

Scottish Power Energy Networks Holdings Limited
(SP TRANSMISSION PLC)
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Date: 06 September 2024

Dear SP TRANSMISSION PLC,

SIF Project Direction ref:SPT/FLEXIBLE RAILWAY ENERGY

HUBS/SIFADMED/RD2 Beta

SP TRANSMISSION PLC submitted FLEXIBLE RAILWAY ENERGY HUBS (the Project) to be considered for funding through the Beta Phase of the Strategic Innovation Fund (SIF). As explained in greater detail below, this Project applied straight to Beta for round 2 of the SIF. In our¹ SIF funding decision issued on 06 September 2024, we selected the Project² for conditional funding and as a result we are now issuing this SIF Project Direction to implement that decision.

SP TRANSMISSION PLC must comply with the conditions contained in this SIF Project Direction as a condition of the Project receiving funding through the SIF. These conditions can be found in the Schedule to this document.

Progression through SIF Phases

The SIF consists of a multi-phase approach for Projects in order to mitigate the risk associated with innovations. The Discovery Phase focuses on feasibility, the Alpha Phase on experimental development, and the Beta Phase on deployment and demonstration.

The Project submitted an Application direct to Beta for the Project to be considered for SIF Funding through the Beta Phase of round 2 of the SIF. As stated above, the Project has been selected to receive SIF Funding for the Beta Phase of round 2.

¹ The terms 'we', 'us', 'our' refer to the Gas and Electricity Markets Authority. Ofgem is the office of the Authority.

² Unless otherwise specified, defined terms in this SIF Project Direction have the meaning given to them in Appendix 1 of the SIF Governance Document.

Role of UK Research & Innovation (UKRI)

As per Chapter 1 of the SIF Governance Document³ the role of UKRI is to deliver the SIF in line with the SIF Governance Document - administering the funding programme, monitoring the delivery of Projects, collating data from Projects on benefits, making recommendations to Ofgem on operational matters, supporting third-party innovators and, where possible, successful Projects to become 'business as usual' activities. To support the success of the Projects and the SIF programme, we expect that the Funding Party and Project Partners collaborate with Ofgem and UKRI.

SIF Project Direction

Paragraph 5.14 of the SIF Governance Document states that a SIF Project Direction will:

- Set out the Project-specific conditions, to which the Funding Party is committing in accepting SIF Funding.⁴
- Require the Funding Party to undertake the Project in accordance with the commitments made in the Application. Where appropriate, the SIF Project Direction may therefore include extracts from the Application or refer to specific sections of the SIF Application.⁵
- Where applicable, set out conditions (such as Project stage gates) linked to milestones and deliverables, which Projects must meet.⁶
- Set out the SIF Approved Amount for the Project, that will form part of the calculation contained in the SIF Funding Direction issued by the Authority under chapter 7 of the SIF Governance Document.⁷
- Set out the Project budget that the Funding Party must report against and how variations in the Project budget will be reported.⁸
- Where applicable, set out special information sharing requirements applicable to the Project.⁹
- Set out the mechanism for the Funding Party receiving the SIF Approved Amount as set out in the SIF Funding Direction.¹⁰

All SIF Project Direction requirements are detailed in the Schedule to this SIF Project Direction.

³ <https://www.ofgem.gov.uk/publications/sif-governance-document>

⁴ 'Project specific conditions' detailed under Point 3 – 'Condition President' of this SIF Project Direction.

⁵ 'Project specific conditions' detailed under Point 3 – 'Condition President' of this SIF Project Direction.

⁶ 'Project specific conditions' detailed under Point 3 – 'Condition President' of this SIF Project Direction.

⁷ 'SIF Funding Amount' detailed under Point 5 – 'Condition President' of this SIF Project Direction.

⁸ Annex 1 – Project Budget.

⁹ 'Project specific conditions' detailed under Point 3 – 'Condition President' of this SIF Project Direction.

¹⁰ 'SIF Funding Amount' detailed under Point 5 – 'Condition President' of this SIF Project Direction.

Decision

Provided the Funding Party complies with the SIF Governance Document and with the Schedule to this SIF Project Direction, the Project is deemed to be an Eligible SIF Project¹¹.

