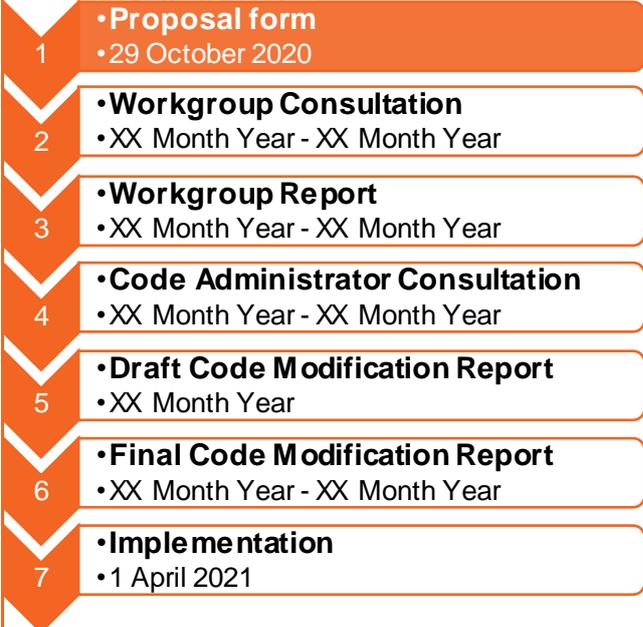


CUSC Modification Proposal Form

CMP353: Stabilising the Expansion Constant and non-specific Onshore Expansion Factors from 1st April 2021

Overview: To stabilise the locational signal at the start of the RIIO-2 period at the RIIO-1 value plus relevant inflation in each charging year until such time as the effect of any change in the locational signal can be better understood.

Modification process & timetable



Status summary: The Proposer has raised a modification and is seeking a decision from the Panel on the governance route to be taken.

This modification is expected to have a: **high impact on all CUSC Users who pay TNUoS tariffs.**

Proposer's recommendation of governance route

This modification should be treated as Urgent and proceed straight to Code Administrator Consultation under a timetable agreed with the Authority, who will make the decision on whether it should be implemented.

The Proposer considers that this is an imminent issue or a current issue that if not urgently addressed may cause a significant commercial impact on parties, consumers or other stakeholder(s) and therefore meets Ofgem's Urgency Criteria (a)

The Proposer considers that without Urgent change there would be a significant commercial impact on market participants due to the large changes in locational tariffs that would otherwise take effect on the 1st April 2021 and so without sufficient notice for them to understand and prepare for the effects. If the proposal was not treated as Urgent it would not have time to complete and be approved prior to the tariff setting process in December and January.

Who can I talk to about the change?	Proposer: Grahame Neale, National Grid ESO grahame.neale@nationalgrideso.com Phone: 07787261242	Code Administrator Chair: TBC email@nationalgrideso.com Phone: 07xxxxxxx
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- **What is the impact of this change?**
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What is the issue?

Unless action is taken there will be significant changes to the locational element of TNUoS tariffs as the Expansion Constant and some Expansion Factor values which are based on investment costs in the previous price control will, because of the nature of those investments, be based on fewer and higher value projects than in previous price controls. This may not truly reflect the current drivers of network investment and will substantially change the locational costs for some Users.

Why change?

The Expansion Constant (EC) is an element of the TNUoS charging methodology that determines the £/MW/km value of 400kV Over Head Line (OHL). This then feeds into the other costs of assets within the model. The EC has a direct impact on the locational signal that Generators and Suppliers face both through establishing the cost of 400kV OHL and the corresponding Expansion Factors (EFs) that relate to other asset types. It is set at the start of each price control period where it is re-assessed based on projects built in the last ten years and then inflated each year by RPI. The EC forms an integral part of the methodology which will set draft and final TNUoS tariffs in this November and January respectively, applying to customers from April 2021.

Due to the lower number of built projects in RIIO-1 and the relatively high value of these in comparison to the projects in previous price controls, the EC and EFs have increased significantly. The RIIO-1 uplifted EC value used in the calculation of the 2020/21 tariffs was set at £14.93/MW/km, whereas based on the current data received from NGET and SPT, the RIIO-2 EC value has been calculated at £27.38/MW/km for 2021/22, an increase of 83%. This data also feeds into the process that sets the EFs used to calculate the costs of other assets within the model. Although the overall amount of revenue collected from Users will remain the same, the locational element of the charges will be significantly affected. This will present a cost shock to certain parties with little advance notice of the effects it will have on them.

Examples of these changes based on the current forecasted RIIO-2 EC & EFs on hypothetical customers are shown below. Note that these are a guide of the potential change, as work is ongoing with the Transmission Owners (TOs) to collate the outstanding data for the calculation and to also validate the numbers provided to date by the TOs:

Generation

- 100MW generic intermittent generator in North Scotland (zone 1) would see a 62% increase in TNUoS charges from £2.7m to £4.3m
- 100MW generic conventional carbon generator in Essex and Kent (zone 24) would see a 471% increase in their TNUoS credit payment from £127k to £730k
- 30MW generic embedded generator in Eastern (zone 9) would see a 65% increase in the embedded benefit payment from £112k to £184k

Demand – note the ratio of impact is the same across zones for Half Hourly (HH) and Non Half Hourly (NHH) tariffs

- 10MW HH demand in Northern Scotland (zone 1) would see their charge reduce from £150k to zero
- 5MWh NHH demand in Southern (zone 13) would see their charge increase by 10% from £340 to £374

The table below demonstrates the minimal change between the total TNUoS revenue recovery of generation and demand in 2021-22 highlighting that this is predominantly related to the locational signal for Users.

