
To all interested industry parties who pay or
are affected by TNUoS Tariffs

Rebecca Yang
Revenue Manager
Faraday House
Warwick Technology Park
Gallows Hill Road
Warwick
CV34 6DA

Rebecca.Yang@nationalgrideso.com
Direct tel +44 (0) 7917174420

www.nationalgrideso.com

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TNUoS Locational Onshore Security Factor for RIIO2 Period: Your feedback sought

Dear Colleagues,

This letter concerns one of the parameters we use for the calculation of Transmission Network Use of System (TNUoS) tariffs, namely the Locational Onshore Security Factor (normally referred to as the global security factor, or security factor). We would like to consult on the approach to finalise the value to be applied to the TNUoS tariffs over the RIIO2 period (2021/22 – 2025/26).

The Locational Onshore Security Factor

The TNUoS wider tariffs consist of two parts: the locational tariffs, which sends investment signals; and the non-locational (residual) tariffs, which ensures recovery of the revenue.

TNUoS locational tariffs are derived on a purely unconstrained network with all circuits in service. This is to obtain relatively stable long-term locational prices which are not subject to short-term operational measures (e.g. choice of specific circuit outages or dispatch patterns). The network model is used to identify the incremental cost of capacity being added to every site in the network. After calculating the locational prices on the unconstrained network, we then “stretch” the locational tariffs by the Locational Onshore Security Factor (referred to as the security factor in this letter), to reflect the extra capacity in the transmission network (i.e. the level of redundancy designed into the transmission network, to accommodate flows under both planned and unplanned circuit outages). After multiplying locational prices by the security factor, we set the wider (zonal) tariff by applying weighted average to the “stretched” locational prices at relevant sites within that zone. Therefore, all generator and demand users are affected by the value of the security factor. The security factor is 1.8 for the charging years 2013/14 – 2020/21.

Reset for RIIO2

Under the CUSC, we have an obligation to reset the value of the security factor for each price control, which will apply for the whole price control period, taking into account future network developments. The network development information is based on the published ETYS (Electricity Ten Year Statement)¹.

¹ <https://www.nationalgrideso.com/research-publications/electricity-ten-year-statement-etys>

In the September TCMF (Transmission Charging Methodology Forum)², we presented the refreshed security factor value of 1.7555 for charging years 2021/22 – 2025/26, and shared our intention to round up the new value to one decimal place with the general rounding rule (round up 5 or above). This is in line with the reference number in CUSC 14.15.90, and was the approach we took in RIIO1. Feedback received during the September TCMF was that we consider retaining the decimal places.

Since then we have had further discussions with the industry at the TCMF, and the opinions from TCMF were divided, with some favouring not rounding and retaining decimal places and better accuracy, while others were concerned about the weakening of the locational signal in doing so, particularly alongside the approach suggested in CMP353³ (Stabilising the Expansion Constant and non-specific Onshore Expansion Factors from 1st April 2021).

In the meantime, we also reviewed the CUSC text to see if it provides any guidance or requirement on whether and how we should apply rounding, however CUSC is silent, though practice to date in this context has been to round the security factor to one decimal place, but in other places decimal places are retained. In light of the implication of the Locational Onshore Security Factor, we believe it would be helpful to seek wider industry participants' views on the approach.

Options that are being considered

Taking into account the current practice, and historical figures that have been used, we are considering the following three approaches –

- (1) Round up the new security factor value to one decimal place at 1.8, in line with the current approach.
- (2) Increase the accuracy by rounding up the value to two decimal places at 1.76, to align with the approach on the onshore expansion factors.
- (3) Increase the accuracy by rounding up the value to eight decimal places at 1.75547656, to align with the approach on the offshore expansion factors.

The table below illustrates the 2021/22 generation tariffs under the three options, for a typical intermittent or conventional carbon generator.

Generator	Wider tariff (£/kW) using SF=1.8	Wider tariff (£/kW) using SF=1.76	Wider tariff (£/kW) using SF=1.75547656
Intermittent (assuming 40% Load Factor) in generation zone 1 (North Scotland)	26.669580	26.182171	26.127052
Conventional Carbon (assuming 80% Load Factor) in generation zone 27 (West Devon and Cornwall)	- 5.221758	- 5.000471	- 4.975445

In the appendix, we also list the indicative tariffs under the three options of the security factor value. Tariffs using security factor of 1.8 are the same as in our TNUoS 5-year view, published in August 2020, for charging year 2021/22.

Consultation timescale and next steps

We welcome your feedback on the above approaches for the revised security factor. Please send your feedback via TNUoS.queries@nationalgrideso.com by **4th December 2020**.