This SIF Project Direction constitutes notice pursuant to section 49A (Reasons for decisions) of the Electricity Act 1989.

Marzia Zafar

Deputy Director, Decentralisation & Digitalisation

For and on behalf of the Authority

¹¹ The meaning 'Eligible SIF Project' is described in Chapter 2 of the SIF Governance Document.

Schedule to SIF Project Direction

1. PROJECT DETAILS

SIF Project Direction reference: SPT/FLEXIBLE RAILWAY ENERGY

HUBS/SIFADMED/RD2_Beta

Application number: 10117383

Project title: FLEXIBLE RAILWAY ENERGY HUBS

Innovation Challenge/Project Phase: Accelerating decarbonisation of major energy demands / Beta Phase round 2

Project start date: 28 October 2024

Project end date: 27 October 2029

SIF Approved Amount for SIF Funding: £8,256,616

2. PREAMBLE

This SIF Project Direction is issued by the Gas and Electricity Markets Authority (the "Authority") to SP TRANSMISSION PLC (the "Funding Party") pursuant to the SIF Governance Document issued pursuant to Special Condition 9.19 of the Electricity Transmission Licence (the "Licence"). It sets out the conditions to be complied with in relation to FLEXIBLE RAILWAY ENERGY HUBS (the "Project") as a condition of it being funded under the SIF Funding Mechanism.¹²

Unless otherwise specified, defined terms in this SIF Project Direction have the meaning given to them in the Licence or Appendix 1 of the SIF Governance Document.

References to specific sections of the Funding Party's Application in this SIF Project Direction are, for ease of reference, made by referring to the section number in the Funding Party's Application.

3. PROJECT SPECIFIC CONDITIONS

In accepting funding for the Project, the Funding Party is subject to the following Project-specific condition(s):

Condition 1

The Funding Party must not spend any SIF Funding until contracts are signed with the Project Partners named in Table 1 for the purpose of completing the Project.

¹² The SIF Funding Return Mechanism is defined in the SIF Governance Document.

Table 1. Project Partners

UNIVERSITY OF LEEDS
RICARDO-AEA LIMITED
NETWORK RAIL INFRASTRUCTURE LIMITED
GE ENERGY POWER CONVERSION UK LIMITED

Condition 2 – financial contribution

The Funding Party must report on the financial contributions made to the Project as set out in its Application. Any financial contributions made over and above that stated in its Application should also be reported and included within the Project costs template.

Condition 3 – Meeting arrangements

The Funding Party must participate in all meetings related to the Project that they are invited to by Ofgem, UKRI and DESNZ during the Beta Phase.

Condition 4 – Stage gate scoping

The Funding Party must, with support from Innovate UK/UKRI and, where applicable Ofgem, scope the requirements and success criteria for each stage gate, as set out in the project management plan within a Project at the quarterly reporting meetings ahead of any stage gate. These will be used to determine what criteria a Project must meet in order to pass a stage gate, and whether any additional information, such as a report, must be produced as part of the stage gate.

Condition 5 – Impact monitoring

As part of the end of Project Phase report, the Funding Party must produce a Project Impact Monitoring and Evaluation Plan. This plan must outline how the Project plans to monitor and evaluate the delivery of benefits outlined in the Beta Phase Application following the end of the Beta Phase. The plan must also include the methodology that will be utilised for quantifying and qualifying benefits realisation and how the Funding Party plans to report this to Ofgem 1, 3, 5 & 10 years post-Beta Phase completion. Further details on how to approach the development of this plan may be provided by Ofgem or IUK.

Condition 6 – SIF Community Forums

The Funding Party and all Project Partners must make reasonable attempts to attend, participate and/or contribute at SIF Community Forum events occurring during the Project delivery. We anticipate there being approximately one event per year.

Condition 7 – Policy, regulatory and standards barriers

The Funding Party must provide verbal updates at each quarterly meeting on any regulatory, policy and standards barriers and any change requirements which may impact delivery of the Beta Phase activities. The Funding Party must also include as an attachment to each of its annual progress report an update on any regulatory, policy and standards barriers which may require derogations and articulation of any proposed regulatory, policy and standards changes which would be necessary in deployment. The Funding Party must also provide as an attachment to its end of Project Phase report a summary of the Project's findings on regulatory, policy and standards barriers, including any considerations for future work, and where applicable, where specific regulatory, policy and standards changes would be required for deployment.

