Department for
Business, Energy
& Industrial Strategy

PHASE 2 APPLICATION WORKBOOK

Guidance Document

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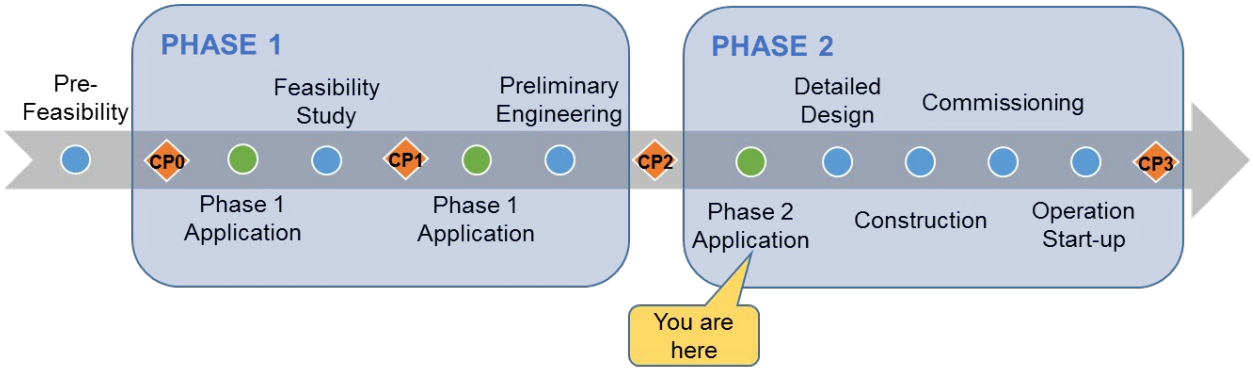
Intention

This document provides guidance to Industrial Heat Recovery Support (IHRS) Programme applicants completing and submitting a Phase 2 Application Workbook. Before starting the application, applicants must ensure they have submitted the Checkpoint 2 form and obtained a confirmation note to proceed with Phase 2 Application from the Delivery Partner.

Figure 1 IHRS Programme Phase 2 Application overview



This Guidance Note has been prepared to support the process of completing the Phase 2 Application Workbook. To avoid duplication of work undertaken at the Checkpoint stage where possible data entered in the Checkpoints is pre-populated into the Application Workbook. The Phase 2 Application is a competitive process and requires a greater level of detail in all areas than covered at the Checkpoint stage.

New applicants who have not received grant funding under Phase 1 of the Programme may apply for funding under Phase 2, as may Phase 1 participants. Both will be assessed as part of the same competition within any given assessment window. For new applicants, a feasibility study and preliminary engineering must have been independently completed to the level expected for submission of Checkpoint 2. Please refer to the Checkpoint 2 Guidance Note for further guidance.

Information Collected in the Application Process

BEIS with the assistance of the Delivery Partner will be required to collect information from applicants throughout the Programme both at the application stage and if grant funding is awarded. This information is necessary for the administration of the Programme, to undertake evaluation of the Programme and to inform future policy decisions.

Where this information contains personal data, that is information that relates to an identified or identifiable individual, this information will be processed in accordance with the General Data Protection Regulation. This includes information such as contact details for the project lead contact. The contact information will be used for administrative purposes for the duration of the Programme, which may include the period of overall Programme evaluation.

Further information is available at the following link:

https://www.gov.uk/government/publications/industrial-heat-recovery-support-programme-guidance-and-application-forms/industrial-heat-recovery-support-programme-privacy-notice

Application Guidance

The following guidance note has been structured to follow the section headings of the Application Workbook and provide further guidance to applicants in preparing a robust application.

You are advised to provide as much details as possible across all questions at the Application stage. Giving BEIS and the Delivery Partner the most robust and complete information for their competitive assessment.

To make sure BEIS and the Delivery Partner assess all the data, please reference, within the response to a question, the name of any documents you submit in support of that response.

