



Making a positive difference
for energy consumers

SP Transmission Plc
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Date: 31/01/2023

Dear SP Transmission Plc,

Strategic Innovation Fund – Approval of the Material Change request for SP Transmission Plc/Heat Balance

The Strategic Innovation Fund (SIF) supports network innovation that contributes to the achievement of Net Zero, while delivering net benefits to energy consumers. It facilitates collaboration with other public funders of innovation so that activities appropriately funded by network consumers are coordinated with activities funded by Government, and funding gaps are avoided. The SIF Governance Document sets out the governance and administration of the SIF.¹

On 1 August 2022, SP Transmission Plc was awarded SIF Funding for Heat Balance (the Project).² The Project is examining large-scale thermal storage for heat pump flexibility. Further to this decision, on 12 August 2022 Ofgem³ issued a SIF Project Direction.⁴

On 12 December 2022, SP Transmission Plc submitted a Material Change request for the Project to the Authority. The Material Change request was submitted due to:

- A change to the allocation of SIF Funding between Project Partners to reflect a change in costs for one of the work packages. The reallocation of SIF Funding between Project Partners does not increase the cost of the deliverable, the amount of SIF Funding requested, nor the total Project costs.

¹ <https://www.ofgem.gov.uk/publications/updated-sif-governance-document>

² <https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-1-alpha-projects-approved-funding>

³ The terms the "Authority", "Ofgem", "we" and "us" are used interchangeably in this document. The Authority refers to the Gas and Electricity Markets Authority. Ofgem is the Office of the Gas and Electricity Markets Authority.

⁴ <https://www.ofgem.gov.uk/publications/sif-round-1-alpha-phase-project-directions>

The Material Change request proposed the following changes to the schedule of the SIF Project Direction issued on 12 August 2022:

- In Annex 1, in the Project Finances table, increasing the total SIF Funding Requested by Delta Energy & Environment Limited to reflect the reallocation of SIF Funding from Vattenfall Heat UK Limited.
- In Annex 1, in the Project Finances table, increasing the project contribution from Delta Energy & Environment Limited to reflect Vattenfall Heat UK Limited's role as a pro-bono role in the Project whilst maintaining the minimum 10% contribution from the Project Partners.
- In Annex 1, in the Project Finances table, increasing the total Project costs for Delta Energy & Environment Limited to reflect its increase in the Project contribution and SIF Funding requested.
- In Annex 1, in the Project Finances table, amending the total project costs, project contribution percentage, project contribution amount, and total SIF Funding requested by Vattenfall Heat UK Limited to reflect its role as pro-bono Project Partner for the Alpha Phase and the reallocation of its contribution and SIF Funding requested to Delta Energy & Environment Limited.

Ofgem's review

As set out in chapter 1 of the SIF Governance Document, Ofgem is the decision-maker in the SIF. Furthermore, as set out in chapter 6, Ofgem will consider Material Changes in circumstances and requests to change SIF Project Directions on a case by case, and will engage with monitoring officers on Projects to support the assessment of Material Change requests.

Ofgem has reviewed this Material Change requested submitted by SP Transmission Plc and has engaged with the monitoring officer on the Project. Ofgem has reviewed the reasoning for the Material Change submitted by the Funding Party and considers it to satisfy the Eligibility Criteria in chapter 2 of the SIF Governance because:

- It enables the Project the Project to focus more on where the regulatory and policy barriers are.
- The scope of deliverables and work planned as part of the Alpha Phase remains unchanged.
- No Project Partners are stepping back from the Project.
- The Project still aligns with the Innovation Challenge requirements.

Decision

As a result of the reasons outlined above, Ofgem has approved this Material Change request.

In accordance with Section 17 of the Project Direction issued on 12 August 2022 and paragraph 6.22 of the SIF Governance Document, the amended SIF Project Direction for SP Transmission Plc / Heat Balance is published in the Schedule 1 of this letter. The amended SIF Project Direction is effective as of the date of this letter and, unless stated otherwise, supersedes the SIF Project Direction issued on 12 August 2022. The letter constitutes notice pursuant to section 49A (Reasons for decisions) of the Electricity Act 1989 and 38A (Reasons for decisions) of the Gas Act 1986.

If you would like to discuss any of the issues, you can contact Ofgem via networks.innovation@ofgem.gov.uk. Alternatively, you can contact UKRI via SIF_Ofgem@innovateuk.ukri.org.

Yours sincerely,

Marzia Zafar
Deputy Direction of Strategy & Decarbonization
For and on behalf of the Authority

Schedule: Amended SIF Project Direction

1. PROJECT DETAILS

SIF Project Direction reference: SPT/Heat_Balance/SIFHeat/Rd1_Alpha

Application number: 10037467

Project title: Heat Balance

Innovation Challenge/Project Phase: Heat / Alpha Phase round 1

Project start date: August 1, 2022

Project end date: January 31, 2023

SIF Approved Amount for SIF Funding: £499,116

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 Heat Balance (the "Project") as a condition of it being funded under the SIF Funding Mechanism.⁵

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.