Condition 8 – Updated 60-second videos

The Funding Party must provide within the first three months of signing contracts with its Project Partners an updated 60-second video. If the Project is greater than two years (longer than 24 months) in length, an updated video must also be provided at the Project's mid-point meeting. All Projects must also provide an updated 60-second video as part of their end of Project phase report. Innovate UK can share its guidance for 60-second videos with the Funding Party, if necessary.

Condition 9 – Post-Beta Phase roadmap

The Funding Party must provide to the monitoring officer within six months of it signing contracts its Project Partners a roadmap for activities post-Beta Phase. This can build on the Project's Application question (question 11) and must focus on how and when the proposed solution will become business as usual within your network and across the other GB gas or electricity networks.

As part of this, the Funding Party must include consideration for:

- I. any steps the Project will take to ensure its innovation has suitable business as usual adoption;
- II. the Funding Party's strategy for adoption of the innovation or proposed solution, giving consideration to potential investment, ongoing costs and third-party involvement and;
- III. any early indication of interest from other networks in adopting the innovation.

The Funding Party must provide an update on all the above at every two quarterly monitoring meetings (i.e. every six months) and must include a final update of this roadmap as attachment to its end of Project Phase report.

Condition 10 – Commercialisation strategy

The Funding Party must provide at every second quarterly monitoring meeting (i.e. every six months) an update on its commercialisation strategy. This can build on the Project's Application question (question 12) and must focus on what considerations have the Project consortium made for the commercialisation of the proposed solution or innovation, and how the Project provides support for non-network partners to move towards commercialisation. As part of this, the Funding Party may wish to include consideration for:

- I. who the primary customer segment is beyond the Funding Party; the customer value proposition;
- II. if identified, the outline of the route to market and potential new partnerships;
- III. any additional Project Partner capital requirements in order to commercialize the innovation and;
- IV. how this product, process or service could be scaled across the GB network and taken to new markets.

The Funding Party must also include a final update of its strategy as an attachment to its end of Project Phase report. Ofgem and/or Innovate UK may issue a template for the final update as part of the end of Project Phase report.

Condition 11 - Data Best Practice and Digital Strategy and Action Plan Guidance alignment

The Funding Party must provide at its second monitoring meeting (i.e. quarter one) a summary of how it intends to comply with Ofgem's Data Best Practice Guidance, and Digitalisation Strategy and Action Plan Guidance. Additionally, a part of its year 1 annual progress report, the Funding Party must provide a written update to the monitoring officer on its incorporation and application of data best practices to date in the Project, including its presumed open data policies, and data triaging methodology.

4. COMPLIANCE

The Funding Party must comply with Special Condition 9.19 of the Electricity Transmission Licence (the "Licence"), the SIF Governance Document and with this SIF Project Direction.

5. SIF APPROVED AMOUNT

The SIF Approved amount of £8,256,616 (as detailed under Section 1: Project details of this Project Direction) will be recovered by National Grid Electricity System Operator

from GB customers and transferred to the Funding Party. The Funding Party is responsible for notifying National Grid Electricity System Operator of the bank account details to which transfers must be made, in addition to completing Annex 2 of this SIF Project Direction. If a Funding Party is required to return funding to National Grid Electricity System Operator, the reverse applies. The Funding Party must provide bank account details to National Grid Electricity System Operator within two weeks of accepting this SIF Project Direction.

6. PROJECT BUDGET

The Project Budget is set out in Annex 1 of this SIF Project Direction.

The Funding Party must report on expenditure against each line under the category total in the Project Budget and explain any projected variance against each line as part of its detailed report which will be provided, in accordance with Chapter 7 of the SIF Governance Document. The Funding Party must report variations in the Project budget as outlined in Chapter 6 of the SIF Governance Document.

