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ORPS Methodology Webinar – Presentation of findings

Summary

- **Webinar Overview and Objectives:** NESO introduced the purpose of the webinar; to present a recommended new Obligatory Reactive Power Service (ORPS) pricing methodology, discuss the drivers and approach for its development, highlight key design features and baseline data, and collect feedback from industry for consideration in the final recommendation.
- **Drivers for Review of ORPS Methodology:** NESO provided an overview of the current ORPS compensation mechanism, that it was last updated in November 2007, is based on Retail Price Index (RPI) and power price indexes (PPI) and was designed for a fossil-fuel dominant network. The 2021-2023 spike in gas prices exposed the volatility and consumer impact of this approach. This highlighted a need for a more cost-reflective compensation mechanism as the system moves towards being dominated by asynchronous/renewable generation.
- **Project Approach and Partnership:** NESO advised that they received Network Innovation Allowance (NIA) funding to explore new methodologies and partnered with DNV after a competitive process. The project progressed through several phases, with this webinar marking a milestone in presenting the recommended methodology and gathering industry feedback to refine the approach before the final recommendation. The output will feed into the standard code modification process, ensuring ongoing industry engagement
- **Engagement and Methodology Options Considered:** DNV explained that the project engaged with international system operators (e.g., Australia's AEMO, Belgium's Elia, France's RTE, and Sweden's Svenska kraftnät) and GB service providers representing eleven technologies. Feedback highlighted strengths of the existing system such as simplicity, but also weaknesses such as a single tariff not reflecting diverse technology costs, a lack of transparency around elements of the methodology, and high expense to consumers. Eighteen design feature combinations were initially identified, including fixed tariffs, market-based approaches, hybrid schemes, and no compensation options. After qualitative screening, ten options remained. Market-based approaches were not considered suitable for a mandatory service with low liquidity in some regions. The no-compensation and the current model were also rejected for not being cost-reflective.
- **Recommended Methodology: Fixed Tariff with Multiple Rates by Technology:** The most suitable option that the project identified is a fixed tariff based on utilisation, with different rates per technology, grouped into synchronous and non-synchronous generation. This method was chosen after qualitative and quantitative assessments including simulations using future energy scenarios.

- **Baseline Data:** The methodology bases unit rates on the Department of Energy Security and Net Zero's (DESNZ) Levelized Cost of Electricity (LCOE) reports, which provide detailed, independently reviewed, and regularly updated cost breakdowns including variable operation and maintenance (O&M) costs. The LCOE data are converted from pounds per megawatt-hour (£/MWh) to pounds per megavolt-ampere-hour (£/MVArh) using a conversion factor based on the ratio of reactive power to apparent power (Q/S ratio)
- **Conversion and Indexation Process:** The conversion assumes that wear and tear is proportional to apparent power, with the Q/S ratio averaged over the grid code-defined power factor ranges for synchronous and non-synchronous machines. The methodology treats lead and lag in the same manner (i.e. that providers operate in them equally) because ORPS is a mandatory requirement which therefore requires equal access to both lead and lag capability. Fuel cost for reactive power provision is estimated at 1% of the LCOE fuel cost, based on DNV experimental research. The initial unit rates are aligned to the scheme's start year (year 0) using GDP deflator, then indexed monthly with the Consumer Price Index (CPI) to reflect inflation until new LCOE data becomes available.
- **Addressing Data Limitations:** Assumptions have been made around some technologies like pumped storage, battery energy storage systems (BESS), and nuclear due to the data in the LCOE reports. For example, pumped storage's high variable O&M cost includes pumping costs, which are reclassified as fuel costs in the recommended methodology. BESS costs are assumed the same as onshore wind, due to being inverter-based technologies. Nuclear costs are based on LCOE generator data from 2016 and indexed accordingly. NESO plans to continue working with DESNZ on future updates to the LCOE data.
- **Q&A Highlights and Industry Feedback:** Please refer to the Q&A document.