

Overview

The EU Persistent Organic Pollutants Regulation (POP Regulation) was recast in June 2019 to require that “Member States shall identify and remove from use equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks) containing more than 0,005 % (50 ppm0 PCBs and volumes greater than 0,05 dm³ (50 ml), as soon as possible but no later than 31 December 2025”¹.

DNOs were not provided with any specific allowances to fund PCB related activities in RIIO-ED1 and the EU POP Regulations were not implemented in the UK until May 2020. For similar reasons, there were no opportunities for DNOs to request additional funding through the RIIO-ED1 Mid-Period Review of Outputs. There are no other mechanisms available in the RIIO-ED1 framework to enable additional funding to be provided.

While deadline for compliance is the end of 2025 which falls into the RIIO-ED2 period, in order to meet obligations in 2025, there are clear benefits for some DNOs/DNO customers from starting activities in RIIO-ED1 to meet significant deliverability challenges. Note that the scale of increased asset changes required, and in particular pole mounted transformers (PMTs) changes, is not uniform across all DNOs with some DNOs facing much greater deliverability challenges than others if delivery of this mandatory activity is only fully mobilised in ED2.

There is therefore a need for a new mechanism to enable some DNO activities to be brought forward from RIIO-ED2 into RIIO-ED1 to accelerate delivery in line with the 2025 deadline, and to reduce the economic impact of the peak activities Summer 2023 to December 2025 in terms of unit costs of equipment and contracting resources.

In order to help meet the UK’s December 2025 obligations, Northern Powergrid (Northeast) requests an additional allowance of £4.3m in 12/13 prices under Ofgem’s ED1 Green Recovery Scheme to begin to deliver the required outputs in the remaining RIIO-ED1 period. A detailed breakdown of costs and associated narrative is provided below the summary cost category table:

Cost category	Cost £m in 12/13 prices
Asset replacement (inc. PMTs/GMTs, pole replacement where required)	£3.6m
Data gathering activities (for both PMTs/GMTs)	£0.0m
Indirect costs associated with asset replacement	£0.7m
Total	£4.3m

Please see accompanying file in RIGs format [CV22-PCB-NPgN.xlsx].

Impact on RIIO-ED2

All of the work outlined in this submission was already included in our ED2 final submission. For completeness, the attached RIGs table includes the PMT replacement volumes in ED2 as a result of the proposed acceleration of some works into ED1.

Asset Replacement

PMT replacement – Cohort Model

¹ REGULATION (EU) 2019/1021 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2019 on persistent organic pollutants (recast). UK Regulation -The Persistent Organic Pollutants (Various Amendments) Regulations 2019, SI 2019/1099

There are a significant number of PMTs on the DNOs' networks to test²/replace, therefore using an industry statistical model (The Model) developed by the ENA, approved by the Environment Agency (via RPS 246) and supported by the Welsh and Scottish Environmental Agencies, all DNOs are sampling transformers based on manufacturer and year and put into cohorts. A number of each cohort will be tested, if a certain percentage of the cohort comes back negative, i.e. it does not contain PCB it will be moved to 'green' and the transformers within that cohort do not need to be tested/replaced by the end of 2025 (i.e. they are statistically clean and can remain in service).

The September 2021 iteration of the model (used for the ED2 submission) has identified the following number of PMTs needing to be replaced before the 2025 deadline, for Northern Powergrid (Northeast):

Category for PMTs	Volume
Red (to be replaced due to cohort contamination, or the cohort is too small to use statistical sampling)	2,522
Amber (a sample needs to be replaced to establish if cohort replacement is required or not)	3,098
Green (does not need replacing – with output of current cohort modelling)	1,361

In the RIIO-ED1 period, from 2020/21, Northern Powergrid (Northeast), will expect to deliver/have delivered the following volumes / cost (12/13 prices):

	2020/21	2021/22	2022/23
PMT replacement - Volumes	0	26	974
PMT replacement – Costs £m	0	0.09	3.5

To demonstrate efficiency the cost for the PMTs and Poles is to be referenced to the Ofgem expert view of efficient unit costs determined in the Disaggregated Cost Benchmarking Model in the Final Determinations for ED1 (ED1 FD).