2021-22 Forecast Revenue (£m)	Total Demand Recovery	Total Generation Recovery
<i>RIIO-1 Uplifted</i>	2222.2	826.4
<i>Current RIIO-2*</i>	2213.9	834.7
<i>Variance</i>	(8.3)	8.3
<i>Variance %</i>	0%	1%

* Based on initial data received by TO's related to the calculation of the update EC&F as part of the RIIO-2 parameter refresh

In accordance with STCP (14 – 1.3.3), NGENSO sent out the data request for the calculation of the EC and EF in 2019 with the intention of updating the EC and EF in the March TNUoS forecast publication for the 2021/22 tariffs. Initial data was received from NGET and SPT in July 2019. Due to the uncertainty within a number of ongoing CUSC modifications, the timescale of RIIO2 Draft Determinations and the lack of a full data set from the TOs, the ESO consulted the industry in January 2020 regarding the TNUoS forecast timetable for

2021/22 proposing that the RIIO-2 data items (including the EC and the EF) not be updated in the forecast until the 5 year version was produced in August 2020¹. Following this consultation, NGESO published the timetable and confirmed that the 5 year view of TNUoS tariffs for the RIIO2 period would be published in August 2020 and we confirmed the approach in our March tariff forecast². During the preparation of the 5 year view, the EC and EF was re-calculated using the data from NGET and SPT which led to the significant increase from the current value.

The initial data from SHETL for the EC and EF calculation was received on the 23 October 2020. Data validation processes are still being progressed with SHETL at this time, but the initial analysis based on all three onshore TOs' data suggests a similar level or even further increase in EC and EF compared to the RIIO-1 values.

We took this issue to the Transmission Charging Methodology Forum (TCMF) in September 2020³ where we received substantial feedback on the unwelcome volatility that using the approach to setting the current EC would create. We agreed with TCMF to consider obtaining different/revised data from the TOs; however, that process has to date not led to a significant difference in the outcome of the EC and EF calculations.

Discussions with Ofgem and the industry suggest that it is not certain that this effect on the locational signal is appropriate and that more time to analyse it and determine whether to implement it would be beneficial. Therefore, the ESO considers that continuing with the current EC value whilst allowing further work to be done to review and potentially change it if necessary in RIIO-2 is an appropriate way forward. For clarity, this modification is not looking to change the intent of the EC but to provide a temporary solution until an appropriate EC for RIIO-2 can be calculated and applied.

We are aware that CMP315⁴ is currently in process and being assessed by a Workgroup – although it has not made significant progress in 2020 due to the prioritisation of other work. We recognise that similar subject matter is considered through this proposal and CMP315. We do not believe that these modifications fall within with the provisions around conflicting Modification Proposals within Section 8.16.6. This change is complimentary and could allow CMP315 or another modification proposal to consider a more enduring solution, alongside any further Modification Proposals if necessary, to the potential issues in the current calculation of the EC and EF.

What is the proposer's solution?

To change the relevant parts of Section 14 to allow the EC and non-specific Onshore EF (i.e. not HVDC or AC subsea factors) to be stabilised at the RIIO-1 value plus inflation of the EC as per the transmission licence. Further work can then take place during RIIO-2 to update the EC and relevant EF once analysis on their effects and suitability has been completed.

¹ <https://www.nationalgrideso.com/document/162406/download>

² <https://www.nationalgrideso.com/document/166761/download>

³ <https://www.nationalgrideso.com/document/176141/download>

⁴ <https://www.nationalgrideso.com/industry-information/codes/connection-and-use-system-code-cusc-old/modifications/cmp315-tnuos>

Draft legal text

New paragraphs to be inserted:

14.15.69A Notwithstanding Paragraph 14.15.69 from the first year of (and during) the T2 price control (which starts on 1st April 2021), until a further change is made, the EC will be that used in the 2020/21 charging year inflated in accordance with RPI as per paragraph 14.15.69 and plus inflation as defined in the Transmission Licence for each subsequent year of the T2 price control.

Onshore Expansion Factors in RIIO-T2

14.15.79A Notwithstanding Paragraph 14.15.69, the previous paragraphs and following the same intent as adopted at Paragraph 14.15.69A, from the first year of (and during) the T2 price control (which starts on 1st April 2021), until a further change is made, the Onshore expansion factors (being the Onshore local circuit factors and the Onshore wider circuit expansion factors, except those used for HVDC circuits and sub-sea AC cable) will be the value used in the 2020/21 charging year. For clarity HVDC circuits and sub-sea AC cable will continue to be calculated in accordance with 14.15.75

What is the impact of this change?

