Public

CMP457: Revision of the Obligatory Reactive Power Service (ORPS)

Workgroup Two, 18 November 2026

Online Meeting via Teams

NESO
National Energy System Operator

WELCOME



NESO
National Energy System Operator

Public

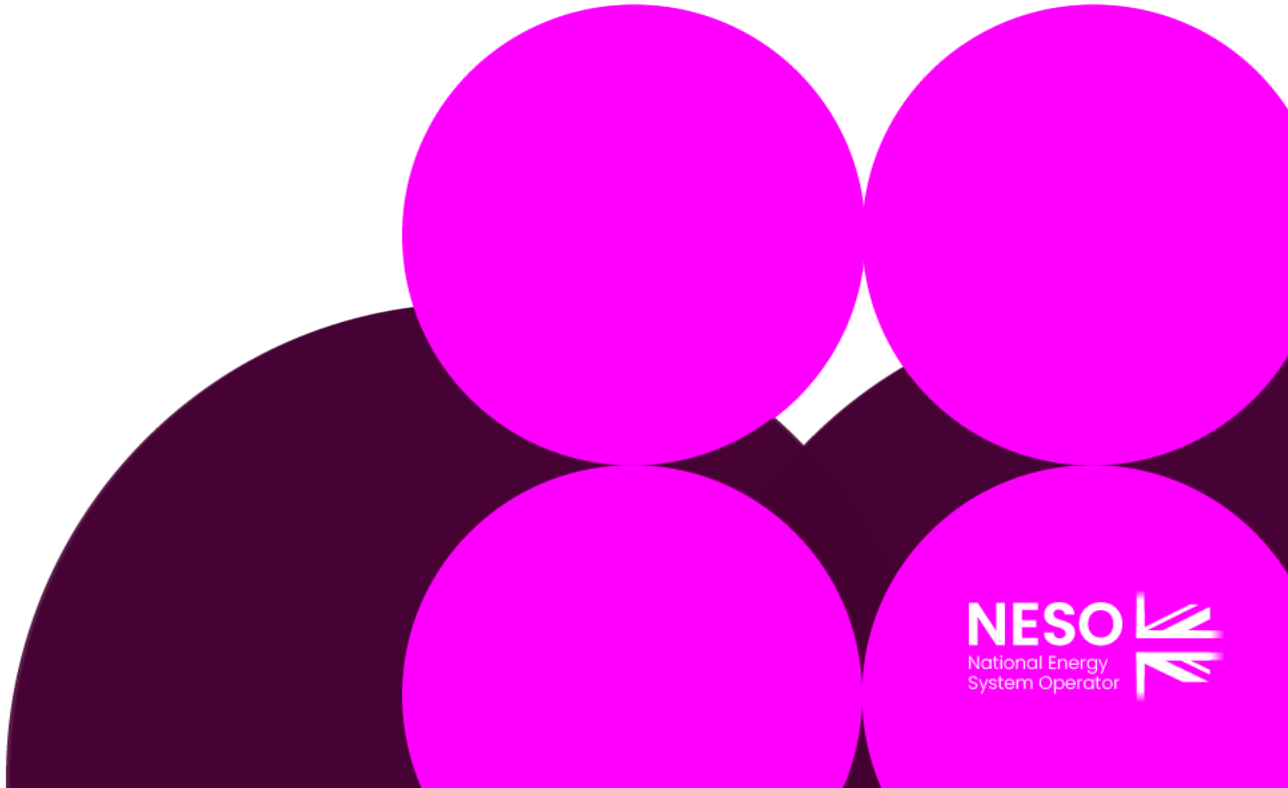
Agenda

Topics to be discussed	Lead
Introductions	Chair
Review Terms of Reference	All
Action Review	Chair
Worked Example	Proposer
Any Other Business	All
Next Steps	Chair