Applicant Details

The purpose of this section is for the applicant to provide information about the applicant, i.e. the organisation that is applying for the IHRS grant funding, as detailed in Table 1. This information will be used to assess basic eligibility and to verify the maximum amount of IHRS funding allowed in accordance with State aid rules and the Programme maximum funding.

Table 1 Applicant Details Completion Requirements

Section	Requirements
Section 0.1	**You must provide the following further Company / Organisation Information not collected in the Checkpoint forms.**
Annual Turnover	The annual turnover of the applicant, expressed in GBP.
Number of Full Time Equivalents	Number of Full Time Equivalent staff of the applicant's company / organisation.
Registered Address	Registered address of the applicant company / organisation.
VAT Registration Number	VAT Registration number of the applicant's company / organisation.
0.2 Company Contact details **0.3 Supporter Contact Details** **0.4.2 Project information.**	If you need to change any of this detail previously answered in the Checkpoint forms please answer yes and note the change in the relevant box provided and the update will be made by the Delivery Partner. This is to manage the integrity of the initial registration checks.
0.4.1 Is this site located in an Assisted Area Status?	Please indicate if the proposed Project site is located in an Assisted Area Status. Projects located within such area may be eligible for

Section	Requirements
	an uplift in IHRS grant funding. Please refer to section 5.2 of this Programme Guidance Document for further information.

Technical Design

The purpose of this section is for the applicant to provide information about the technical design of the proposed heat recovery opportunity, referred to in this document as the Project. Applicants are strongly advised to:

- Expand on the information provided in Checkpoint 2 where appropriate and provide further technical details;
- Incorporate key outputs and findings from the feasibility study and preliminary engineering activities;
- Present robust technical evidence to support the information provided.

Table 2 provides further guidance on the required information of this section.

Table 2 Project Overview Requirements for Phase 2 Application

Section	Requirements	Further Guidance
1.1	What is the potential heat source and what energy sources provide its heat?	Provide an overview about the process generating the waste heat. As a minimum, this should include the source of energy, amount of heat generated, factors affecting the availability of waste heat and its technical characteristics (temperature, pressure, gas content, flow rate, etc.). Applicants are advised to provide any historical data and explain calculation methods substantiating the quantification of waste heat, incorporating details from the feasibility study and preliminary engineering outputs. The more detail and clarity you can provide the more likely you will score well in the application assessment.
1.2	Please describe the technical solution being proposed to recover from the heat source. Provide details explaining the technical design and specification of the proposed waste heat recovery technique.	Provide an overview of the proposed technical solution for recovering waste heat. As a minimum, this should include the heat recovery method, thermal efficiencies, rated outputs, operation and maintenance requirements and factors (e.g. production, temperature, gas quality, etc.) affecting its performance. State the maturity and market status of the chosen technology and consider whether there is a precedent for the selected technology in a similar application and/or within the sector from which the project is proposed.

Section	Requirements	Further Guidance
		Applicants are advised to provide any relevant technical documentation (e.g. specification sheets, technology layout drawings, schematic diagram for key process and instrumentation, etc.) of the chosen heat recovery technique.
1.3	What is the envisaged use for the recovered heat and what is the technological solution to using it? Please comment if other options were considered and why they were dismissed. What energy source is being replaced by the recovered heat?	Provide an overview of the technical profile of the proposed heat or energy user. As a minimum, this should include the process, operation parameters, current energy consumption and fuel type. The factors (production, temperature, gas quality, etc.) affecting the operation of the heat or energy user should also be elaborated in detail. Applicants are advised to provide any historical data and explain calculation methods quantifying the heat using process energy consumption. Technical documentation should also be provided. The information provided here should incorporating details from the feasibility study and preliminary engineering outputs. Where other options were considered, present the comparison analysis results and discuss the deciding factors leading to the proposed solution.
1.4	Please describe the solution being proposed for transporting the heat from the source to the heat or energy user. Please describe any key design considerations which must be factored in.	Provide an overview of the technical configuration of heat transport or energy delivered to the user. As a minimum, this should include the proposed plant layout diagram, schematic diagrams, technical specification of the proposed heat / energy transfer solution and bill of material. Please reference these documents by name and complete questions 1.8, 1.9 and 1.10 to confirm whether new documents have been uploaded or are the same ones as at CP2.
1.5	Please describe the heat and load profile of the source and how the potential heat for recovery has been calculated.	Explain the load profile of the waste heat source, substantiated with historic data. The quantification method of recovery of waste heat should be clearly presented along with the applied quantification methods or step. Applicants are advised to incorporate the details from the feasibility study and preliminary engineering findings.
1.6	Please describe the heat and load profile of the heat user and how the heat requirements have been calculated.	Explain the consumption profile of the waste heat or energy user, substantiated with historic data. The quantification method of waste heat utilisation should be clearly presented along with the applied quantification methods or step.
1.7	Please describe any previous activities	Present any previous activities, not covered by the feasibility study or preliminary engineering work,

