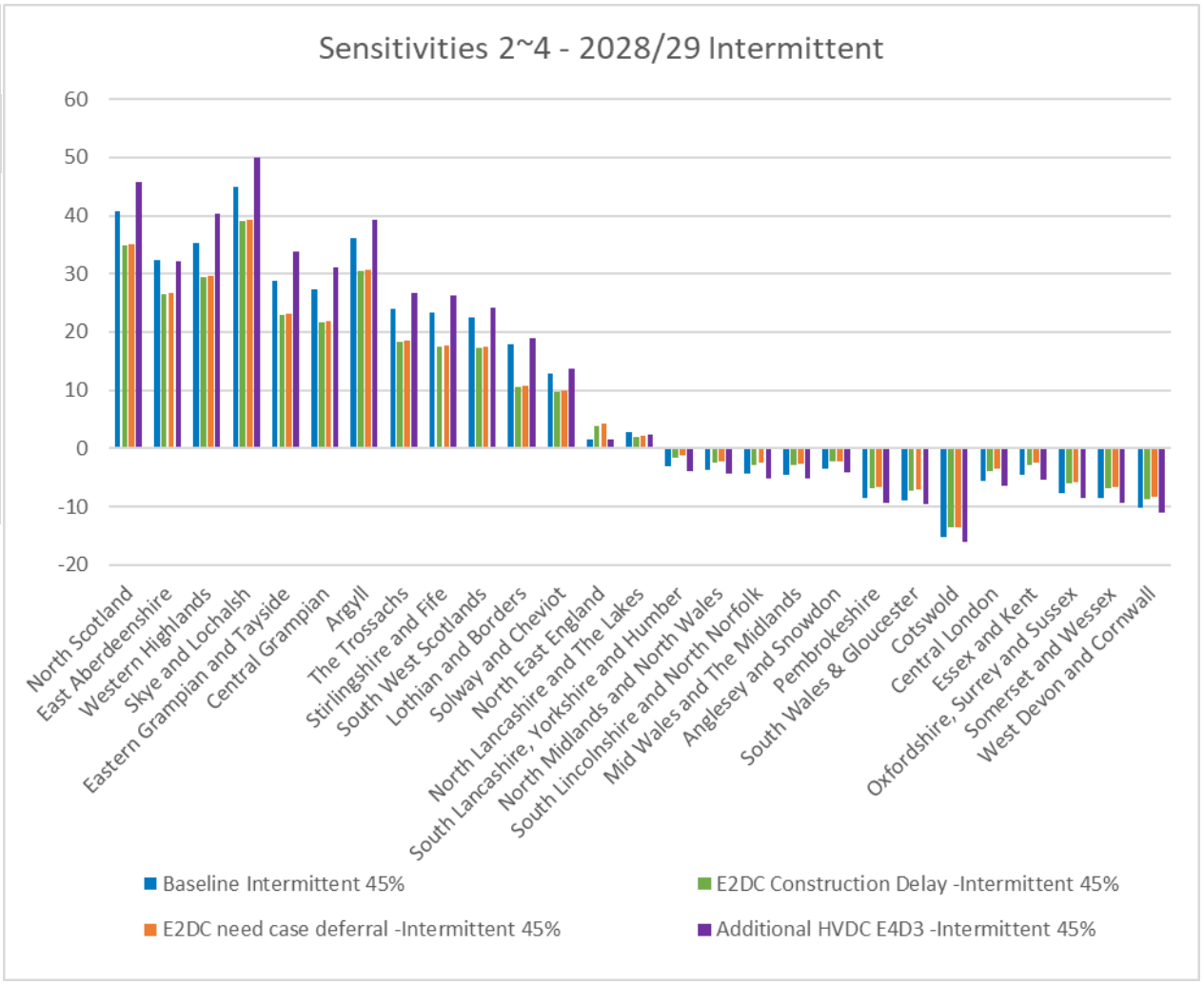
Incremental site (TDR Charge per £/site)	2024/25	2025/26	2026/27	2027/28	2028/29
T-Demand1	129,265	132,518	139,033	144,387	154,793
T-Demand2	519,300	519,055	532,061	540,845	568,464
T-Demand3	1,436,957	1,427,519	1,455,579	1,472,824	1,541,805
T-Demand4	3,873,617	3,941,178	4,096,477	4,211,369	4,468,295