Public

Workgroup Responsibilities and Membership

Teri Puddefoot – NESO Code Administrator



Expectations of a Workgroup Member

- Contribute to the discussion
- Be respectful of each other's opinions
- Language and Conduct to be consistent with the values of equality and diversity
- Do not share commercially sensitive information
- Be prepared - Review Papers and Reports ahead of meetings
- Complete actions in a timely manner
- Keep to agreed scope
- Email communications to/cc'ing the .box email

Your Roles

- Help refine/develop the solution(s)
- Bring forward alternatives as early as possible
- Vote on whether or not to proceed with requests for Alternatives
- Vote on whether the solution(s) better facilitate the Code Objectives

Public

Workgroup Membership

Role	Name	Company
Proposer	Jeremy Taylor	NESO
NESO Rep	Stephen Dale	NESO
Workgroup Member	Agustin Mengoni	Eleclink Ltd
Workgroup Member	Tim Ellingham	RWE
Workgroup Member	Garth Graham	SSE Generation
Workgroup Member	Cem Suleyman	Statkraft UK
Workgroup Member	George Lear	EDF Energy Nuclear Generation Ltd
Workgroup Member	Guillermo Antonio Rios Pavia	Conrad Energy
Workgroup Member	Lamin Saidy Vulart	Qair Renewables UK Limited
Workgroup Member	Hannah Rochford	Zenobe Energy Limited
Workgroup Member	Eleanor Horn	EDF
Workgroup Member	Isaac Gutierrez	ScottishPower Renewables
Authority Representative	Zong Yan	Ofgem

Public

Workgroup Membership

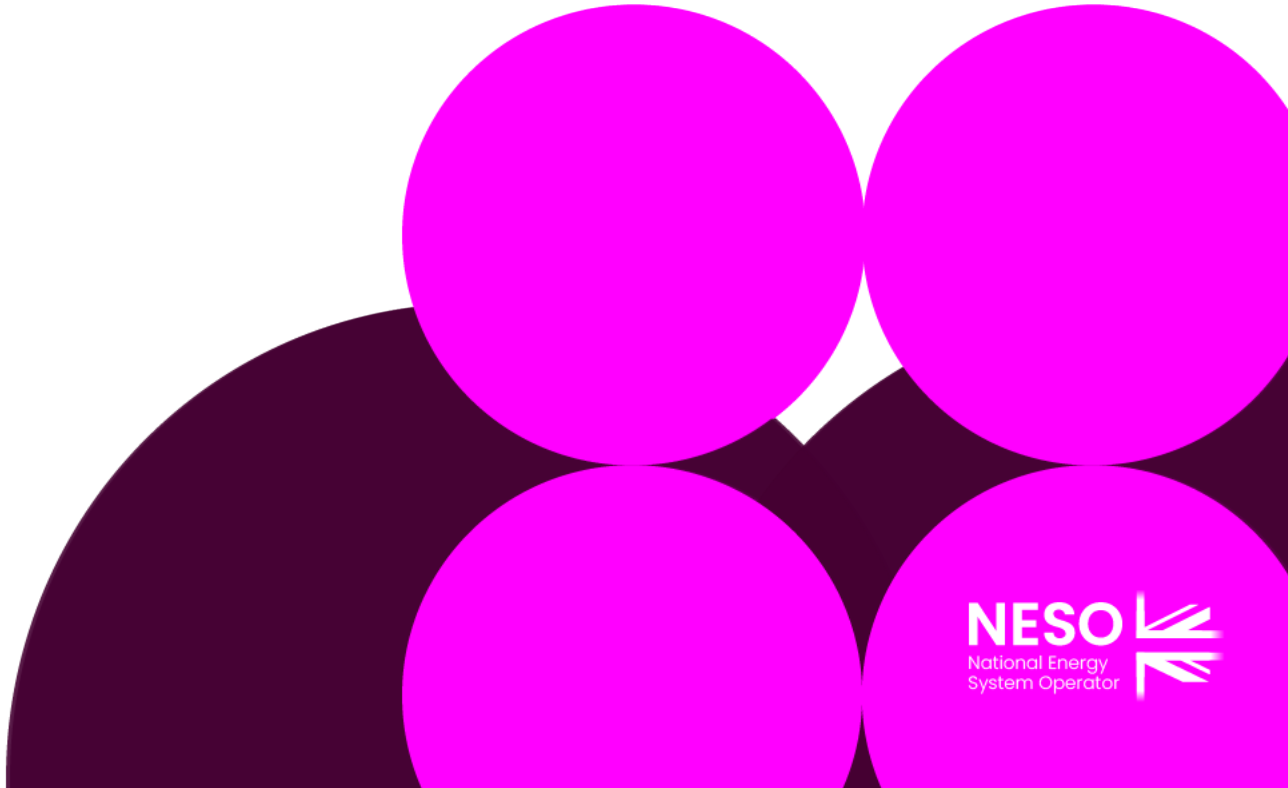
Role	Name	Company
Workgroup Member (alternate)	Patrick Murphy	Eleclink Ltd
Workgroup Member (alternate)	Andrew Allan	RWE
Workgroup Member (alternate)	Andrew Colley	SSE Generation
Workgroup Member (alternate)	Ali Khatami	Statkraft UK
Workgroup Member (alternate)	Jing Bai	Conrad Energy
Workgroup Member (alternate)	Tom Palmer, Jo Bushnell	Zenobe Energy Limited
Workgroup Member (alternate)	Mathew Chandy	EDF Energy Nuclear Generation Ltd
Workgroup Member (alternate)	Belinda Gonzales Parrado	ScottishPower Renewables
Observer	Loukas Papageorgio	Transmission Investments
Observer	Kaleb Davis	Highview Power
Observer	Roger Carter	Transmission Investments

