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Date: 11 March 2020

Dear Kevin,

Network Innovation Competition – Change Request to SP Manweb plc’s ANGLE-DC project

The Network Innovation Competition (“NIC”) funds a number of large-scale innovation projects and was set up to encourage network licensees to innovate in the design, development and operation of their networks.¹

SP Manweb plc (“SPMW”) was awarded NIC funding in 2015 as detailed below and have submitted a change request.

This letter contains our decision on the requested changes to the project’s Successful Delivery Reward Criteria (“SDRC”) and sets out related amendments to the 2015 Project Direction at Annex 1 (“the Amended Project Direction”).

Background

Further to a submission for NIC funding, on 11 December 2015, we issued a Project Direction² (“2015 Project Direction”) confirming the terms of the Project funding to be awarded to SPMW.

¹ See <https://www.ofgem.gov.uk/publications-and-updates/version-30-network-innovation-competition-governance-documents>.

² The 2015 Project Direction is available here: <https://www.ofgem.gov.uk/publications-and-updates/network-innovation-competition-project-direction-angle-dc>.

In 2016, SPMW was awarded NIC funding for the ANGLE-DC project³.

In June 2018, a price review by suppliers identified cost rises which were almost twice the price point of the original budget. In the same year, the June 2018 project progress report highlighted to Ofgem the cost rises and the potential impact that it had on the delivery timelines.

On 22 January 2020, SPMW submitted a change request to the 2015 Project Direction. The requested changes related to the extension of project timescales due to cost increases arising during the high voltage alternating current ("HVAC") building procurement which required mitigation and thereby delayed progression of the project.

Change Request to 2015 Project Direction

The 2015 Project Direction set out our decision to grant NIC funding subject to SPMW complying with a number of conditions.

The purpose of the ANGLE-DC project is to demonstrate a novel network reinforcement technique by converting an existing 33kV alternating current ("AC") circuit to direct current ("DC") operation. The ANGLE-DC project is designed to be used by distribution network operators ("DNOs") as an efficient solution to create additional network capacity and help manage network performance.

SPMW has initiated a re-design of the building to counter the cost rises. SPMW have also had to re-design the building which is to contain the heating, ventilation, and air conditioning for the HVAC system. The re-design has led to delays to the Project Deliverables. As a result, the licensees have requested an amendment to the project timeline as part of the current change request.

The change request can be summarised as a 15-month extension for SDRC 5 – 8 and also the final project completion date.

³ See Network Innovation Competition decision, Ofgem, 2015; <https://www.ofgem.gov.uk/publications-and-updates/electricity-network-innovation-competition-2015-funding-decision>.

| No | Item | Original Date | Proposed New Date |
|-----------|--|----------------------|--------------------------|
| 1 | SDRC 5 Installation of the MVDC circuit | 12/04/2019 | 10/07/2020 |
| 2 | SDRC 6 Publication of circuit condition data report | 23/01/2020 | 23/04/2021 |
| 3 | SDRC 7 Publication of operational performance of MVDC converter stations | 23/01/2020 | 23/04/2021 |
| 4 | SDRC 8 Successful dissemination of knowledge generated | 16/04/2020 | 16/07/2021 |
| 5 | Project Completion | 16/04/2020 | 16/07/2021 |

Our view

We note that the delay to the project arose from actions undertaken by SPMW to manage the significant cost impact which was uncovered by the quotes received from suppliers for the HVAC building in June 2018. SPMW took action to re-design the building to bring cost back within core budget and contingency. We are satisfied that SPMW had limited opportunity to anticipate this issue ahead of time.

SPMW's actions to re-design the project reduced costs by ~30% which allowed the project to proceed within budget. This does however have an impact on expected timelines, as described in the change request.

We acknowledge that SPMW has responded in a way which is in the best interest of consumers by enabling the project to continue and deliver the benefits originally envisaged while remaining within the original budget requested for the project.

Our decision

We have decided to approve the NIC change request. In accordance with Section 13 of the 2015 Project Direction, we hereby amend the schedule to the 2015 Project Direction in the manner set out in Schedule 1 of this letter. The letter constitutes notice pursuant to section 49A (Reasons for decisions) of the Electricity Act 1989.

We have published the Amended Project Direction at Annex 1 of this letter.

Our assessment in this letter does not in any way fetter our discretion with respect to any future decisions on the Successful Delivery Reward, should you make a submission when eligible.

If you would like to discuss any of the issues raised in this letter, please contact Graeme Barton at Graeme.Barton@ofgem.gov.uk.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Steven McMahon', written in a cursive style.