Current 5yv view (TDR Charge per £/site)	2024/25	2025/26	2026/27	2027/28	2028/29
T-Demand1	126,550	127,258	131,189	134,069	141,629
T-Demand2	522,677	525,600	541,834	553,730	584,955
T-Demand3	1,456,687	1,464,834	1,510,078	1,543,233	1,630,256
T-Demand4	3,806,744	3,828,034	3,946,269	4,032,912	4,260,328

Variance (TDR Charge per £/site)	2024/25	2025/26	2026/27	2027/28	2028/29
T-Demand1	2,715	5,260	7,844	10,318	13,164
T-Demand2	-3,377	-6,545	-9,773	-12,885	-16,492
T-Demand3	-19,730	-37,315	-54,499	-70,409	-88,450
T-Demand4	66,873	113,144	150,208	178,457	207,968

Impact of HVDC Bootstraps for 28/29





Different technologies see very different tariffs in Scotland/North of E&W

The variations by technologies/network changes/scenario changes become less significant in the south (where the generators are located near the “virtual demand centre”)

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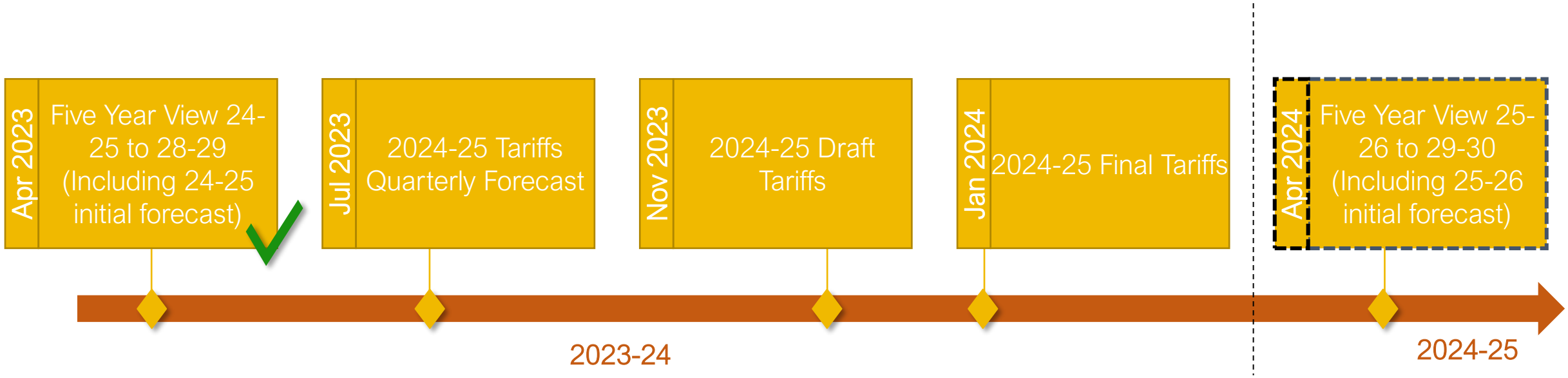
Next Steps

Nick Everitt

Tariff Timetable



- The next publication will be the quarterly forecast of tariffs for 2024/25 which will be published in July 2023.
- The final tariffs for 2024/25 will be published in January 2024 and will apply from April 2024.
- We are also currently investigating the potential for a 10 year view of tariffs

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 more Transport and Tariff Model training sessions, which will be scheduled soon.
- Please provide suggestions and register your interest via TNUoS.queries@nationalgrideso.com
- The recordings from the last training session can be found here.

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