NESO
National Energy System Operator

Public

Objectives and Timeline

Teri Puddefoot – NESO Code Administrator



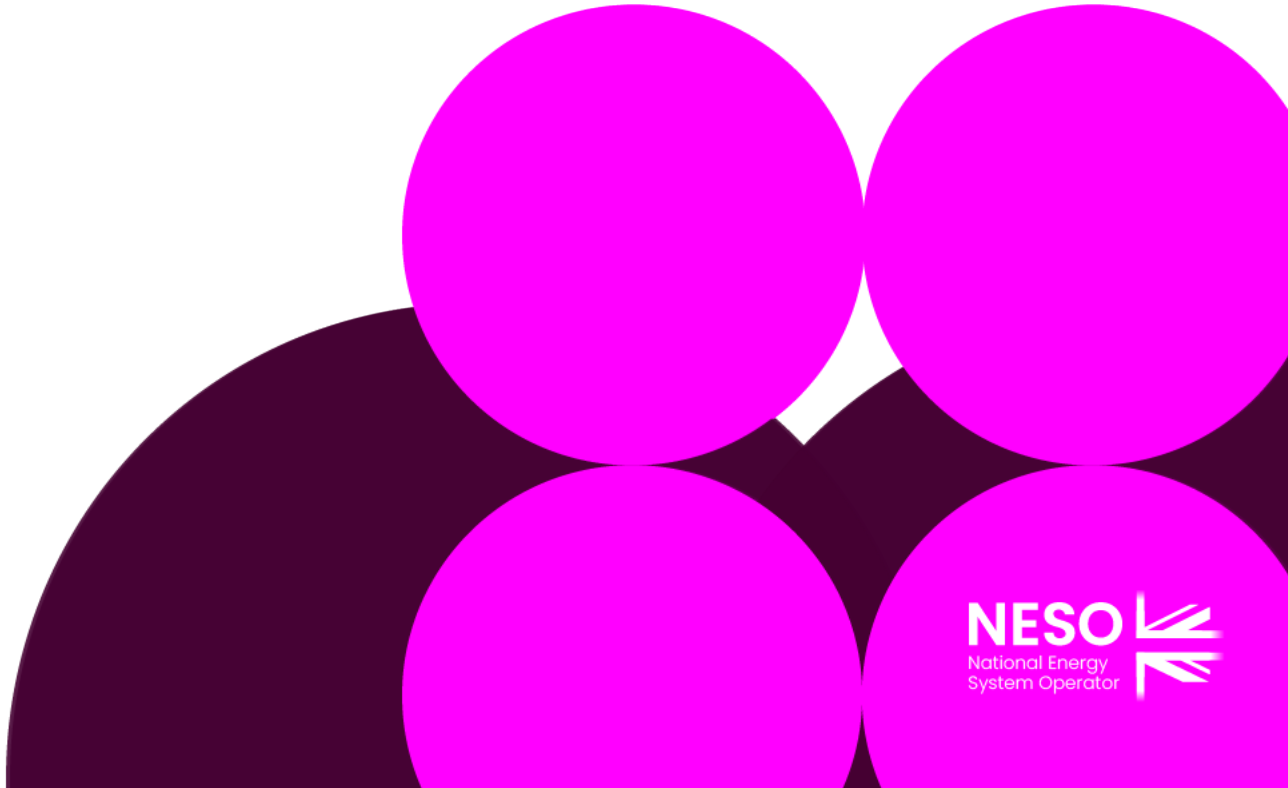
Timeline for CMP457 as at 21 October 2026