Section	Requirements	Further Guidance
	undertaken with respect to this heat recovery opportunity prior to this application (if none please state 'none').	which contributed to the decision in pursuing the proposed project (e.g. specific measurements, bespoke engineering design, etc). Applicants are advised to elaborate on the objective, approach and outcomes of each activity.
1.8	Process flow diagram showing all major energy flows relevant to the proposed heat recovery opportunity.	If you have updated these documents since the ones you provided with CP2 please indicate this here. Make sure you have referenced this document in your response earlier in section 1 of Application Workbook.
1.9	Schematic of the physical layout of the heat recovery opportunity.	If you have updated these documents since the ones you provided with CP2 please indicate this here. Make sure you have referenced this document in your response earlier in section 1 of Application Workbook.
1.10	Results of an energy mass balance of the heat recovery opportunity.	If you have updated these documents since the ones you provided with CP2 please indicate this here. Make sure you have referenced this document in your response earlier in section 1 of Application Workbook. Make sure the document includes details of how the energy mass balance was produced.
1.11 / 1.13	Does any information about the: feasibility study; preliminary engineering; provided on the Checkpoint 2 form need updating, correcting or expanding?	Where the information provided in the Checkpoint 2 form has changed, please provide the updated details in Section 1.12 and 1.14 (of Application Workbook) which will only be visible once you have answered 'yes'.

Note: It is expected that applicants will generate further relevant technical documentation, specific to the project, which may not be listed here. Please append copies of these to the application when submitting the application.

Delivery Plan

The purpose of this section is to provide further detail on the Delivery Plan of the proposed project beyond that submitted within the Checkpoint 2 Form. Information should be provided about the project plan and consider the requirements and further guidance as detailed in Table 3.

Table 3 Delivery Plan requirements for Phase 2 Application

Section	Requirements	Further Guidance
Section 2.1: Objectives		

Section	Requirements	Further Guidance
2.1.1	Objectives of the preliminary engineering	If required additional information about the objectives and purpose of the previous preliminary engineering activities can be provided, in addition to the information provided in Checkpoint 2. Where applicable, please explain the specific objectives of each activity. You should consider technical objectives of the heat recovery technology, business objectives such as cost and payback, and implementation feasibility.
2.1.2	Please provide an overview of how the Project will be delivered to meet the objectives.	Provide an overall approach of how the project will be delivered to meet your stated objectives. The approach may include key steps, activities, resource deployed, approval steps, impact assessment, permit planning,
Section 2.2: Project Plan		
2.2.1	Please outline a plan, separated into tasks, for delivery of your Project.	You should show breakdown of the Project into sufficient tasks to be able to clearly show the Project is deliverable and the benefits that the Project will bring. For each task in your project plan provide details on: Describe the specific task that will be undertaken; What will be the measure or output of the task that shows the benefit it is bringing to the Project; Explain in detail what will be done in the task and how the task is achievable and relevant to the overall Project; You will need to give a target completion month for each task that will show realistic timescales and be reflected in the detailed Gant chart. Applicants are advised to ensure that with these tasks all reasonable steps are undertaken to successfully implementing the Phase 2 Project.
2.2.2	Please provide a Gantt chart to provide more detail on when each task will be undertaken. Further sub-tasks can be added in the Gantt chart to help add more clarity.	Provide a detailed Gantt chart to supplement the details provided in Section 2.2.1 of the Application Workbook.
Section 2.3: Project Team Overview		
2.3.1	Please list the key companies involved in the delivery of the project.	Where external resources are engaged, please provide their organisation details, along with their specific role and responsibilities.
2.3.2	Please list the key individuals involved in the delivery of the project.	For each person listed in the Project Team Overview table, describe their specific role, responsibilities, summary of skills and experience and the

