



Making a positive difference  
for energy consumers

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Date: 15 December 2016

Dear Company Secretary,

**Network Innovation Competition (NIC) – amendments to Scottish Hydro Electric Transmission plc (SHE Transmission) Modular Approach to Substation Construction (MASC) project (the Project)**

The NIC funds a number of large-scale innovation projects and was set up to encourage network companies to innovate in the design, development, and operation of their networks.

The purpose of the Project is to develop and trial a modular approach to the construction of electricity transmission substations. The aim of using the modular approach is to reduce the time and costs associated with delivering a new substation.

SHE Transmission wishes to amend the Project Direction<sup>1</sup> to request the early closure of the Project (over two years before its original end date). This is because the MASC solution is no longer seen as compatible with the current portfolio of connection sites.

This letter contains our decision to approve the amendments requested by SHE Transmission to certain sections of the Project Direction dated 19 December 2014.<sup>2</sup> The amendments we are approving are set out in the amended Project Direction in the schedule to this letter.

**Background**

On 19 December 2014, we issued the MASC Project Direction. The Project Direction contains the terms to be followed in relation to the Project as a condition of it being funded under the NIC. In May 2016, SHE Transmission asked us to make changes to the Project Direction (the Change Request). We have sought further explanation of the amendments requested in the Change Request and received the final details in November 2016. These are all published alongside this document.

This letter contains a summary of the proposed changes and our decision to approve the amendments being proposed by the Change Request.

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<sup>1</sup> All capitalised terms not otherwise defined in this letter have the meaning given to them in the Project Direction.

<sup>2</sup> The Project Direction can be found at:

[https://www.ofgem.gov.uk/sites/default/files/docs/2015/01/enic\\_project\\_direction\\_masc\\_final.pdf](https://www.ofgem.gov.uk/sites/default/files/docs/2015/01/enic_project_direction_masc_final.pdf)

## **SHE Transmission's requested changes**

SHE Transmission's Change Request proposes the following changes:

- reduce the Project's scope
- conclude the Project early
- return unspent NIC funds to customers.

### *1) Reduction in Project scope and early conclusion*

The principal reason for these changes is that finding a connection customer to make use of the MASC solution during the trial has become too challenging and could result in the Project being substantially delayed beyond its 2019 deadline and/or; costs increasing due to the Project needing to rescope. SHE Transmission does not consider that progressing with the field trial element of the Project, given the level of connection uncertainty, is in the interests of customers.

At the outset of the Project, a key Project risk was identified around the connection uncertainty for new renewable generation connections and finding a matching location that was suitable for the MASC solution. Since the Project was awarded NIC funding, SHE Transmission has identified factors that have crystallised this risk:

- While the number of new generation connections applications has slowly increased, suitable connections for the MASC trial have altered or postponed their connection dates, such that they no longer wish to connect within the Project's trial window.
- A greater number of new generation connections are seeking to take on more responsibility in building aspects of their connection assets (self build).

SHE Transmission's recommendation is to:

- Remove the field trial element of the Project.
- Produce a report for industry, drawing together the deliverables already completed by the Project, that will aid in any future deployment of a MASC type solution - this includes adding in a further industry engagement and dissemination stage as a Project deliverable, to share and test the findings before the publication of the report.
- Bring the Project end date forward from June 2019 to March 2017 in light of the field work no longer taking place.

### *Our views*

Having considered the evidence that has been submitted as part of the Change Request, and the responses to our further questions, we agree with SHE Transmission's proposals and are satisfied that the changes are in the interests of consumers.

Seeking to evaluate further the key areas that presently challenge the deployment of a MASC type solution in GB, and build in plans to present and disseminate the learning to the industry are sensible. We note the findings to date under the Project, which suggest that SHE Transmission now consider that for GB parties interested in purchasing modular solutions, the majority of the challenges can be addressed without the requirement for a field trial. As such there is value for industry in the learning that the Project has produced thus far. Based on this evidence, we hope that the Project's final report will provide valuable learning which will de-risk the MASC principles to the extent that industry could reasonably consider a MASC type solution in the future – which would then have associated benefits to consumers in the form of cheaper and quicker connections.

Schedule 1 of this decision shows the revised outputs (Successful Delivery Reward Criteria (SCDRs)) that the Project must deliver.

## 2) Return of unspent NIC funds to customers

As part of the re-scoping of the project, SHE Transmission will return around £2.4 million of the Project's £2.8 million of NIC funding to customers. This is predominately due to the Project's field work no longer taking place.

### *Our views*

We welcome the substantial amount of NIC funding that will be returned to customers as well as SHE Transmission's early identification of the risk and proactive measures to limit further spending on the Project. The decision not to apply for the Successful Delivery Reward for the Project is also commended, in light of the substantive changes to its scope and budget.

Schedule 1 of this decision shows the revised budget in the Project Direction.