Milestone	Date	Milestone	Date
Modification presented to Panel	25 July 2025	Code Administrator Consultation	30 June 2027 – 22 July 2027
Workgroup Nominations (15 Business Days)	09 September 2026 – 30 September 2026	Draft Final Modification Report (DFMR) issued to Panel (5 Business Days)	19 August 2027
Workgroup 1 Workgroup 2 Workgroup 3 Workgroup 4	21 Oct 2026 18 Nov 2026 15 Dec 2026 27 Jan 2027	Panel undertake DFMR recommendation vote	27 August 2027
Workgroup Consultation (15 Business Days)	10 February 2027 – 03 March 2027	Final Modification Report issued to Panel to check votes recorded correctly	31 August 2027
Workgroup 5 Workgroup 6 Workgroup 7 Workgroup 8	10 March 2027 07 April 2027 05 may 2027 02 June 2027	Final Modification Report issued to Ofgem	10 September 2027
Workgroup report issued to Panel (5 Business Days)	17 June 2027	Ofgem decision	TBC
Panel sign off that Workgroup Report has met its Terms of Reference	25 June 2027	Implementation Date	TBC

Public

Review Terms of Reference

Teri Puddefoot – NESO Code Administrator



Public

Terms of Reference

Workgroup Term of Reference	Location in Workgroup Report (to be completed at Workgroup Report stage)
a) Consider EBR implications	
b) Consider Interaction with Enhanced Services and the overall requirement for reactive services (i.e locational and temporal requirements of the system).	
c) Consider Interaction with requirements within the grid code in terms of reactive power provision.	
d) Consider the findings of the OPRS Methodology Review completed by DNV	
e) Consider to what extent the proposed solution interacts with existing and anticipated NESO commercial contracts for procurement of Reactive Power.	
f) Consider whether the Terms of Reference should include a review of ORPS settlement to ensure settlement arrangements appropriately reflect the CUSC requirements.	
g) onsideration of the basis and assumptions underpinning the proposed ORPS payment table	