Section	Requirements	Further Guidance
		organisation associated with the personnel. A CV should also be attached for each listed personnel. It is expected that some internal staff may not have prepared an updated CV. Applicants are advised to prepare a condensed CV (or biography) to describe their experience, skills and qualifications, and explain how these will contribute to the successful implementation of the proposed Project.
Section 2.4: Non-Personnel Resources		
2.4.1	Please describe if any other resources are needed to successfully deliver the project.	Where applicable, please provide details of any non-personnel resources to be utilised in the proposed Project. This could include testing equipment, construction equipment, research data or access permissions.
Section 2.5: Key Risk Assessment and Management		
2.5.1	Please provide a summary assessment of key risks in delivering the Project.	The risks identified should be specific to the Project and should have practical mitigation procedures for effectively managing the risks. You should consider delivery, technical. commercial, contractual, safety and environmental risks. It is expected that companies will generate their own internal project risk registers and management procedures. Please also append copies of these to the application.
Section 2.6: Monitoring and Verification Plan		
2.6.1	Please outline a plan for monitoring, verifying and reporting the benefits of the capital project for 12 months after completion.	In this section you must clearly show how the benefits you expect the project to bring will be evaluated. The benefits you detailed in the Value for money and Wider benefits tabs will become a baseline of expected success. Show in this plan which of these will be measured. For each, state how it will be measured suitably accurately (for example sub-metering arrangement) Apply a SMART approach to this being specific about each individual benefit (or costs) of the Project that will be monitored and evaluated to show the Project has been successful. For each, show how it will be clearly and separately measurable in terms of metering as well as in terms of a baseline for comparison. Including how this will then be verified through for example inspection of records or utility bills.

Costs and Finance

The purpose of this section is to provide further detail of the overall cost and finance of the proposed project beyond that submitted within the Checkpoint 2 form. Applicants must also explain why grant funding is required to proceed with the project, and the amount of grant funding requested for each milestone.

There are four Payment Milestones associated with Phase 2:

- Payment Milestone 3 – Detailed design completion
- Payment Milestone 4 – Installation / Construction Phase including construction completion (Note: applicants could propose sub Milestone Payments here)
- Payment Milestone 5 - Operational handover
- Payment Milestone 6 - Close out payment

Note that the final milestone payment schedule will be agreed as part of the grant offer letter and may differ from that proposed by the applicant in their application.

Please refer to section 5.3 of the Programme Guidance Document, which provides detailed info on Payment Milestones. Please submit the full costs for each section, not just the element for which you are seeking grant support. Table 4 details the requirements of this section.

Table 4 Cost, Finance and Additionality requirements for Phase 2 application

Section	Requirements	Further Guidance
3.1	Proposal of Payment Milestones.	Three of the milestone payments are for fixed project stages. In this section you can tailor sub-milestones of Payment Milestone 4 to the specific structure of your Project. For each sub-milestone provide a label and what outputs / services / deliverables are required for that Payment Milestone. For all the Payment Milestones indicate which of the proposed project activity tasks apply (tasks as listed in Section 2.2 of the Application Workbook). Applicants are advised to align their Payment Milestone as outlined in section 5.3 of this Programme Guidance Document. Applicants should also note that the final Payment Milestone schedule will be agreed as part of the grant offer letter and may differ from that proposed in the Application Workbook
3.2	Applicant labour and overhead costs from staff	For each proposed resource, provide the staff cost (£/day), overhead cost (as % of salary) and the anticipated Payment Milestone attributing to their specific activities carried out. Applicants shall ensure the costs represent a fair market value and **DO NOT** include profit to the applicant for the proposed resource(s).