² <https://www.nationalgrideso.com/document/176141/download> and <https://www.nationalgrideso.com/document/176636/download>

³ CMP353 proposal form <https://www.nationalgrideso.com/document/178981/download>

We will consider the responses received, and confirm the final value of the Locational Onshore Security Factor for RII02 by 18th December 2020.

The final Locational Onshore Security Factor will be used for the calculation of the TNUoS tariffs for 2021/22, which will be finalised and published by 31st January 2021.

Yours sincerely,

Rebecca Yang
Revenue Manager

Appendix

Indicative wider generation and demand tariffs under various choice of security factor values

The indicative tariffs in this section are in line with August 2020 TNUoS 5-year “base case” forecast, with the security factor value of 1.8 replaced with alternative values.

Table 1 Wider tariffs for a conventional carbon generator at 80% annual load factor (ALF)

Wider Tariffs for a Conventional Carbon 80% Generator		Security Factor = 1.8	Security Factor = 1.76	Security Factor = 1.75547656
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	35.274	34.596	34.519
2	East Aberdeenshire	26.633	26.146	26.091
3	Western Highlands	32.942	32.315	32.244
4	Skye and Lochalsh	26.389	25.908	25.854
5	Eastern Grampian and Tayside	27.342	26.839	26.783
6	Central Grampian	29.049	28.509	28.448
7	Argyll	34.243	33.587	33.513
8	The Trossachs	25.014	24.563	24.512
9	Stirlingshire and Fife	21.594	21.219	21.177
10	South West Scotland	22.408	22.015	21.971
11	Lothian and Borders	16.877	16.608	16.577
12	Solway and Cheviot	13.963	13.758	13.735
13	North East England	11.478	11.329	11.312
14	North Lancashire and The Lakes	7.685	7.619	7.612
15	South Lancashire, Yorkshire and Humber	5.576	5.557	5.555
16	North Midlands and North Wales	3.368	3.398	3.402
17	South Lincolnshire and North Norfolk	2.000	2.061	2.068
18	Mid Wales and The Midlands	1.724	1.791	1.798
19	Anglesey and Snowdon	5.323	5.310	5.308
20	Pembrokeshire	5.315	5.302	5.300
21	South Wales & Gloucester	1.799	1.864	1.872
22	Cotswold	- 1.664	- 1.522	- 1.506
23	Central London	- 6.161	- 5.919	- 5.891
24	Essex and Kent	- 1.279	- 1.145	- 1.130
25	Oxfordshire, Surrey and Sussex	- 3.083	- 2.910	- 2.890
26	Somerset and Wessex	- 4.685	- 4.476	- 4.452
27	West Devon and Cornwall	- 5.222	- 5.000	- 4.975

Table 2 Wider tariffs for a conventional low carbon generator at 80% ALF

Wider Tariffs for a Conventional Low Carbon 80% Generator		Security Factor = 1.8	Security Factor = 1.76	Security Factor = 1.75547656
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	39.048	38.285	38.199
2	East Aberdeenshire	30.406	29.836	29.771
3	Western Highlands	36.583	35.875	35.795
4	Skye and Lochalsh	30.011	29.449	29.386
5	Eastern Grampian and Tayside	30.447	29.876	29.811
6	Central Grampian	32.378	31.764	31.695
7	Argyll	39.466	38.695	38.607
8	The Trossachs	27.892	27.378	27.319
9	Stirlingshire and Fife	24.221	23.788	23.739
10	South West Scotland	25.084	24.632	24.581
11	Lothian and Borders	18.195	17.896	17.863
12	Solway and Cheviot	15.444	15.206	15.179
13	North East England	12.388	12.218	12.199
14	North Lancashire and The Lakes	7.928	7.857	7.849
15	South Lancashire, Yorkshire and Humber	5.646	5.626	5.624
16	North Midlands and North Wales	3.368	3.398	3.402
17	South Lincolnshire and North Norfolk	2.000	2.061	2.068
18	Mid Wales and The Midlands	1.724	1.791	1.798
19	Anglesey and Snowdon	5.323	5.310	5.308
20	Pembrokeshire	5.315	5.302	5.300
21	South Wales & Gloucester	1.799	1.864	1.872
22	Cotswold	- 3.441	- 3.259	- 3.239
23	Central London	- 7.348	- 7.079	- 7.049
24	Essex and Kent	- 1.279	- 1.145	- 1.130
25	Oxfordshire, Surrey and Sussex	- 3.083	- 2.910	- 2.890
26	Somerset and Wessex	- 4.685	- 4.476	- 4.452
27	West Devon and Cornwall	- 5.222	- 5.000	- 4.975