Public

Actions Review

Teri Puddefoot – NESO Code Administrator

Public

Action Review

Action number	Workgroup Raised	Owner	Action	Comment	Due by	Status	Workgroup Closed
1	WG1	JT/SD	Review the treatment of offshore generators where the reactive power requirement is split between the generator and the OFTO, including the existing CUSC Schedule 3 arrangement under which the available payment is reduced to 20%. Consider whether applying this adjustment to the proposed technology-specific rates would remain cost reflective and how this should be addressed within the CMP457 methodology.			Open	
2	WG1	JT/SD	Review whether CPI appropriately reflects changes in fuel costs within the proposed methodology and considers whether a separate index or additional element is required for the fuel-cost component.			Open	
3	WG1	CS	Review the proposed 1% fuel-loss factor and provide further feedback to the Workgroup.			Open	
4	WG1	JT/SD	Share the separate Plexos modelling report with the Workgroup.			Open	
5	WG1	JT/SD	Provide worked numerical examples of the proposed formula to demonstrate how the payment calculation operates.			Open	

NESO National Energy System Operator

Public

Action Review

Action number	Workgroup Raised	Owner	Action	Comment	Due by	Status	Workgroup Closed
6	WG1	JT/SD	Confirm whether the impact of the proposed ORPS rate on stability contracts that reference the ORPS rate needs to be addressed through CMP457, or whether this should be dealt with separately outside the Modification.			Open	
7	WG1	JT/SD	Clarify the treatment of synchronous compensators and whether an additional technology category is required where they provide ORPS under the CUSC.			Open	
8	WG1	JT/SD	Discuss with DESNZ how the LCOE data is validated, including any available third-party validation, and provide further information to the Workgroup on the robustness of the data used within the proposed methodology.			Open	
9	WG1	JT/SD	Raise with the Settlements Team the concerns regarding the settlement of ORPS, including whether additional settlement requirements are being applied that are not reflected in the CUSC, and consider whether the settlement arrangements need to be addressed as part of CMP457.			Open	

NESO National Energy System Operator

Public

Action Review

Action number	Workgroup Raised	Owner	Action	Comment	Due by	Status	Workgroup Closed
10	WG1	JT/SD	Consider whether opportunity costs associated with providing reactive power, including where hydro units may need to reduce MW output to provide the required reactive capability, should be reflected within the proposed methodology.			Open	
11	WG1	JT/SD	Provide specific references to the source data within the LCOE reports used to derive the variable O&M costs in the proposed technology payment table, to enable Workgroup Members to review and validate the assumptions			Open	

NESO National Energy System Operator

Public

Queries of Compensation elements

Queries

Further to the workgroups comments about, consideration of

a) Capital cost of Reactive Power equipment
b) Can we include capability payments in the reimbursement.
c) The potential for opportunity costs of MVar provision , specifically for Hydro Power stations.
d) How are participants with Bi lateral agreements that reference ORPS (outwith the Grid code obligation) ie: voltage pathfinders affected.

We can discuss this in the Work Group but as a principle the scope is limited to amending the formulae for utilization payment to compensate participants for the provision of Mvar under the Grid Code, outlined by the proposer, based on the work commissioned by NESO, as per the scope.

a & b) Capital costs with complying with the Grid code, ie: installing a capability or having a capability are Out of Scope of CMP457.

c) The case for opportunity costs to be considered for Hydroelectric generators (not pumped hydroelectric storage) needs to be understood better before we can comment.

d) Participants who have bilateral agreements that reference ORPS as a compensation mechanism, outside of the Grid Code obligation itself, are out of scope for CMP457.

Public

Discussion points from emails

Point one (GR)
To follow up on the topic of synchronous condensers participating in ORPS.

If you look at the reactive utilisation data published by NESO, you should see synchronous condenser plants being utilised for reactive power under “Default”, which should mean ORPS: Obligatory Reactive Power Service (ORPS) | National Energy System Operator
Therefore, SynCons should be added as a technology type to assess for the ORPS proposed fee methodology.

Point two (IG)
If we are approaching this by technology, why the more polluting generating plant are not charge a levy for polutiom similar to what the government do with cars, the more CO2 emissions the higher you road tax.