Section	Requirements	Further Guidance
		At the end of this section, please provide any key assumptions applied to substantiate the labour and overhead cost provided.
3.3	Material costs	Provide the list of all required materials for the project, a 'unit' price, and then the anticipated 'units' of each material for each of the Payment Milestones. It is expected that applicants will obtain quotations and pricing details from the service or material provider, specific to the project. Please append copies of these to the application. At the end of this section, please provide any key assumptions applied to substantiate the material cost provided.
3.4	Sub-contractor costs	Provide a list of all sub-contractors that will be engaged, outlining the activities they will undertake and the country this will be in. Provide the anticipated cost for each of the sub-contractor for each Payment Milestone. It is expected that applicants will obtain quotations and pricing details from the service or material provider, specific to the project. Please append copies of these to the application. At the end of this section, please provide any key assumptions applied to substantiate the sub-contractor cost provided.
3.5	Travel and Subsistence	Provide a 'unit' cost for each of the anticipated travel and subsistence journeys. For each item, provide a description of the cost and purpose for the journey expenditure. Provide the number of 'units' of each subsistence type for each Payment Milestone. At the end of this section, please provide any key assumptions applied to substantiate the travel and subsistence cost provided.
3.6	Capital Costs	Provide a description and a 'unit' cost for each of the anticipated capital cost elements. Provide the number of 'units' of each capital cost element for each Payment Milestone. It is expected that applicants will obtain quotations and pricing details from the service or technology provider, specific to the project. Please append copies of these to the application. At the end of this section, please provide any key assumptions applied to substantiate the capital cost provided.

Section	Requirements	Further Guidance
3.7	Other Costs	Provide a description and a 'unit' cost for any other anticipated costs. This could include software licences, data, equipment rental. Provide the number of 'units' of each other cost element for each Payment Milestone. It is expected that applicants will obtain quotations and pricing details of such other costs, specific to the project. Please append copies of these to the application. At the end of this section, please provide any key assumptions applied to substantiate any other cost provided.
3.8	Project cost summary	This section provides a summary of the overall cost and the Payment Milestone for the project, based on the details provided in section 3.1 – 3.7 of the Application Workbook. Applicants are not required to provide any information in this section.
3.9	Project finance and milestone payments	Based on the overall cost summary generated by the Application Workbook provide a breakdown by Project Milestone of: The value to be provided by internal funding. The percentage grant funding. Noting that this should be the minimum amount of funding needed to make the Project viable. Provide an expected end date (month and year) for each Project Milestone. Provide a breakdown by Project Milestone of the source and funding amount for: Other non-IHRS grant funding; Internal or external non-grant funding. To inform the assessment please include with the Application Workbook a document detailing the reasons why, with evidence, that the level of funding is required. Unsubstantiated claims will score less well. Provide details of the nominated person financially responsible for this project. You must also attach a document that justifies the company return on investment (RoI) that was stated in the Checkpoint form. This would include comparison with sector averages, company investment cycles, expected plant working life and company financial practice. Within the Application Workbook you must explain if, and if so why, this project is different from current energy efficiency based investments. This may include complexity, size, available energy saving investment budget.

Section	Requirements	Further Guidance
		Applicants must also demonstrate that the project is not financially feasible in the absence of IHRS grant funding. This demonstration should include: Internal hurdle rates (with supporting evidence); Supporting narrative of the IHRS business case, with a focus on any differences between the IHRS investment vs. other investments; Minimum funding required for project to proceed.

Note: Capital items under the value of £1,000 need not be reported individually.

If applicants intend to capitalise staff costs internally you must break these costs down into the relevant cost sections for the purpose of this Programme.