Table 3 Wider tariffs for an intermittent generator at 40% ALF

Wider Tariffs for an Intermittent 40% Generator		Security Factor = 1.8	Security Factor = 1.76	Security Factor = 1.75547656
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)
1	North Scotland	26.670	26.182	26.127
2	East Aberdeenshire	22.894	22.490	22.445
3	Western Highlands	25.288	24.831	24.780
4	Skye and Lochalsh	25.191	24.736	24.685
5	Eastern Grampian and Tayside	20.644	20.291	20.251
6	Central Grampian	22.172	21.785	21.741
7	Argyll	30.838	30.258	30.192
8	The Trossachs	19.111	18.792	18.756
9	Stirlingshire and Fife	17.239	16.961	16.930
10	South West Scotland	17.612	17.326	17.294
11	Lothian and Borders	10.824	10.689	10.673
12	Solway and Cheviot	10.096	9.976	9.963
13	North East England	6.547	6.507	6.502
14	North Lancashire and The Lakes	3.213	3.247	3.251
15	South Lancashire, Yorkshire and Humber	0.873	0.959	0.969
16	North Midlands and North Wales	- 0.125	- 0.017	- 0.005
17	South Lincolnshire and North Norfolk	- 0.022	0.084	0.096
18	Mid Wales and The Midlands	0.108	0.211	0.223
19	Anglesey and Snowdon	- 0.260	- 0.149	- 0.136
20	Pembrokeshire	- 2.196	- 2.042	- 2.024
21	South Wales & Gloucester	- 2.242	- 2.087	- 2.069
22	Cotswold	- 7.587	- 7.313	- 7.282
23	Central London	- 4.638	- 4.430	- 4.406
24	Essex and Kent	1.295	1.372	1.381
25	Oxfordshire, Surrey and Sussex	- 1.096	- 0.966	- 0.952
26	Somerset and Wessex	- 1.493	- 1.355	- 1.339
27	West Devon and Cornwall	- 2.546	- 2.384	- 2.366

Table 4 Tariffs for Half-Hour (HH) demand customers

Zone	Zone Name	HH tariffs (£/kW)		
		Security Factor = 1.8	Security Factor = 1.76	Security Factor = 1.75547656
1	Northern Scotland	15.046	15.699	15.773
2	Southern Scotland	22.489	22.977	23.032
3	Northern	35.065	35.273	35.297
4	North West	41.194	41.267	41.275
5	Yorkshire	42.525	42.568	42.572
6	N Wales & Mersey	43.295	43.321	43.323
7	East Midlands	46.212	46.172	46.168
8	Midlands	47.467	47.4	47.392
9	Eastern	47.998	47.919	47.91
10	South Wales	45.275	45.256	45.254
11	South East	51.174	51.025	51.008
12	London	53.255	53.06	53.037
13	Southern	52.631	52.449	52.429
14	South Western	51.929	51.763	51.744

Table 5 Tariffs for Non Half Hour (NHH) demand customers

Zone	Zone Name	NHH tariffs (p/kwh)		
		Security Factor = 1.8	Security Factor = 1.76	Security Factor = 1.75547656
1	Northern Scotland	2.046	2.135	2.145
2	Southern Scotland	2.913	2.977	2.984
3	Northern	4.357	4.383	4.386
4	North West	5.208	5.217	5.218
5	Yorkshire	5.257	5.263	5.263
6	N Wales & Mersey	5.393	5.396	5.397
7	East Midlands	5.897	5.892	5.892
8	Midlands	6.132	6.123	6.122
9	Eastern	6.577	6.566	6.565
10	South Wales	5.26	5.258	5.257
11	South East	7.063	7.042	7.04
12	London	5.581	5.56	5.558
13	Southern	6.795	6.772	6.769
14	South Western	7.157	7.134	7.132

Table 6 Embedded Export Tariffs (EET)

Zone	Zone Name	EET tariffs (£/kW)		
		Security Factor = 1.8	Security Factor = 1.76	Security Factor = 1.75547656
1	Northern Scotland	0	0	0
2	Southern Scotland	0	0	0
3	Northern	0	0	0
4	North West	0	0	0
5	Yorkshire	0	0	0
6	N Wales & Mersey	0	0	0
7	East Midlands	1.946	1.953	1.954
8	Midlands	3.201	3.181	3.178
9	Eastern	3.731	3.699	3.696
10	South Wales	1.008	1.037	1.04
11	South East	6.908	6.805	6.794
12	London	8.989	8.84	8.823
13	Southern	8.365	8.23	8.215
14	South Western	7.663	7.544	7.53