7. PROJECT IMPLEMENTATION

The Funding Party must undertake the Project in accordance with the commitments it has made in the Application and with the conditions of this SIF Project Direction. These include (but are not limited to) the following:

- (i) undertake the Project in accordance with its Application,
- (ii) complete the Project on or before the Project completion date as detailed under section 1 of the schedule of this SIF Project Direction, and
- (iii) disseminate the learning from the Project at least to the level described in chapter 3 of the SIF Governance Document. Dissemination of learning must be carried out whether the Project was concluded successfully or otherwise.

8. REPORTING

Ofgem and UKRI may issue guidance (and amend it from time to time) about the structure and content of the Project reporting required by Chapter 6 of the SIF Governance Document. The Funding Party must follow this guidance in preparing the reports.

The Funding Party must submit an end of Project Phase report to UKRI monitoring officers for the Beta Phase. Within this report, the Funding Party must submit

information related to questions on Project delivery as detailed in chapter 6, table 6 of the SIF Governance Document.

9. MONITORING

The Funding Party must comply with any reasonable request for information by its monitoring officer at UKRI and related deadlines. Ofgem, with the support of UKRI, will together monitor Project delivery, impacts and benefits. Throughout the term of the Project, progress is monitored by UKRI through a monitoring officer. The monitoring officer is the first point of contact for official notifications, queries and correspondence with UKRI and the Authority, unless otherwise required by this SIF Project Direction.

As detailed in Chapter 6 of the SIF Governance Document, meetings with the monitoring officer will take place at regular intervals, as advised by Ofgem or the monitoring officer during the delivery of the Project, and at the end of each Project Phase.

10. EVALUATION

The Funding Party has acknowledged when it submitted its Application for this Project, that reporting information and data gathered during the Project's timescales (as detailed in Section 1 of this SIF Project Direction) will be used to evaluate Project performance. In addition, the Funding Party may be required to provide requested information outside of the Project timescales and, in particular, for the period from the Project end date to the end of the SIF Programme. Further data and reporting information may be requested (frequency and method based on requirement) outside of standard monitoring and reporting requirements as deemed necessary. Further data and information requirements must be complied with by the Funding Party and Project Partners.

11. DATA SHARING

As set out in Chapter 3 of the SIF Governance Document, the Funding Party must follow Data Best Practice Guidance with regards to all data gathered or created in the course of a Project. We expect the Funding Party to document any reasons, such as commercial sensitivities, for desensitising data. As defined by, and in accordance with, Data Best Practice Guidance, Funding Parties must have a data triage process. Where multiple Project Partners are collaborating on a Project, the consortium must adopt a consistent Open Triage Process for the data related to the Project. Ofgem may require that Project information and data is also shared with other specified parties, such as parties working on complementary innovation funding programmes (subject to redaction of sensitive data).

12. CYBER SECURITY

It is the responsibility of the Funding Party and all Project Partners to implement and maintain appropriate security measures to protect personal data in accordance with The GDPR (General Data Protection Regulation)¹³ and DPA (Data Protection Act) 2018¹⁴. Protection of computer systems from unauthorised access or being otherwise damaged or made inaccessible must be in place alongside effective working practices. These must be maintained in line with the Funding Party's IT Management Strategies and policies.

13. PROJECT MILESTONES

The Funding Party must submit its end of Project Phase report to its monitoring officer that verifies the Project milestones have been achieved or explains why they have not.

Project milestones are outlined below in Table 3, based upon details contained within Question 7 and Appendix Question 9 in the Funding Party's.

¹³ https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en

¹⁴ <https://www.legislation.gov.uk/ukpga/2018/12/contents/enacted>

Table 3. Project milestone¹⁵

Reference	Project milestone	Deadline	Overall objectives and key tasks	SIF Funding Request
Milestone 1	Project Management Coordination	12/11/2029	1) Partners to attend weekly calls (as appropriate to their role) to review progress, interaction and next tasks via project plan and risk tracking 2) Reporting on project finances 3) Annual reports prepared to include sections for each WP, and an update on progress, plans and risks, in accordance with Governance Document 4) If the trial stage gate is passed and once the trial is complete, key deliverables will be updated to reflect any changes to thinking and results given the trial. This may include a review of modelling and underlying analysis. 5) Project close to include a final report and a Show and Tell webinar. 6) Attending SIF community forums	£1,147,875
Milestone 2	Design, Innovation and Simulation of the Hub	01/12/2028	1. Hub design for demonstration site: Data gathering for trial site, data analysis and design of detailed hub specifications, finalised Hubs design with consortium review 2. Develop the Hub tertiary control: Design control specification for the hub to achieve system level functionalities.	£1,235,723

¹⁵ As outlined in in the Application or Project Plan appendix.