Public

CMP457
Responses to actions



NESO
National Energy System Operator

Public

High level formulae

Current

$$£/MVArh = \frac{46{,}270{,}000 \ * I * X * Y}{42{,}054{,}693}$$

Where,

$$I = C * [(0.5 * \frac{FRPI_m}{RPI_x}) + (0.5 * PI_m)]$$

Where,

$$C = \frac{RPI_x}{RPI_1}$$

And

$$P_m = [(\frac{1}{3} * \frac{HPI_m}{HPI_1}) + (\frac{1}{3} * \frac{PAPI_m}{PAPI_1}) + (\frac{1}{3} * \frac{PPI_m}{PPI_1})]$$

Where,
HPI_m = Heren power index,
$PAPI_m$ = Petroleum Argus power index,
PPI_m = Petroleum Argus power index

Proposed

$$£/MVArh = Unit\ Rate * X * Y$$

Where,

$$Unit\ Rate = Initial\ Unit\ Rate * \frac{CPI_m}{CPI_1}$$

Where,

Initial Unit Rate =
Converted LCOE Variable O&M + Converted LCOE fuel

Where,

Converted LCOE Variable O&M =
*(LCOE Variable O&M * 19.6%) or (LCOE Variable O&M * 27.35%)*

And,

Converted LCOE fuel cost = LCOE fuel cost x 1%

Public

Conversion process

p.f.	P=MW	Q=MVAr	S=MVA	% Q/P	% Q/S
1	100	0	100	0	0.00%
0.99	100	14.25	101.01	14.25%	14.11%
0.98	100	20.31	102.04	20.31%	19.90%
0.97	100	25.06	103.09	25.06%	24.31%
0.96	100	29.17	104.17	29.17%	28.00%
0.95	100	32.87	105.26	32.87%	31.22%
0.94	100	36.30	106.38	36.30%	34.12%
0.93	100	39.52	107.53	39.52%	36.76%
0.92	100	42.60	108.70	42.60%	39.19%
0.91	100	45.56	109.89	45.56%	41.46%
0.9	100	48.43	111.11	48.43%	43.59%
0.89	100	51.23	112.36	51.23%	45.60%
0.88	100	53.97	113.64	53.97%	47.50%
0.87	100	56.67	114.94	56.67%	49.31%
0.86	100	59.34	116.28	59.34%	51.03%
0.85	100	61.97	117.65	61.97%	52.68%
			1-0.95 average	20.28%	**19.59%**
			1-0.85 average	38.58%	**34.92%**

For non-synchronous providers with a symmetrical range (+/-0.95), the final conversion ratio is calculated as follows:

$= 0.95 \text{ average} + 0.95 \text{ average}$

$= (0.5 \times 19.6\%) + (0.5 \times 19.6\%) = 27.25\%$

For synchronous providers with an asymmetrical range (+0.95 to -0.85), the final conversion ratio is calculated as follows:

$= 0.95 \text{ average} + 0.85 \text{ average}$

$= (0.5 \times 19.6\%) + (0.5 \times 34.9\%) = 27.25\%$

[1] *2021 price as per DESNZ Electricity Generation Costs 2023*

NESO National Energy System Operator

Public

CMP457
Worked Example



NESO
National Energy System Operator

Public

Example – Non sync

Example: Onshore wind

Variable O&M = £6/MWh[1]

Fuel cost = £0/MWh[1]

Converted Variable O&M = $(£6/MWh * 19.6\%)$ + (£0/MWh * 1%)

2021 rate = £1.176/MVArh

CPI rate = $\frac{144.6}{110.1}$

November 2026 rate = £1.544/MVArh

[1] *2021 price as per DESNZ Electricity Generation Costs 2023*

Public

Example –sync

Example: Nuclear

Variable O&M = £5/MWh[2]

Fuel cost = £5/MWh[2]