Proposer's Assessment against CUSC Charging Objectives	
Relevant Objective	Identified impact
(a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;	Positive: Use of the current Expansion Constant and Expansion Factors may lead to a detrimental effect in competition between Users due to a significant unexpected change to the locational costs faced by certain Users.
(b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection);	None
(c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes	Positive: As it would allow further work to be completed in this area

account of the developments in transmission licensees' transmission businesses;	without applying costs to Generators and Demand that may not ultimately best meet this objective.
(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency *; and	None
(e) Promoting efficiency in the implementation and administration of the system charging methodology.	Positive: As this is a simple change to stabilise the Expansion Constant and Expansion Factors it will result in an improved efficiency in and understanding of the methodology.
*Objective (d) refers specifically to European Regulation 2009/714/EC. Reference to the Agency is to the Agency for the Cooperation of Energy Regulators (ACER).	

Impact of the modification on the stakeholder / consumer benefit categories	
Proposer's assessment:	
Stakeholder / consumer benefit categories	Identified impact
Improved safety and reliability of the system	Positive: Cost shocks to certain Generators may lead to closure reducing margin and potentially affecting system operation.
Lower bills than would otherwise be the case	Positive: Uncertainty in TNUoS tariffs may cause Generators to apply risk premia in their contracts with Suppliers. Reducing this should lead to lower costs to consumers.
Benefits for society as a whole	None
Reduced environmental damage	None
Improved quality of service	None

When will this change take place?

Implementation date:

1 April 2021

Date decision required by:

2 December 2020 to allow tariff setting processes to take place.

Implementation approach:

Tariff setting processes will need to change and potentially be updated.