### **Decision**

We consider that with the proposed amendments, the Project's early conclusion will maximise the expected benefits and learning for customers relative to Project spend. The changes will also effectively protect a substantial sum of customers' money by returning it to them in light of the risks that have materialised.

In accordance with Section 13 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.

If you would like to discuss any of the issues raised in this letter, please contact Gurpal Singh at [Gurpal.Singh@ofgem.gov.uk](mailto:Gurpal.Singh@ofgem.gov.uk).

Yours sincerely



**Geoffrey Randall,**  
Head of RIIO, Electricity Transmission  
**For and on behalf of the Authority**

## Schedule 1 – Project Direction changes

**This Change Request proposes and the Authority hereby approves that the following changes are made to the Project Direction:**

### Schedule to Project Direction

#### 1. TITLE

Project Direction ref: ~~SHETL~~ **Scottish Hydro Electric Transmission plc** / Modular Approach to Substation Construction / 19 December 2014

#### 2. PREAMBLE

This Project Direction issued by the Gas and Electricity Markets Authority (the "Authority") to Scottish Hydro Electric Transmission Plc (the "Funding Licensee") pursuant to the Electricity NIC Governance Document issued pursuant to Part E of Special Condition 3I (Network Innovation Competition) of the Electricity Transmission Licence (the "Licence") sets out the terms to be followed in relation to Modular Approach to Substation Construction (the "Project") as a condition of it being funded under the NIC and the Funding Return Mechanisms<sup>3</sup>.

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.

References to the Change Request refer to the letter submitted on 30 May 2016, as well as the subsequent supporting material dated 22 July 2016 and 10 November 2016 published alongside this decision. In case of discrepancy between the Full Submission and the Change Request, the Change Request shall take precedence.

#### 3. COMPLIANCE

The Funding Licensee must comply with Special Condition 3I of the Licence and with the NIC Governance Document (as may be modified from time to time in accordance with Special Condition 3I 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 with the Electricity NIC Governance Document) is deemed to be Disallowed Expenditure.

Pursuant to Special Condition 3I.8 of the Licence 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<sup>4</sup> permission, any funds that have not been spent in compliance with the approved

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<sup>3</sup> The Funding Return Mechanism is defined in part C of Special Condition 3I.

<sup>4</sup> Ofgem is the Office of the Gas and Electricity Markets Authority. The terms 'Ofgem' and 'Authority', 'we' and 'us' are used interchangeably in this Project Direction.

Project Budget contained within the Project Direction, and any unspent funds on the completion of the Project.

#### **4. APPROVED AMOUNT FOR THE PROJECT**

The Approved Amount is ~~£2,835,044.02~~ £405,611.83.

#### **5. PROJECT BUDGET**

The Project Budget is set out in Annex 1. The Funding Licensee must not spend more than 110% of any category total (e.g. "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 or 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 **and subsequent Change Request** approved by the Authority pursuant to the Electricity NIC Governance Document and with the terms of this revised 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) **as amended by the Change Request**;
- (ii) provide a Network Licensee Compulsory Contribution of ~~£326,282.90~~ **£45,896.30 as amended in line with the Change Request**;
- (iii) complete the Project on or before the Project completion date of ~~28 June 2019~~ **31 March 2017** as amended in line with the Change Request; and
- (iv) disseminate the learning from the Project at least to the level described in Section 5 (Knowledge Dissemination) **and as amended in line with the Change Request**.

#### **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. COST OVERRUNS

The maximum amount of Discretionary Funding that the Funding Licensee can request as additional funding for cost overruns on the Project is 0%<sup>5</sup>.

## 9. INTELLECTUAL PROPERTY RIGHTS (IPR)

In Section 5 (Knowledge Dissemination) the Funding Licensee has stated that the Project does conform to the default IPR arrangements set out in Section Five of the Electricity NIC Governance Document and 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 set out in Table 3<sup>6</sup> below (that comply with paragraphs 5.26 – 5.29 of the Electricity NIC Governance Document).

**Table 3. Successful Delivery Reward Criteria**

Successful Delivery Reward criterion	Evidence
<p><b>Stakeholder engagement</b> A key milestone of MASC's success involves the outputs of engagement with key stakeholders groups, including:</p> <ul style="list-style-type: none"> <li>▪ internal contact with SHE Transmission business areas;</li> <li>▪ external contact with other License holders;</li> <li>▪ external dialogue with manufacturer and broader supply chain; and</li> <li>▪ external stakeholders such planning and other statutory bodies.</li> </ul> <p>Work undertaken within this criterion will also seek to inform the development of the technical and functional aspects of the MASC substation.</p>	<p>A report detailing the outputs from stakeholder engagement activities and their impact on MASC's functional specification requirements <del>will be</del> was published <del>by</del> on 30 July 2015.</p>
<p><b>MASC substation detailed design</b> The publication of the final, functional requirement document for the MASC project will require the identification of new equipment and associated requirements of operation and maintenance. The NIC funding will also support evaluation of new civil engineering practices and advances in aesthetics and environment that could factor into the final functional specification.</p>	<p>A report was published on 15 January 2016. <del>This will contain identification of the key innovations that have been incorporated into the final technical specification.</del> This contained identification of the key innovations that have been incorporated into the final technical specification.</p>
<p><b>MASC Knowledge &amp; Learning Summary</b> The presentation of the further learning and knowledge to de-risk MASC: thus enabling</p>	<p>A Stakeholder engagement event prior to the year end (31 December 2016) to share the MASC learning and knowledge, alongside</p>

<sup>5</sup> This is the amount requested by the Funding Licensee in its Full Submission.

