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Dear Company Secretary

Low Carbon Networks (LCN) Fund – amendments to Southern Electric Power Distribution's New Thames Valley Vision project

This letter contains our[1] decision to approve requested amendments to the Successful Delivery Criteria ("SDRCs") for Southern Electric Power Distribution ("SEPD")'s New Thames Valley Vision project ("the project").

Background

On 19 December 2011, we issued a Project Direction[2] to SEPD.[3] The Project Direction contains the terms to be followed by the project as a condition of it being funded under the LCN Fund Second Tier and Discretionary Funding Mechanisms.[4]

Part of the project involves trialling energy storage and power electronic devices on the low voltage ("LV") network. These devices will be trialled to manage network constraints and improve power quality. The project will trial 25 three-phase devices.

In November 2013, SEPD requested changes to the specification and delivery date of these devices. The amendments were requested following the completion of forerunner projects, which identified the required functionality for these devices, and of an exercise to procure them. Difficulties were experienced procuring the devices as they were first of a kind and did not exist at that time as a single unit. We approved[5] these changes in February 2014 following additional clarifications from SEPD.

On 22 August 2014, SEPD requested further amendments to the project's SDRCs in the Project Direction for this aspect of the project. We requested further clarification and final details were received on 5 September 2014.

[1] The terms "the Authority", "Ofgem" and "we" are used interchangeably in this letter. Ofgem is the Office of the Gas and Electricity Markets Authority.
[2] https://www.ofgem.gov.uk/publications-and-updates/low-carbon-network-fund-project-direction-new-thames-valley-vision
[3] This was pursuant to the LCN (Low Carbon Networks) Fund Governance Document issued pursuant to Part E of Charge Restriction Condition 13 ("CRC13") of the Electricity Distribution Licence.
[4] Second Tier and Discretionary Funding Mechanism has the meaning given in CRC 13.3(b).
[5] https://www.ofgem.gov.uk/publications-and-updates/low-carbon-networks-fund-%E2%80%93-amendments-southern-electric-power-distribution%E2%80%99s-new-thames-valley-vision-project.

SDRCs 9.4c, 9.4d and 9.8a – installation, operation and learning dissemination from LV storage

SEPD has requested changes to three of the SDRCs that relate to the energy storage and power electronics aspect of the project. These changes are being requested as a result of difficulties encountered by the third party supplier in procuring parts and manufacturing the devices. The problems included:

- The cabinets housing the devices needed a bespoke design. Several design iterations were required in addition to two prototypes before the design was finalised.
- The suppliers experienced supply chain problems. The first local supplier was unable to supply the devices at the required cost and on time. The first shipment of cabinets by a second supplier did not meet the design requirements.
- The devices required a set of interposing transformers which have added to the complexity of the design of the devices. Again a very iterative design and three prototypes were required before the transformers met the requirements.

SEPD has explained that these issues have been encountered as these devices are first of a kind and the components have had to be designed and built to new specification. The time allowed for the design, manufacture and delivery of the devices has proved to be insufficient in the face of the difficulties encountered. It estimates that the devices will now be delivered 21 weeks after the current installation target of November 2014.

SEPD has also explained that this delay has a consequential impact on the timings for installation, operation and evaluation of the devices. The SEPD resources assigned to install the devices are not immediately available when the devices are now expected to be received. Additionally, as the installations will occur in the winter when working conditions are more difficult, the installations may take longer. SEPD estimates that this would add a further 10 weeks of delay to the installation of the devices.

We note the efforts undertaken by SEPD and the supplier to mitigate the effect of these issues, including SEPD engineering resource assisting the supplier and its contractors, the proposed phased delivery of devices as soon as they are ready and air freighting of goods to speed installation.

We were concerned that the changed delivery schedule may affect the learning from the trials, as the batteries would be operated during the summer rather than the winter. SEPD has explained that the learning will be of equal value. As the devices are not being used on parts of the network that are currently experiencing constraints, the constraints managed by the devices will be simulated and the impact of the devices recorded, regardless of season. Additionally phase imbalance and harmonic network problems have low seasonal variation and some devices will still be installed and operated during the winter.

Conclusions

We note that this is the second change request on this aspect of the project in a relatively short period of time. We expect distribution network operators to consider issues and changes in circumstances in their entirety, plan and implement their mitigations carefully and alter their plans appropriately. The number of changes required by this project and on this aspect raise questions about how well planned and implemented the project has been to date. It would also appear to raise questions about the readiness of the project at the time of submission. However, we accept that the changes in circumstances have impacted the timescales of this project.

We note that the costs of the project have not increased, valuable learning may still be generated and the overall project timetable is not affected. As such, we consider it is in the

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best interests of customers[6] and appropriate in the circumstances to approve these changes. This will allow the project to deliver learning on the use of power electronic and energy storage devices on the LV network. By approving these changes we are not making an evaluation of SEPD's overall management of the project.

Decision

In accordance with Section 15 of the Project Direction, we hereby amend the Schedule to the Project Direction in the manner set out in the Schedule to this letter.

This letter constitutes notice of reasons for our decision pursuant to section 49A of the Electricity Act 1989.

Yours sincerely,

Dora Guzeleva,
Head of Networks Policy, Local Grids
For and on behalf of the Authority

[6] The term "customer" has the meaning given to the term "Customer" in the Electricity Distribution Licence.

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Schedule

1. Amend existing section 11 (Successful Delivery Reward Criteria)

Amend existing Section 11 of the Schedule to the Project Direction in the following manner:

9.4 c	**Criterion:** ~~November 2014~~ July 2015 – Install 25 LV connected batteries as defined in 9.4a.	**Evidence:** Photographic evidence of installs. Site visit will also be offered
9.4a	**Criterion:** ~~November 2014~~ October 2015 - LV Network Storage	**Evidence:** Installation (requirements, permissions, unit costs, safety considerations, timescales); Benchmark the battery and thermal storage methods; Battery Storage (demand shifting from individual and aggregated operation management of network voltage, thermal'. Power quality and losses); Ice Energy Storage (demand shifting from individual and aggregated operation, commercial arrangements and customer feedback); Thermal Energy storage (assess additional generation permitted within existing network, management of network voltage, thermal).
9.4d	**Criterion:** ~~March 2015~~ November 2015 – Produce learnings from energy storage and power electronic deployment to assess the hypothesis as defined in 9.4a.	**Evidence:** d) Produce report which discusses validity of deployment plan and lessons learnt in relation to 9.4a. Report to review hypothesis of 9.4a drawing conclusions for variation and recommendations for future application.

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