Interactions

None

Acronyms, key terms and reference material

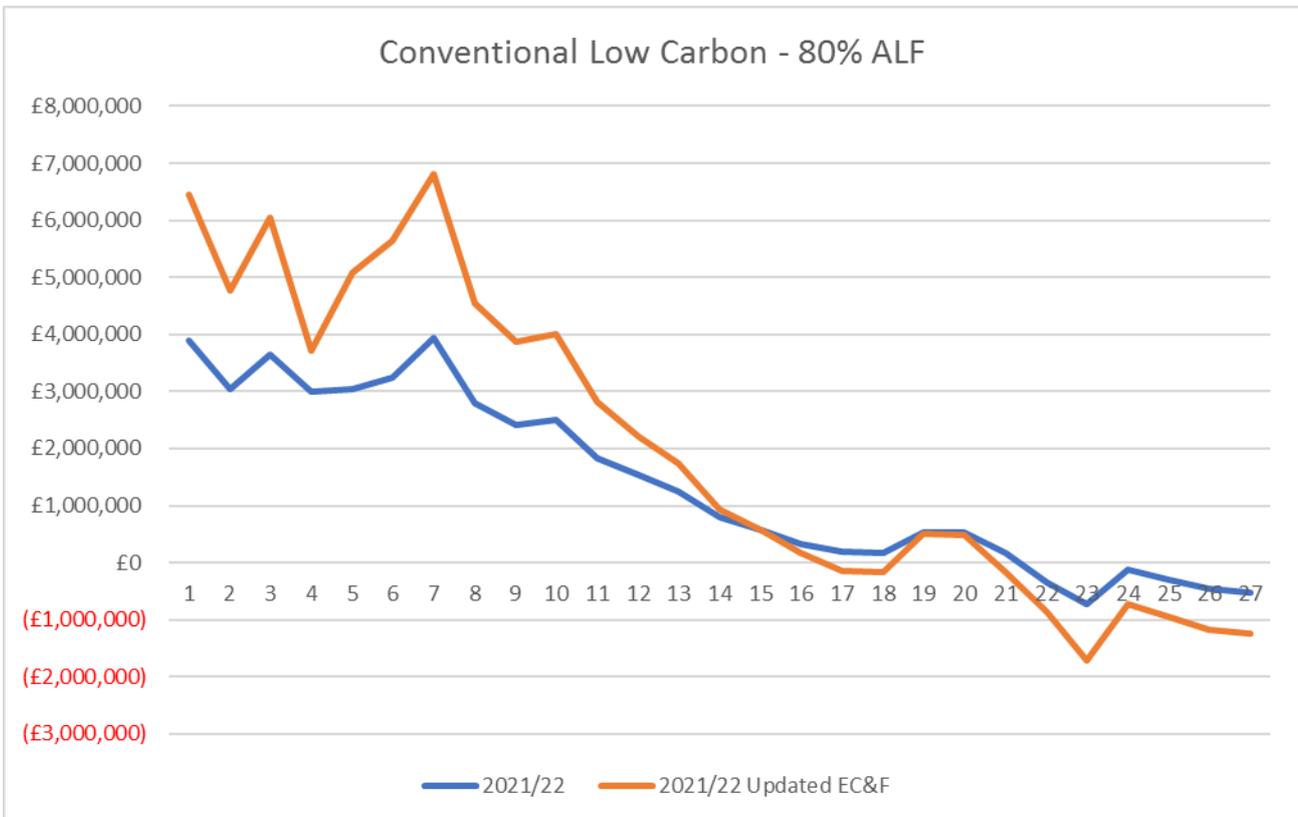
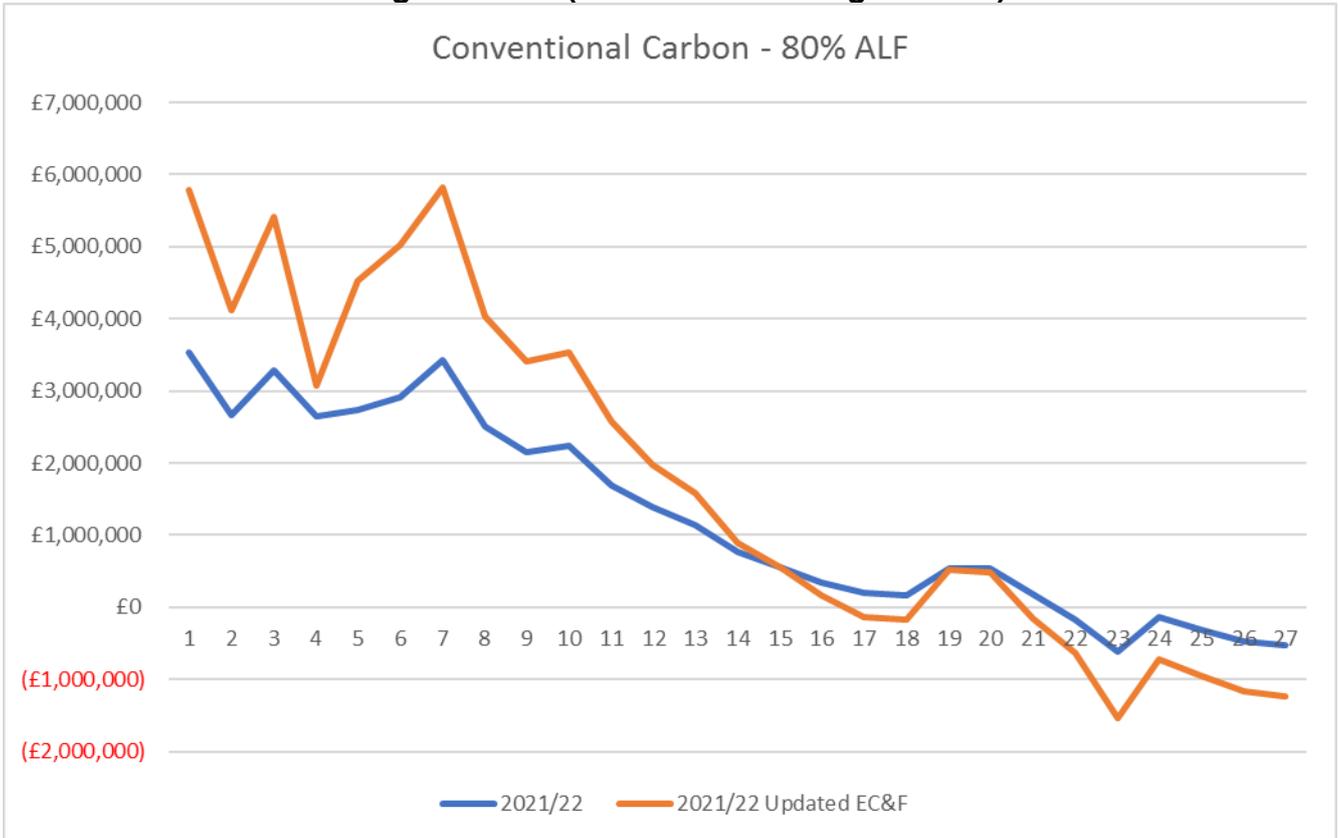
Acronym / key term	Meaning
TNUoS	Transmission Network Use of System
EC	Expansion Constant
EF	Expansion Factors
HH	Half Hourly
NHH	Non Half Hourly
OHL	Overhead Line
RIIO-1	The first RIIO price control period (2013-2021)
RIIO-2	The second RIIO price control period (2021-2026)
EC&EFs	Expansion Constant & Expansion Factors
EET	Embedded Export Tariffs (Embedded Generation)