Steven McMahon

Deputy Director, Electricity Distribution & Cross Sector Policy, Network Price Controls

For and behalf of the Authority

Amended Schedule to Project Direction

1. TITLE

Project Direction ref: SPMW / ANGLE-DC / ~~11 December 2015~~ 11 March 2020.

2. PREAMBLE

This Project Direction is issued by the Gas and Electricity Markets Authority (the "Authority") to SP Manweb plc (the "Funding Licensee") pursuant to the Electricity NIC Governance Document issued pursuant to Part E of Charge Restriction Condition 5A (The Network Innovation Competition) of the Electricity Distribution Licence (the "Licence"). It sets out the terms to be followed in relation to ANGLE-DC (the "Project") as a condition of it being funded under the NIC and the Funding Return Mechanisms.⁴ It supersedes the Project Direction issued on 11 December 2015 ("the 2015 Direction").

Unless otherwise specified, defined terms in this Project Direction are defined in Appendix 1 of the Electricity NIC Governance Document.

References to specific sections of the Funding Licensee's Full Submission in this Project Direction are, for ease of reference, made by referring to the section number in the Funding Licensee's Full Submission pro-forma.

3. COMPLIANCE

The Funding Licensee must comply with Part E of Charge Restriction Condition 5A of the Licence and with the Electricity NIC Governance Document (as may be modified from time to time in accordance with Part E of Charge Restriction Condition 5A and as modified and/or augmented in respect of the Project by this Project Direction) and with this Project Direction.

Any part of the Approved Amounts that the Authority determines not to have been spent in accordance with this Project Direction (or in accordance with the Electricity NIC Governance Document) is deemed to be Disallowed Expenditure.

Pursuant to Charge Restriction Condition 5A, Disallowed Expenditure is revenue received (whether by the Funding Licensee or by another Licensee) under the NIC and Funding Return Mechanisms that the Authority determines not to have been spent in accordance with the provisions of the Electricity NIC Governance Document or with those of the relevant Project Direction.

Pursuant to paragraph 8.48 of the Electricity NIC Governance Document, Disallowed Expenditure includes any funds that must be returned if the Project is halted without Ofgem's permission, any funds that have not been spent in accordance with the approved Project Budget contained within the Project Direction, and any unspent funds on the completion of the Project.

4. APPROVED AMOUNT FOR THE PROJECT

⁴ The Funding Return Mechanism is defined in part C of Charge Restriction Condition 5A.

The Approved Amount is £13,121,436.21.

5. PROJECT BUDGET

The Project Budget is set out in Annex 1 of this Project Direction. The Funding Licensee must not spend more than 110% of any category total (eg "Labour") in Annex 1 without the Authority's prior written consent (such consent is not to be unreasonably withheld).

The Funding Licensee will report on expenditure against each line under the category total in the Project Budget, and explain any projected variance against each line total in excess of 5% as part of its detailed report which will be provided at least every six months, in accordance with paragraph 8.17 of the Electricity NIC Governance Document. Ofgem will use the reported expenditure and explanation to assess whether the funding has been spent in accordance with the Electricity NIC Governance Document and with this Project Direction.

For the avoidance of doubt this reporting requirement does not change or remove any obligations on the Funding Licensee with respect to reporting that are set out in the Electricity NIC Governance Document.

6. PROJECT IMPLEMENTATION

The Funding Licensee must undertake the Project in accordance with the commitments it has made in the Full Submission approved by the Authority pursuant to the Electricity NIC Governance Document and with the terms of this Project Direction. These include (but are not limited to) the following:

- (i) undertake the Project in accordance with the description set out in Section 2 (Project Description);
- (ii) provide a Network Licensee Compulsory Contribution of £1,483,890.57;
- (iii) complete the Project on or before the Project completion date of 16 April 2020; and
- (iv) disseminate the learning from the Project at least to the level described in Section 5 (Knowledge Dissemination).

7. REPORTING

Ofgem will issue guidance (as amended from time to time) about the structure and content of the reports required by paragraph 8.17 of the Electricity NIC Governance Document. The Funding Licensee must follow this guidance in preparing the reports required by paragraph 8.17 of the Electricity NIC Governance Document.

As required by paragraph 8.22 of the Electricity NIC Governance Document, the Funding Licensee must inform the Authority promptly in writing of any event or circumstance likely to affect its ability to deliver the Project as set out in its Full Submission.