Table 1. Project Partners

University of Edinburgh
University of Glasgow
Ramboll UK Limited
Delta Energy & Environment Limited

⁵ The SIF Funding Return Mechanism is defined in the SIF Governance Document.

Condition 2

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

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

Condition 4

As part of its end of Project Phase report, the Funding Party must include an explanation of how any commercial arrangements stemming from the Project are technologically neutral, and how the large-scale thermal energy storage would co-exist with other flexibility solutions.

Condition 5

The Funding Party must make reasonable endeavours in the Alpha Phase to discuss the Project with National Grid ESO to discuss its role in constraint payments and how this may impact the Project. As part of its end of Project Phase report, the Funding Party must provide a summary of this engagement and any findings or learnings.

Condition 6

As part of its end of Project Phase report, the Funding Party must evidence consideration for external financing options in the Project and how external funding could be utilised for a demonstration of the Project.

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 £499,116 (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 Alpha Phase. Within this report, the Funding Party must submit information related to questions on Project delivery as detailed in chapter 6, table 4 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)⁶ and DPA (Data Protection Act) 2018⁷. 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.

⁶ https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en

⁷ <https://www.legislation.gov.uk/ukpga/2018/12/contents/enacted>

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.

Table 3. Project milestone⁸

Reference	Project milestone	Deadline	Evidence	SIF Funding Request (100%) ⁹
Milestone 1	Work package 1: Project Management	January 31, 2023	Ensuring the HEAT BALANCE project is successfully delivered on time and under budget. Facilitating regular and effective communication between project partners and disseminate information to the full project team.	£74,913 (15%)
Milestone 2	Work package 2: Archetype Solution Development	January 31, 2023	Producing a catalogue of large-scale GB Thermal Energy Storage (TES) 'archetypes' vis-à-vis given scenarios of future electricity, heating and cooling demand and renewable energy curtailment. The catalogue will aid initial screening of the subsurface potential at a given location (further characterised by demand and nearby renewable energy curtailment), and facilitate the assessment of	£114,625 (23%)

⁸ As outlined in in the Application or Project Plan appendix.

⁹ Where Project Applications were not explicit on milestone(s) as a percentage of total SIF Funding Request, milestone(s) as a percentage of total project costs were applied to the SIF Funding Request. In some circumstances where the information needed to complete this table was not available in an Application, Funding Parties were requested to provide this information separately.

			repeatability and scalability of the concept, considering the site-dependency of large-scale TES.	
Milestone 3	Work package 3: Trial site development	January 31, 2023	Several objectives are a part of this milestone and work package: <ul style="list-style-type: none"> • Front-End Engineering Design (FEED) study for trial site. • Defining the technical requirements for the installation of a subsurface, long-term thermal energy storage system linked to the district energy system on the trial site • Estimating the project costs • Establishing suitable regulatory and contractual structures to govern the interactions between the different stakeholders • Defining monitoring requirements to maximise the benefits of this project for the further rollout of the technology. 	£163,464 (33%)
Milestone 4	Work package 4: Socio-environmental feasibility of large-scales underground thermal energy	January 31, 2023	Identify and mitigating potential socio-environmental barriers to the implementation of large-scale TES in GB.	£59,569 (12%)

	storage (UTES) in GB			
Milestone 5	Work package 5: Commercial & regulatory	January 31, 2023	The overall aim of this work package is to develop a road map for the GB-level roll of large-scale Thermal Energy Storage (TES) and deliver a set of recommendations which will address the commercial and regulatory barriers to the widescale deployment of large-scale TES.	£86,546 (17%)

14. USE OF LOGO

The Funding Party and the Project Partners, External Funders and Project Supporters or subcontractors¹⁰ 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

¹⁰ As detailed in the Application.

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.

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, 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 9.19 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

SIF Project Direction costs¹¹			
Cost Category	Total Project costs (£)	Project contribution (£)	Total SIF Funding requested (£)
Labour	£490,244	£49,149	£441,095
Materials	£0	£0	£0
Subcontracting	£0	£0	£0
Travel and subsistence	£400	£40	£360
Other costs	£64,068	£6,407	£57,661
Total	£554,712	£55,596	£499,116

Project finances				
Project Partner	Total project costs (£)	Project contribution (%)	Project contribution (£)	Total SIF Funding requested (£)
SP Transmission Plc	£52,569	10%	£5,257	£47,312
University of Edinburgh	£119,558	10%	£11,956	£107,602
University of Glasgow	£122,105	10%	£12,210	£109,895
Ramboll UK Limited	£125,230	10%	£12,523	£112,707
Delta Energy & Environment Limited	£114,000 <u>£125,250</u>	10%	£11,400 <u>£12,650</u>	£102,600 <u>£112,600</u>
Erda Energy Limited	£10,000	10%	£1,000	£9,000
Vattenfall Heat UK Limited	£11,250 <u>£0</u>	11% <u>0%</u>	£1,250 <u>£0</u>	£10,000 <u>£0</u>
Total	£554,712		£55,596	£499,116

¹¹ Funding Parties were requested to provide the information in this table separate to their Application submissions.

ANNEX 2 TO SCHEDULE: TEMPLATE OF BANK ACCOUNT DETAILS TO BE PROVIDED TO 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)