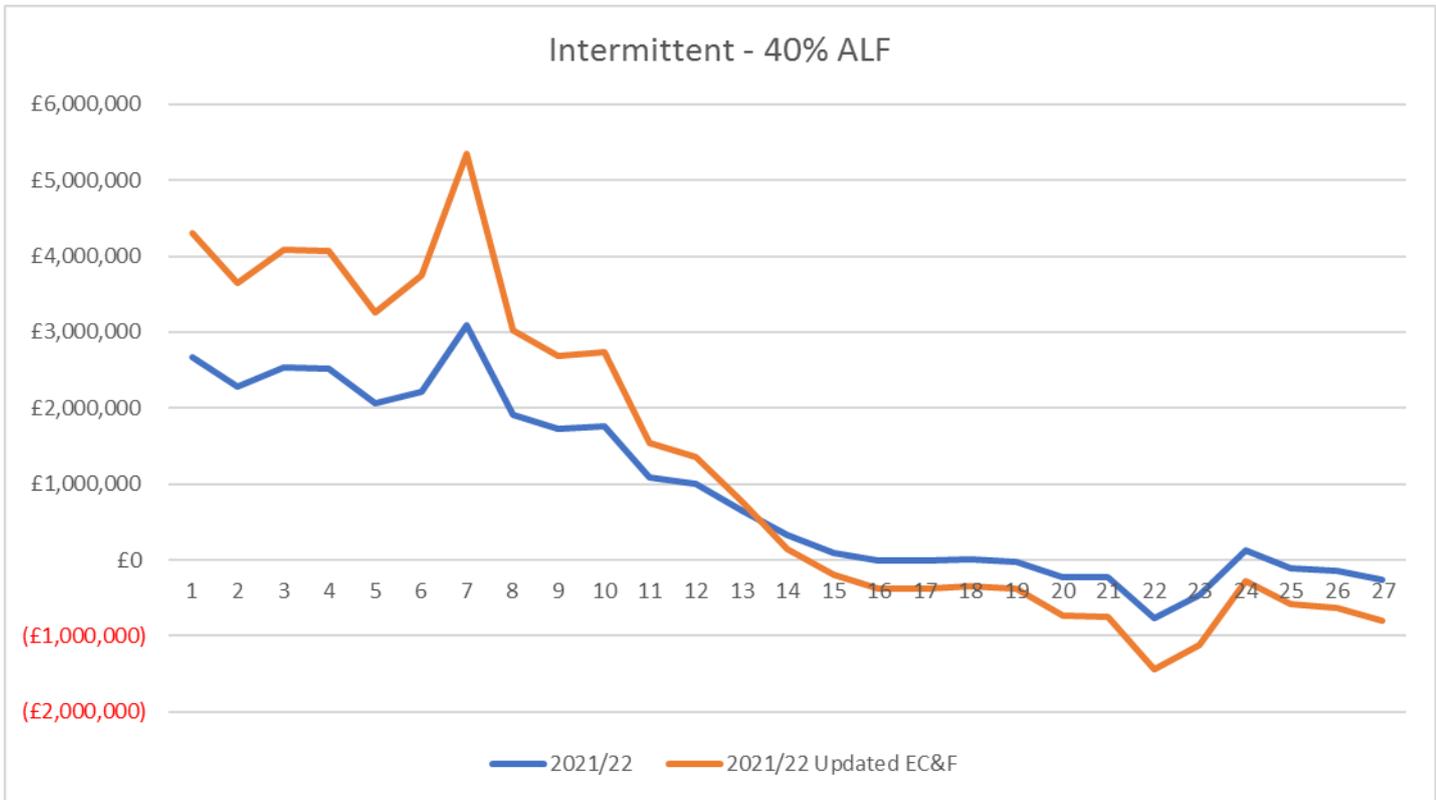
Reference material:

Hypothetical examples showing the potential impact to customers of the current RIIO-2 EC (and factors) is shown for each zone in the following graphs:

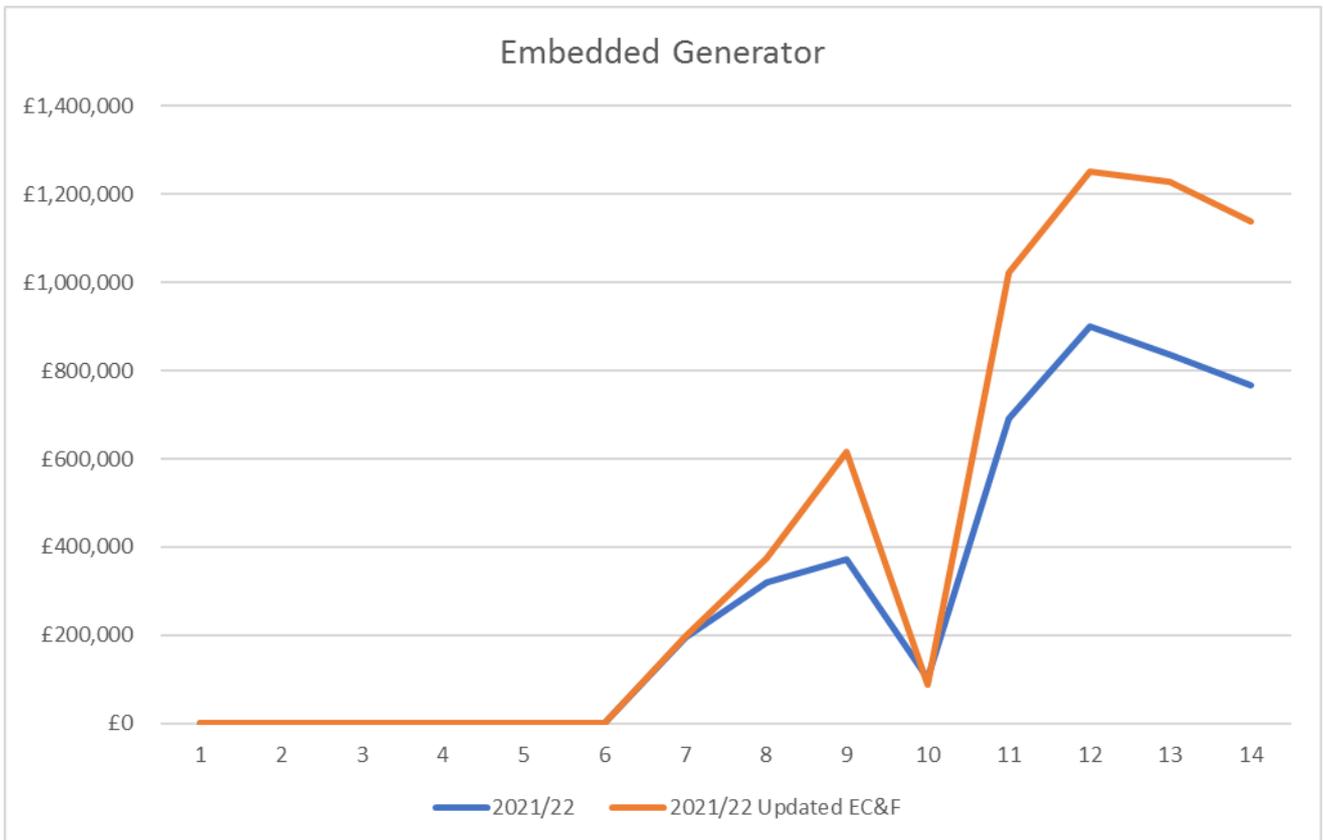
Note – series '2021/22' is base case (Existing uplifted RIIO-1 EC & F's), '2021/22 Updated EC&F' is based on the current calculation (16/10/20) of the RIIO-2 EC&F's.