			<p>3. Develop Hub simulation model: Develop hub software and hardware-in-loop simulation models.</p> <p>4. Digital Modelling of the Hub: Define and develop a data framework to support digital modelling of the Hub. Parameterise and validate the model using near real-time data from the physical Hub.</p> <p>5. Deploy simulation model to identify test scenarios and procedures for the Hub's tertiary control: Build economic layer for accurate cost recovery / income forecasting. Test and validate the tertiary control on the physical hub in delivery of services.</p>	
Milestone 3	Design and Build of the Hub	01/11/2026	<p>1. Designing the Compound Civils</p> <p>2. Designing the Hub Power Module</p> <p>3. Designing the 25kV interface works to the Railway</p> <p>4. Supply of equipment and services for Hubs</p> <p>5. Build of the Hubs Compound Civils and equipment assembly</p> <p>6. Build of the 25kV modifications</p>	£4,389,596
Milestone 4	Hub integration and operation with Railway	08/08/2028	<p>1. Develop Hub Testing Scope: To define testing requirement, develop testing plan along with testing scenarios.</p> <p>2. Trialling of Hubs site and analysis: Conduct trial and collect data for post-trial analysis.</p> <p>3. Provide outputs (results) from live trial.</p>	£644,250

Milestone 5	Knowledge capture, dissemination and stakeholder engagement	12/09/2029	<ol style="list-style-type: none"> 1. Stakeholder engagement: setting up consultation groups, bilateral and consultations at key projec points, and a quarterly meetin, including one a year in person. 2. Knowledge capture, act on it and integration into dissemination: Capture key learning and integrate into future dissemination events. 3. Dissemination: Disseminate key learning and attend conferences, workshops, events etc. 4. Stakeholder mapping and dissemination plan: Define key stakeholders and dissemination events early on 	£415,029
Milestone 6	Commercial model, regulatory framework and rollout to BAU transition	01/06/2029	<ol style="list-style-type: none"> 1. Initial Definition of commercialisation and rollout model defined: Detailed scoping at beginning of project required, which the drives the definition of the testing so that we are demonstrating the operational modes that we are suggesting. 2. Update definition of commercialisation and rollout model: Update definition followin completion of trial and stakeholder engagement. 3. Rollout Modelling: Modellling from both the rail and electricity network perspective, to understand the rollout routes and potential. Ro be iterated as more is learned from stakeholders engagement. 4. CBA Modelling: Undertake CBA modelling to assess the future rail and electricity customer benefits following rollout modelling. 5. Develop the BAU Transition: Undertake the process and requirements needed to implement the solution into BAU across both SPEN and NRs businesses 	£424,143



Making a positive difference
for energy consumers

			6. Finalised CBA and Rollout models: Produce final rollout and CBA models following comments from partners and stakeholders 7. Outlined BAU Transition Plan	
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14. USE OF LOGO

The Funding Party and the Project Partners, External Funders and Project Supporters or subcontractors¹⁶ must not use the Innovate UK/UKRI and/or Ofgem logo for purposes associated with the Project in any circumstances.

As an alternative for use of both Ofgem and UKRI logos, all external Project communications must include the following standard form of wording:

- (i) "this project is funded by network users and consumers under the Strategic Innovation Fund, an Ofgem programme managed in partnership with UKRI."

For additional guidance, refer to the communications and media guidelines for competition winners, detailed as part of your delivery pack. These guidelines are designed to help with some suggestions and encourage you to take a proactive approach to communicating about your Project.

15. SHARING OF LESSONS LEARNED

The Funding Party is required to ensure that the sharing of lessons learned and the facilitation of knowledge transfer is conducted as effectively as possible, to ensure that all parties, and therefore all consumers including future consumers, can benefit from Projects.