In addition, there may be requirements to install or upgrade associated equipment at the time of the works which are not included in the efficient unit cost above, e.g. installation or upgrade of earthing, upgrade of spur line protection to meet the spec of the uprated transformers (these do not have discrete unit costs in ED1 FD):

12/13 prices	2020/21	2021/22	2022/23
Earthing - Volumes	0	0	0
Earthing - Costs	0	0	0
Protection upgrades - Volumes	0	0	0
Protection upgrades - Costs	0	0	0
Others - Volumes	0	0	0
Others - Costs	0	0	0

Please add additional rows if required.

² PMTs are sealed units and in service testing is therefore not possible. Testing is conducted on disposal by an Environment Agency licensed waste disposal contractor

Data Gathering activities to inform replacements

Additional data gathering activities will be conducted to inform the PMT statistical model as set out below. Without these activities there would have been inefficiencies in the work conducted.

Activity (add costs to table) 12/13 prices	2020/21	2021/22	2022/23
Data gathering – PMT – Volumes	0	0	1,882
Data gathering – PMT – Costs £m	0	0	0.1

The above data gathering activities are to age and/or manufacturer details where the data is not already in our information systems. This is the minimum work required to allow us to allocate all PMTs into specific cohorts.

Additional costs

The nature of individual projects to replace PMTs is such that there will be project indirect costs, e.g. costs incurred due to land access, outage planning / live line job planning, supply logistics and integrated project planning.

Activity (12/13 prices) £m	2020/21	2021/22	2022/23
Closely associated indirect costs for PMT replacements	0	0.02	0.67

The indirect costs stated above have been built up based on the additional activities required to deliver this PMT replacement programme. Activities that would be included within our existing overheads have been excluded.

Deliverability in ED1

The proposed additional programme that this submission seeks to funding for may represent deliverability challenges within the remaining period of ED1 (with reference to historical and current planned ED1 run rates). Any specific challenges and solutions identified by individual DNOs should be set out below, however the agreed approach is that these outputs will be subject to the same treatment as Green Recovery Projects in that any delivery that is delayed into ED2 will still be required to be delivered by DNOs at the ED1 unit cost set out above rather than the agreed ED2 unit cost. This inherently incentivises DNOs to seek funding for a programme that can be delivered within ED1.

The key requirements to enable NPg to deliver this one-off programme of work are the availability of the transformers and the overhead line contracting teams to install them. We have already secured delivery for 75% of the transformers required in ED1, along with secure options to increase deliveries to 100% of our requirements. In addition, we have recently increased our contractor overhead line capability to enable delivery of all of the ED1 work.

At the beginning of 2023, as we move towards ED2, we will again ramp up our delivery capability to ensure a smooth profile of delivery across the first 3 years of ED2.

Future Proofing

When pole mounted transformers are replaced under this programme there is an opportunity to future proof the transformers by upgrading the transformer to a larger size to accommodate future load growth expected to accommodate Low Carbon Technologies, which will have an added benefit in the immediate term of reducing network technical losses.

The agreed approach is that DNOs will consider each transformer being replaced in the context of its Distribution Future Energy Scenarios referenced in ED2 plans and will consider upsizing the transformer accordingly.

Future Proofing

For all PMT replacements, we are assessing the forecast loading on the transformers using our DFES forecasts. New PMTs will be sized appropriately to meet the expected net zero demands up to 2050. Within the ED1 period we are targeting those transformers where a 25kVA capacity will suffice. This will involve replacing transformers from as little as 4kVA up to 25kVA.

ED2 Deliverability and Efficiency Challenges

The potential scale of PMT replacement programmes faced by some DNOs could present significant delivery challenges in ED2 which are also likely to present as upwards pressures on costs, whether this be from competition for overhead line contracting resources or increased demand on equipment manufacturers.

Accelerating a proportion of the industry PMT replacement programme into ED1 will reduce pressure on input costs for all DNOs by smoothing the industries delivery profile and reducing the peak demand on manufacturing and contractors during a more concentrated period (April 2023-December 2025).

Deliverability of Programme in ED2

Our accelerated ED1 programme helps us to deliver our ED2 requirements in three ways:

- The pressure on the supply chain will be eased, as manufacturing will be spread over an additional 12

months, thus increasing the overall availability of PMTs and reducing price pressures due to supply and demand.

- The overall volume of work required in ED2 is reduced, thus reducing the peak burden on a short but high volume programme of work.
- Our ability to ramp up our delivery in ED1 will reduce the step-change in requirements as we move into ED2 and will allow us to develop and deliver a more efficient programme as we ramp up our delivery again in 2023.