Transmission connected generation (based on 100MW generator)

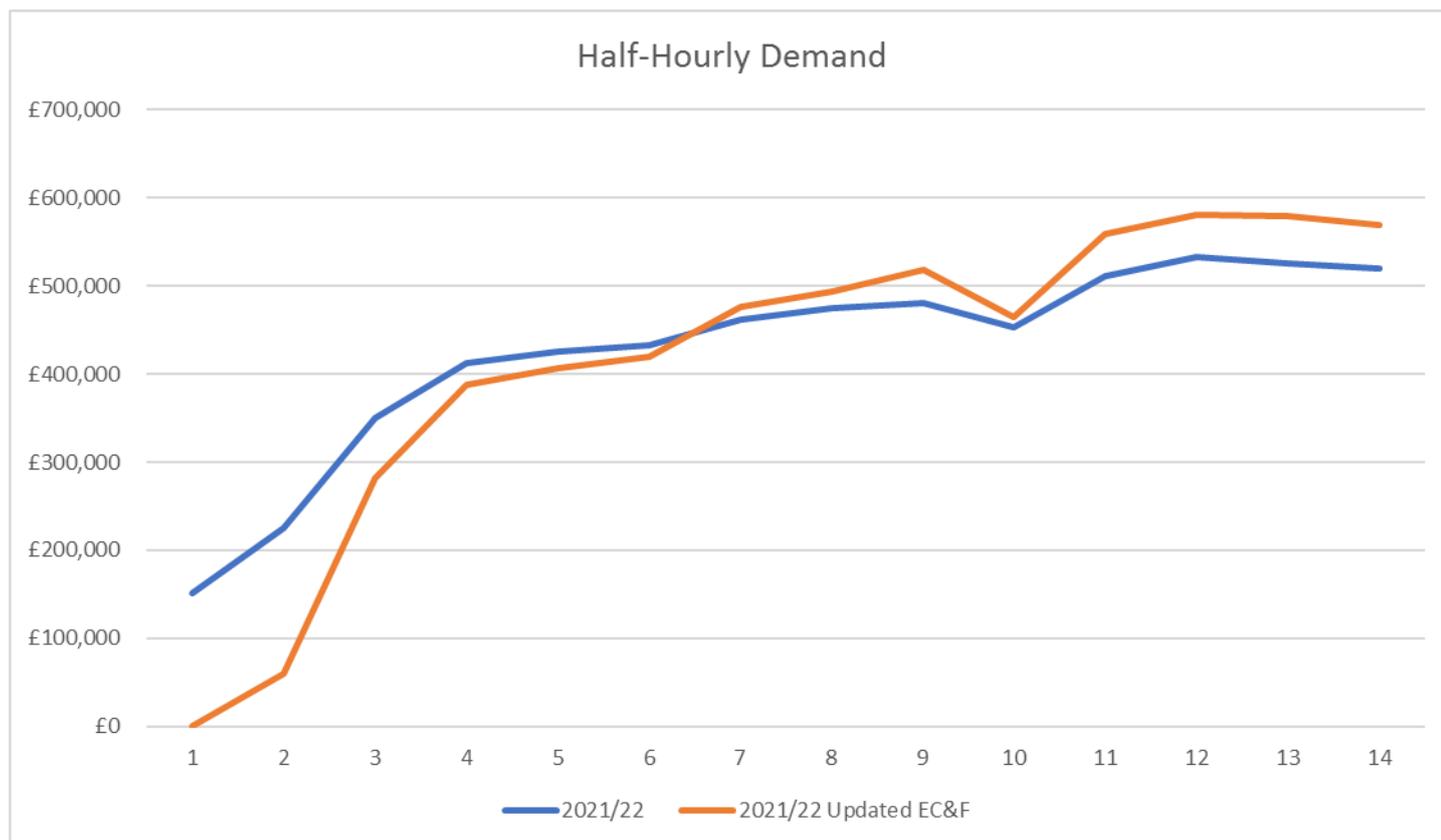




Embedded generation (based on 100MW generator)