GDP Deflator indexation from 2014 to 2021 = +14.6%

Adjusted Variable O&M = £5.73/MWh

Converted Variable O&M = (£5.73/MWh $*$ 27.25%) + (£5.73/MWh * 1%)

2021 rate = £1.619/MVArh

CPI rate = $\frac{144.6}{110.1}$

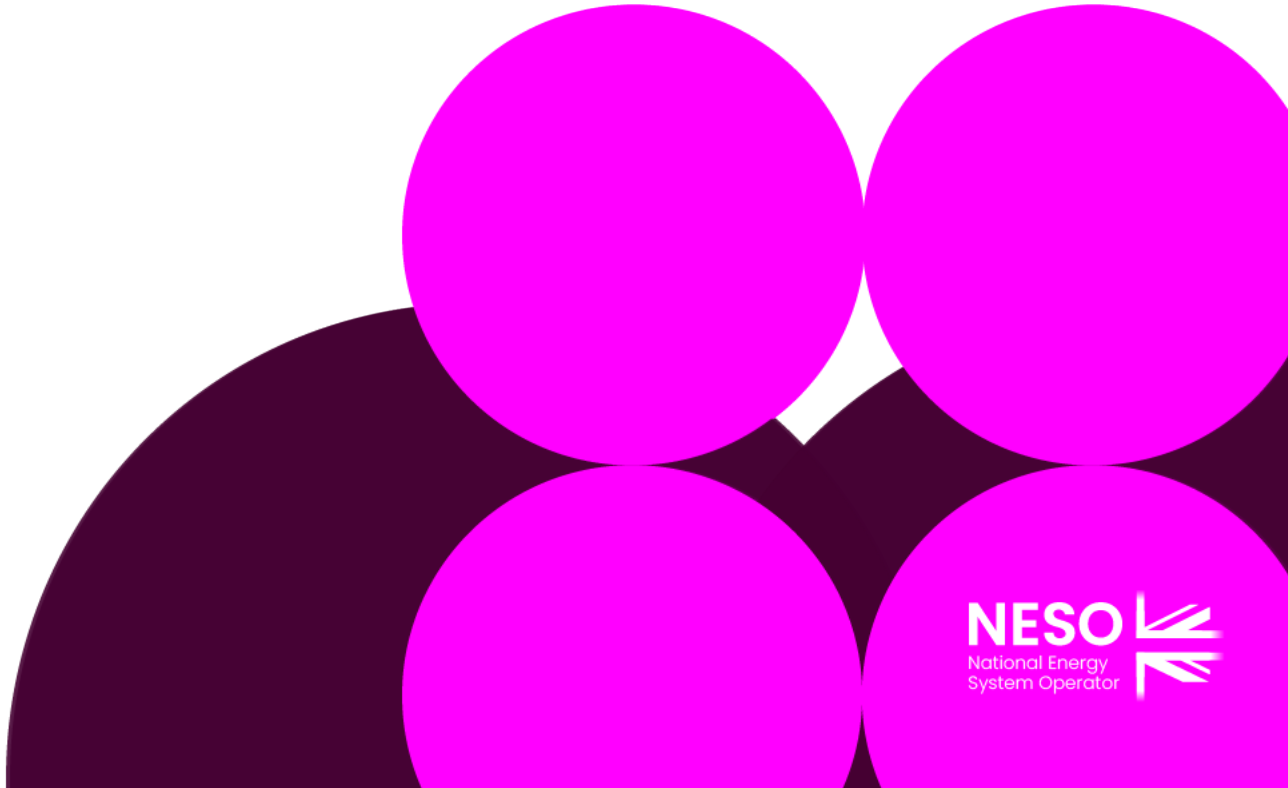
November 2026 rate = £2.126/MVArh

[2] *2014 price as per BEIS Electricity Generation Costs 2016*

Public

Any Other Business

Teri Puddefoot – NESO Code Administrator



Next Steps

Teri Puddefoot – NESO Code Administrator