As contained within Chapter 3 of the SIF Governance Document, we require the Funding Party to work collaboratively to maintain the ENA Smarter Networks Portal so that all reporting and dissemination of learnings on Projects (as required by chapter 6 of the SIF Governance Document) is available via the ENA Smarter Networks Portal.

16. COLLABORATION

The Funding Party must collaborate with third-party innovators as Project Partners, as well as work closely with other parties in the energy supply chain, as set out in Chapter 3 of the SIF Governance Document.

The Funding Party must collaborate with other parties and with UKRI to organise an annual conference in a format appropriate to enabling the building of consortiums and disseminating learning widely. The conference may be a single event for gas and electricity, or more than one event, as appropriate.

¹⁶ As detailed in the Application.

17. AMENDMENT OR REVOCATION

As set out in Chapter 7 of the SIF Governance Document, this SIF Project Direction may be amended or revoked under the following circumstances:

- (i) if the Funding Party considers that there has been a material change in circumstance that requires a change to the SIF Project Direction, and the Authority agrees; or
- (ii) to reflect amendments made to the Licence.

18. HALTING OF PROJECTS

This SIF Project Direction is subject to the provisions contained in Chapter 7 of the SIF Governance Document relating to the halting of Projects. By extension, this SIF Project Direction is subject to any decision by the Authority to halt the Project to which this SIF Project Direction relates and to any subsequent relevant SIF Funding Direction issued by the Authority pursuant to Special Condition 9.19 of the Electricity Transmission Licence (the "Licence").

Further to the requirements in Chapter 7 of the SIF Governance Document, in the event the Authority decides to halt the Project, to which this SIF Project Direction relates, the Authority may issue a statement to the Funding Party clarifying the effect of that halting decision as regards to the status and legal force of the conditions contained in this SIF Project Direction.

NOW THEREFORE:

In accordance with the SIF Governance Document issued pursuant to Special Condition 3.4 of the Electricity Transmission Licence (the "Licence") of the Licence the Authority hereby issues this SIF Project Direction to the Funding Party 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.

Failure to comply with the conditions of this SIF Project Direction means that Ofgem may treat all or part of the SIF Approved Amount received by the Funding Party as SIF Disallowed Expenditure.

ANNEX 1: PROJECT BUDGET

Cost Category	Total Project costs (£)
Labour	£ 4,563,128
Materials	£ 1,294,115
Subcontracting	£ 4,431,614
Travel and subsistence	£ 150,403
Other costs	£ 641,760
Total	£ 11,081,020

Project Partner	Total project costs (£)	Project contribution (£)	Total SIF Funding requested (£)	Project contribution (%)
SP TRANSMISSION PLC	£3,945,225	£141,295	£3,803,930	
GE ENERGY POWER CONVERSION UK LIMITED	£2,398,726	£375,461	£2,023,265	
NETWORK RAIL INFRASTRUCTURE LIMITED	£1,858,660	£1,858,659	£1	
RICARDO-AEA LIMITED	£1,407,697	£154,847	£1,252,850	
University of Leeds	£1,470,712	£294,142	£1,176,570	
Total	£11,081,020	£2,824,404	£8,256,616	34%

ANNEX 2 TO SCHEDULE: TEMPLATE OF BANK ACCOUNT DETAILS TO BE PROVIDED TO EITHER NGGT (BOX.GSOSETTLEMENTS@NATIONALGRID.COM) OR NG ESO (revenue.invoice@nationalgrideso.com)

Company name:

Primary Contact Details (only one contact permitted)

First Name:

Last Name:

Email address:

Mobile phone number:

Work phone number:

Address details

Address name:

Street address:

City:

State / region:

Post code:

PO box: (if applicable)

PO box post code: (if applicable)

Banking details

These should be evidenced in non-editable format. The evidence provided must show company name and bank details and it should be dated within the last 6 months.

Any of the below documents will suffice:

- Bank statement (scanned document)
- Void cheque
- Paying in slip
- Screenshot of online banking (showing a logged in account with bank account and sort code, with browser visible)