8. REVIEW OF POTENTIAL DIRECT BENEFITS

Once the Project has ended the Funding Licensee must promptly (and no later than three months after the Project completion date) write to the Authority explaining the value of the additional assets installed for ANGLE-DC and any other RIIO-ED1 direct benefits from the project and how they relate to its load-related and totex allowances in its RIIO-ED1 settlement. The Funding Licensee should also assess how the Project has affected its

performance against the RII0-ED1 efficiency incentives, load indices and load related reopener.

The Authority will review this assessment and decide whether or not the value of the additional assets (or some part thereof) or any other attributable price control benefits from ANGLE-DC to the Funding Licensee should be returned to customers. Any such sums identified by the Authority’s assessment will be considered Disallowed Expenditure and will be limited to the value of any avoided works.

9. COST OVERRUNS

The maximum amount of Contingency Funding that the Funding Licensee can request as additional funding for cost overruns on the Project is 5% of the approved amount.⁵

10. INTELLECTUAL PROPERTY RIGHTS (IPR)

In Section 5 (Knowledge Dissemination) the Funding Licensee has stated that the Project conforms to the default IPR arrangements set out in Chapter 9 of the Electricity NIC Governance Document. The Funding Licensee must therefore undertake the Project in accordance with the default IPR arrangements.

11. SUCCESSFUL DELIVERY REWARD CRITERIA

The Project will be judged by the Authority for the purposes of the NIC Successful Delivery Reward against the Successful Delivery Reward Criteria (“SDRCs”) set out in Table 1 below (that comply with paragraphs 5.26 – 5.29 of the Electricity NIC Governance Document).⁶

Table 1. Successful Delivery Reward Criteria

| Successful Delivery Reward Criteria | Evidence |
|---|---|
| 1) Development of the Technical Specification for Holistic Circuit Condition Monitoring systems. | |
| <ul style="list-style-type: none"> The Technical Specification will be published in the form of a document which will include a description of the Scope and Objectives, Functionality, Architecture and Design of the system. | <ul style="list-style-type: none"> Share the Technical Specification for the Holistic Circuit Condition Monitoring systems with other project stakeholders, principally other DNOs (17 June 2016). |
| 2) Development of the Technical Specification for MVDC Converter Stations | |
| <ul style="list-style-type: none"> The Technical Specification will be published in the form of a document which will include a description of the scope and objectives, electrical specifications, control strategy and site | <ul style="list-style-type: none"> Share the Technical Specification for MVDC converters with other project stakeholders, principally other DNOs (24 February 2017). |

⁵ This is the amount requested by the Funding Licensee in its Full Submission.

⁶ These are the Successful Delivery Reward Criteria set out in the Funding Licensees Full Submission

| Successful Delivery Reward Criteria | Evidence |
|---|--|
| <p>installation requirements. This will also include the operating parameters for the scheme, which will be the subject to commercial guarantees.</p> | |
| <p>3) Commissioning of the Holistic Circuit Condition Monitoring Systems.</p> | |
| <ul style="list-style-type: none"> • A report will be published in the form of a document describing the characteristics of the equipment installed, including the functionality and architecture and its integration in to the SP Energy Networks monitoring systems. • Photos of the devices at the sites will be provided as well as evidence of the data being recorded and the trend information being stored. | <ul style="list-style-type: none"> • Publish report demonstrating the on-site installation of the monitoring systems has been completed including photos of the devices at the sites and evidence that data is being recorded. Formal service support contract will be also signed with the supplier for analysis of the data (15 November 2017). |
| <p>4) Factory Acceptance Test of MVDC converters.</p> | |
| <ul style="list-style-type: none"> • A report will be produced describing the testing procedure as well as findings from the testing. | <ul style="list-style-type: none"> • Share report describing the testing procedure and highlighting the key findings during the Factory Acceptance Test (30 November 2018). |
| <p>5) Installation of the MVDC circuit.</p> | |
| <ul style="list-style-type: none"> • A report will be produced and published in the form of a document describing the on-site installation of the MVDC converter stations process. • The report will incorporate photos of the installed equipment and a description of the installation procedure. | <ul style="list-style-type: none"> • Share report demonstrating the on-site installation of the DC circuit has been completed, including photos of the sites (12 April 2019 <u>10 July 2020</u>). • Share design of how the converters have been installed and key considerations for the future installations of MVDC converters (12 April 2019 <u>10 July 2020</u>). |
| <p>6) Publication of circuit condition data report</p> | |
| <ul style="list-style-type: none"> • A report will be published on the project website summarising the data collected by the Holistic Circuit Condition Monitoring systems. The report will describe the condition of the circuit while in AC operation and how the condition changed, if at all, after conversion to DC. Data trending and conclusions will be presented. | <ul style="list-style-type: none"> • Share report documenting the data gathered by the Holistic Circuit Condition Monitoring Systems. All incidences in the circuit since Holistic Cable Condition Monitoring system installation will be described, including the severity and mitigation measures (23 January 2020 <u>23 April 2021</u>). |