Half-Hourly Demand (Based on 10MW consumption)



Generation Revenue

2021-22 Forecast Revenue (£m)	Peak Security	Year Round Shared	Year Round Not Shared	Residual	Onshore Local Circuit	Onshore Local Substation	Offshore Local	Total
RIIO-1 Uplifted	135.7	105.1	141.5	(17.9)	15.6	19.6	426.9	826.4
Current RIIO-2*	205.2	181.0	292.6	(314.5)	23.8	19.6	426.9	834.7
Var	69.6	75.9	151.1	(296.5)	8.3	-	-	8.3
Var %	51%	72%	107%		53%	0%	0%	1%

Whilst there is minimal impact to the total revenue (increase in onshore local circuit). There is a significant increase in Peak Security, Year Round Shared and Year Round Not Shared, which subsequently has also created a significant increase in the residual.⁵ With the overall increase in the locational elements there is also a considerable change on a zone by zone basis.

⁵ CMP317/327 is currently being decided upon by Ofgem and will replace the current residual with an adjustment tariff. The figures included here assume that the CMP317/327 original will be approved by Ofgem.

Demand Revenue

2021-22 Forecast Revenue (£m)	Gross HH Demand	Less Embedded Export Tariff	NHH Energy Consumption	Total
RIIO-1 Uplifted	845.5	(13.6)	1390.3	2222.2
Current RIIO-2*	846.4	(19.3)	1386.9	2213.9
Var	0.9	(5.8)	(3.4)	(8.3)
Var %	0%	42%	0%	0%

Minimal change to the overall demand revenue, a slight decrease due to the increase in the generation revenue and the increase in the amount of revenue to be collected through EET. The main effects of the increased EC and change in factors can be seen on a zone by zone basis for demand (locational element).

Average Tariffs

2021-22 Forecast Average Tariffs (£/kW)	HH Demand	Demand Residual Element	Embedded Export Tariff	NHH Energy Consumption (p/kWh)	Generation
RIIO-1 Uplifted	44.8	46.6	1.9	5.7	10.7
Current RIIO-2*	44.9	47.9	2.6	5.7	10.8
Var	0.0	1.3	0.8	(0.0)	0.1
Var %	0%	3%	42%	0%	1%

The table above highlights the fact, that from an average tariff perspective there has been minimal impact and that the greater variances in tariffs for generation and demand can be seen at a zonal level.

2021/22 Generation Tariffs – Using RIIO-1 EC (Uplifted) & F's (August 2020 Forecast)

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						
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)						
1	North Scotland	4.342065	20.090101	18.866291	-	0.232751	35.274428	39.047686	26.669580					
2	East Aberdeenshire	3.251840	10.650928	18.866291	-	0.232751	26.632864	30.406122	22.893911					
3	Western Highlands	3.979920	18.288499	18.205231	-	0.232751	32.942153	36.583199	25.287880					
4	Skye and Lochalsh	-	2.495443	18.288499	18.108400	-	0.232751	26.389325	30.011005	25.191049				
5	Eastern Grampian and Tayside	4.450991	13.378695	15.525705	-	0.232751	27.341760	30.446901	20.644432					
6	Central Grampian	4.446109	14.400194	16.644875	-	0.232751	29.049413	32.378388	22.172202					
7	Argyll	3.675455	12.382620	26.117508	-	0.232751	34.242806	39.466308	30.837805					
8	The Trossachs	3.827726	12.382620	14.391109	-	0.232751	25.013958	27.892180	19.111406					
9	Stirlingshire and Fife	2.648027	10.835846	13.137368	-	0.232751	21.593847	24.221321	17.238955					
10	South West Scotland	3.005321	11.165296	13.379006	-	0.232751	22.408012	25.083813	17.612373					
11	Lothian and Borders	2.905501	11.165296	6.590487	-	0.232751	16.877376	18.195474	10.823854					
12	Solway and Cheviot	2.423044	7.313546	7.402865	-	0.232751	13.963422	15.443995	10.095532					
13	North East England	3.611493	5.574672	4.549843	-	0.232751	11.478354	12.388323	6.546961					
14	North Lancashire and The Lakes	2.485067	5.574672	1.216187	-	0.232751	7.685003	7.928241	3.213305					
15	South Lancashire, Yorkshire and Humber	4.018904	1.885191	0.352052	-	0.232751	5.575947	5.646358	0.873377					
16	North Midlands and North Wales	3.384821	0.269928	-	-	0.232751	3.368012	3.368012	-	0.124780				
17	South Lincolnshire and North Norfolk	1.810333	0.528105	-	-	0.232751	2.000066	2.000066	-	0.021509				
18	Mid Wales and The Midlands	1.273927	0.853057	-	-	0.232751	1.723622	1.723622	-	0.108472				
19	Anglesey and Snowdon	5.610335	-	0.068323	-	0.232751	5.322926	5.322926	-	0.260080				
20	Pembrokeshire	9.473688	-	4.907724	-	0.232751	5.314758	5.314758	-	2.195841				
21	South Wales & Gloucester	6.050596	-	5.023364	-	0.232751	1.799154	1.799154	-	2.242097				
22	Cotswold	2.617863	3.820598	-	8.882383	-	0.232751	-	1.664316	-	3.440793	-	7.586895	
23	Central London	-	4.237683	3.820598	-	5.933549	-	0.232751	-	6.160795	-	7.347505	-	4.638061
24	Essex and Kent	-	4.102577	3.820598	-	-	-	0.232751	-	1.278850	-	1.278850	-	1.295488
25	Oxfordshire, Surrey and Sussex	-	1.124600	-	2.157597	-	-	0.232751	-	3.083429	-	3.083429	-	1.095790
26	Somerset and Wessex	-	1.931156	-	3.151614	-	-	0.232751	-	4.685198	-	4.685198	-	1.493397
27	West Devon and Cornwall	-	0.361854	-	5.783941	-	-	0.232751	-	5.221758	-	5.221758	-	2.546327