<sup>6</sup> These are the Successful Delivery Reward Criteria set out in the Funding Licensees Full Submission

any party to progress forwards with a MASC type solution. There will also be the sharing of any foreseen obstacles remaining with suggested mitigation measures.	the sharing of supporting material.
<p><b>Project Closedown Report</b></p> <p>At the end of the project, full evaluation and key learning points will be considered for inclusion in a comprehensive project closedown process.</p>	A detailed closedown report will be delivered by 31 March 2017.
<p><b>Knowledge capture from off-site construction</b></p> <p>At this stage, MASC components will be manufactured and tested in a factory environment. This stage offers invaluable opportunities to evaluate individual components, protection and control systems. Comparison between MASC off-site construction and commission testing (in a clean, controlled environment) with conventional on-site construction processes will be collated.</p>	<del>Written analysis of the progress towards complete system testing achieved during the factory stage and identification of cost savings will be completed by 31st of October 2016.</del>
<p><b>Knowledge capture from on-site installation</b></p> <p>At this stage, the substation will be transported to site, with essential on-site construction completed. Key learning from this stage will validate outputs from stakeholder engagement.</p>	<del>The MASC project team will produce an analysis document which provides a clear assessment of the benefits of the project's approach in comparison to conventional methodology in installation of an air-insulated substation, by 30th June 2017.</del>
<p><b>Analysis of MASC on-site commission and energisation</b></p> <p>NIC funding will be used where appropriate to deliver validity on-site re-testing and commissioning when the substation is installed and energised. Verification of on-site commissioning and energisation will also take place. This will be compared with the outputs from the factory commissioning tests.</p>	<del>A full report detailing the outputs and knowledge capture will be published by 29th September 2017. This will include learning on the substation's behaviour during, and following, energisation.</del>
<p><b>Operational Learning</b></p> <p>The MASC solution is anticipated to challenge current operational and maintenance practices. Knowledge captured throughout a period of MASC operation will inform and validate key operational and maintenance theories.</p>	<del>The MASC project team will publish a paper which summarises ways in which MASC solution elements challenge present day procedures. This paper will include mitigations against said challenges and highlight possible improvements. While the initial document will be available by 30 June 2018, this paper may be modified if new information is deemed relevant.</del>
<p><b>Project Closedown Report</b></p> <p>At the end of the project, full evaluation and key learning points will be considered for inclusion in a</p>	<del>A detailed closedown report will be delivered by the 28th June 2019</del>

~~comprehensive project closedown process. This will include learning gathered from knowledge events and the progress of the MASC substation during operation. This will also include details of the safety, operational and maintenance procedures developed for MASC through engagement with all other transmission and distribution licensees.~~

~~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 £326,282.90 as amended inline with the Change Request.~~

## **11. USE OF LOGO**

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

## **12. 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:

- (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 Discretionary 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 Discretionary Funding would be awarded (paragraph 8.42 of the Electricity NIC Governance Document).

## **13. 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 Special Condition 3I.

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 Direction.

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



**NOW THEREFORE:**

In accordance with the powers contained in the Electricity NIC Governance Document issued pursuant to Part E of Special Condition 3I 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**

<b>Cost Category</b>	<b>Original Budget</b>
<b>Labour</b>	£1,373,514.31
<b>Equipment</b>	£891,571.16
<b>Contractors</b>	£617,003.20
<b>IT</b>	£244,661.50
<b>IPR Costs</b>	-
<b>Travel &amp; Expenses</b>	£136,078.85
<b>Payments to Users</b>	-
<b>Contingency</b>	-
<b>Decommissioning</b>	-
<b>Other</b>	-
<b>Total</b>	<b>£3,262,829.02</b>

<b>Cost Category</b>	<b>Change Request Budget</b>
<b>Labour</b>	£333,965
<b>Equipment</b>	£1,500
<b>Contractors</b>	£107,522
<b>IT</b>	£9,125
<b>IPR Costs</b>	-
<b>Travel &amp; Expenses</b>	£6,851
<b>Payments to Users</b>	-
<b>Contingency</b>	-
<b>Decommissioning</b>	-
<b>Other</b>	-
<b>Total</b>	<b>£458,963</b>

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