| Successful Delivery Reward Criteria | Evidence |
|---|--|
| 7) Publication of operational performance of MVDC converter stations. | |
| <ul style="list-style-type: none"> A report will be published on the project website summarising the MVDC performance. The report will target the availability and reliability of the system. Outages rates and energy availability figures will be provided. A differentiation will be made between forced and planned outages. The report will include information on the maintenance regime, in terms of time and resources required. | <ul style="list-style-type: none"> Share the report documenting the performance of the system. The report will summarise the reliability and availability of the converters after the initial adjustment period. The report will differentiate between the forced outage rate (FOR), scheduled energy unavailability (SEU), forced energy unavailability (FEU) and energy availability (EA) (23 January 2020 <u>23 April 2021</u>). |
| 8) Successful dissemination of knowledge generated. | |
| <ul style="list-style-type: none"> The knowledge and lessons learnt will be maintained in a knowledge repository where all learning points will be categorised based on their usefulness to different interested parties. | <ul style="list-style-type: none"> Timely delivery of project progress reports (by June and December of each year). Bi-annual knowledge dissemination workshops (bi-annual). Presentations at annual innovation conferences (Autumn 2016-2019, annually). Establishment and up-to-date maintenance of online project portal (ongoing). Publication of the close-down report (16 April 2020 <u>16 July 2021</u>). |

The maximum amount of the NIC Successful Delivery Reward (which will not exceed the Licensee Compulsory Contribution) that the Project will be eligible for is £1,483,890.57.

12. USE OF LOGO

The Funding Licensee and Project Partners, External Funders and Project Supporters may use the NIC logo for purposes associated with the Project but not use the Ofgem or Ofgem E-Serve logos in any circumstances.⁷

13. AMENDMENT OR REVOCATION

As set out in the Electricity NIC Governance Document and this Project Direction, this Project Direction may be amended or revoked under the following circumstances:

⁷ As listed in Box 1.6 in Section 1 of the Full Submission pro-forma.

- (i) if the Funding Licensee considers that there has been a material change in circumstance that requires a change to the Project Direction, and the Authority agrees (paragraph 8.23 of the Electricity NIC Governance Document); or
- (ii) if Ofgem agrees to provide Contingency Funding, which requires the re-issue of the Project Direction (paragraph 8.42 of the Electricity NIC Governance Document); or
- (iii) if the Funding Licensee applies for Contingency Funding to cover a decrease in Direct Benefits and the Authority decides it would be in the best interest of customers to make changes to the Project Direction before the Contingency Funding would be awarded (paragraph 8.42 of the Electricity NIC Governance Document).

14. HALTING OF PROJECTS

This Project Direction is subject to the provisions contained in paragraphs 8.30 to 8.34 of the Electricity NIC Governance Document relating to the halting of projects. By extension, this Project Direction is subject to any decision by the Authority to halt the Project to which this Project Direction relates and to any subsequent relevant Funding Direction issued by the Authority pursuant to Part E of Charge Restriction Condition 5A.

In the event of the Authority deciding to halt the Project to which this Project Direction relates, the Authority may issue a statement to the Funding Licensee clarifying the effect of that halting decision as regards the status and legal force of the conditions contained in this Project Direction.

NOW THEREFORE:

In accordance with the powers contained in the Electricity NIC Governance Document issued pursuant to Part E of Charge Restriction Condition 5A of the Licence the Authority hereby issues this Project Direction to the Funding Licensee in relation to the Project.

This constitutes notice of reasons for the Authority's decision pursuant to section 49A (Reasons for decisions) of the Electricity Act 1989.

ANNEX 1: PROJECT BUDGET

| Cost Category | Cost (£) |
|------------------------------|----------------------|
| Labour | 1,814,766.95 |
| | |
| Equipment | 6,074,084.97 |
| | |
| Contractors | 5,365,651.20 |
| | |
| IT | 0 |
| | |
| IPR Costs | 0 |
| | |
| Travel & Expenses | 344,645.08 |
| | |
| Payments to users | 0 |
| | |
| Contingency | 1,199,757.50 |
| | |
| Decommissioning | 0 |
| | |
| Other | 40,000.00 |
| | |
| Total | 14,838,905.70 |