2021/22 Generation Tariffs – Using RIIO-2 EC & F Calculation (as of 16/10/20)

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						
Zone	Zone Name	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)	(£/kW)						
1	North Scotland	7.230021	35.495924	32.971932	-	4.086882	57.917424	64.511810	43.083420					
2	East Aberdeenshire	3.586921	19.069280	32.971932	-	4.086882	41.133009	47.727395	36.512762					
3	Western Highlands	6.676010	32.545211	31.889230	-	4.086882	54.136681	60.514527	40.820432					
4	Skye and Lochalsh	-	16.560603	32.545211	31.709633	-	4.086882	30.756390	37.098317	40.640835				
5	Eastern Grampian and Tayside	8.601388	23.831827	27.133901	-	4.086882	45.287088	50.713869	32.579750					
6	Central Grampian	7.949862	27.140278	30.758688	-	4.086882	50.182153	56.333890	37.527917					
7	Argyll	5.612070	22.316869	48.638544	-	4.086882	58.289518	68.017227	53.478410					
8	The Trossachs	6.244011	22.316869	25.370615	-	4.086882	40.307116	45.381239	30.210481					
9	Stirlingshire and Fife	4.118398	19.497741	23.085565	-	4.086882	34.098161	38.715274	26.797779					
10	South West Scotland	4.758736	19.954439	23.420535	-	4.086882	35.371833	40.055940	27.315429					
11	Lothian and Borders	4.648367	19.954439	11.600371	-	4.086882	25.805333	28.125407	15.495265					
12	Solway and Cheviot	3.470625	12.901644	12.477846	-	4.086882	19.687335	22.182904	13.551622					
13	North East England	5.677345	10.040345	7.783229	-	4.086882	15.849322	17.405968	7.712485					
14	North Lancashire and The Lakes	3.839592	10.040345	1.486755	-	4.086882	8.974390	9.271741	1.416011					
15	South Lancashire, Yorkshire and Humber	6.105261	3.755575	0.632590	-	4.086882	5.528911	5.655429	-	1.952062				
16	North Midlands and North Wales	5.083670	0.853165	-	-	4.086882	1.679320	1.679320	-	3.745616				
17	South Lincolnshire and North Norfolk	2.076663	0.767139	-	-	4.086882	-	1.396508	-	1.396508	-	3.780026		
18	Mid Wales and The Midlands	1.134634	1.513005	-	-	4.086882	-	1.741844	-	1.741844	-	3.481680		
19	Anglesey and Snowdon	8.774360	0.617825	-	-	4.086882	-	5.181738	-	5.181738	-	3.839752		
20	Pembrokeshire	15.431676	-	8.146536	-	4.086882	4.827565	4.827565	-	7.345496				
21	South Wales & Gloucester	9.193106	-	8.350841	-	4.086882	-	1.574449	-	1.574449	-	7.427218		
22	Cotswold	4.574012	3.268471	-	11.702696	-	4.086882	-	6.260250	-	8.600789	-	14.482190	
23	Central London	-	7.291715	3.268471	-	8.353563	-	4.086882	-	15.446671	-	17.117383	-	11.133057
24	Essex and Kent	-	5.830921	3.268471	-	-	-	4.086882	-	7.303026	-	7.303026	-	2.779494
25	Oxfordshire, Surrey and Sussex	-	1.990501	-	4.386118	-	-	4.086882	-	9.586277	-	9.586277	-	5.841329
26	Somerset and Wessex	-	3.017675	-	5.680392	-	-	4.086882	-	11.648871	-	11.648871	-	6.359039
27	West Devon and Cornwall	-	0.346884	-	9.996204	-	-	4.086882	-	12.430729	-	12.430729	-	8.085364