Wider Benefits

The purpose of this section is for the applicant to provide information about the potential direct and indirect benefits of the proposed Project, as detailed in Table 5.

Table 5 Wider Benefits of Phase 2 application

Section	Requirements	Further Guidance
5.1	Company energy use	Provide the estimated current annual electricity and fuel consumption of the Company.
5.2	Site baseline data	Provide a 12-month historic data of the electricity and fuel consumption of the site where the Project is located. Data for each fuel should be supplied separately. Provide the energy / fuel cost for each energy type provided in this section. Provide any key assumptions substantiating the baseline data provided in this section.
5.3.1	Baseline annual heat generation	Provide an estimate of the annual energy consumption of the heat source or process generating the heat source. The data here shall be corresponding with the detailed analysis carried out in section 1 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.

Section	Requirements	Further Guidance
5.3.2	Baseline annual heat waste	Provide a detailed quantification of the annual heat being emitted to the environment (i.e. annual waste heat generation). This should correspond with the thermal balance analysis carried out during preliminary engineering or any previous activities prior to the application as listed in section 1 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.3	Baseline annual heat available for recovery	Provide a detailed quantification of the potential annual heat available for recovery from the heat source. This shall correspond with the thermal balance analysis carried out during preliminary engineering or any previous activities prior to the application as listed in section 1 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.4	Baseline operational costs	Provide an estimate of the annual operational and maintenance cost for the chosen heat recovery technology or solution. This shall correspond with the detailed analysis carried out in section 5 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.5	Baseline of other costs	Provide an estimate of any other cost, not fuel or operational and maintenance, associated with operating the shortlisted heat recovery technology or solution. This could include insurance, financing, one-off costs. This shall correspond with the detailed analysis carried out in section 5 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.7	Heat recovery asset lifespan	Provide the aggregated lifespan of the asset relevant to the heat recovery project. Please provide any assumptions applied to the specification of the aggregated lifespan (e.g. maintenance and replacement of peripheral equipment to sustain the overall aggregated plant lifespan). The aggregated lifespan should consider the lifespan of the asset, with the highest cost, reaching the end of its expected operation lifecycle.
5.3.8	Annual heat recovered	Provide a detailed quantification of the annual potential heat that can be recovered by the chosen

Section	Requirements	Further Guidance
		technology or solution (i.e. rated heat recovery capacity). Provide a summary of all core assumptions associated with this estimation.
5.3.9	Annual recovered heat utilised	Provide a detailed quantification of the annual heat to be utilised by the chosen heat / energy user. This shall be corresponding with the detailed analysis carried out in section 1 and 5 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.11	Annual reduction in fuel consumption	Provide a detailed quantification of the annual savings in fuel cost at the proposed project site. This shall be corresponding with the detailed analysis carried out in section 1 and 5 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.12	Annual reduction in electricity consumption	Provide a detailed quantification of the annual savings in electricity cost at the proposed project site. This shall be corresponding with the detailed analysis carried out in section 1 and 5 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.13	Annual reduction in energy consumption	Provide a detailed quantification of the annual savings in energy cost at the proposed project site. This shall be corresponding with the detailed analysis carried out in section 1 and 5 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.14	Annual reduction in carbon emissions	Provide a detailed quantification of the annual reduction in carbon emissions directly related to the fuel / energy consumption. This shall be corresponding with the detailed analysis carried out in section 1 and 5 of the Application Workbook. Provide a summary of all core assumptions associated with this estimation.
5.3.15	Annual reduction in other carbon emissions	Provide a detailed quantification of the annual reduction in carbon emissions indirectly due to the implementation of this project. This may be associated with the wider operations within the proposed project site itself. Provide a summary of all core assumptions associated with this estimation.

Section	Requirements	Further Guidance
5.3.25	Annual Operational Benefit	Provide a detailed quantification of the annual operational benefit due to the implementation of this project. This may be associated with the wider operations within the proposed project site itself, such as waste, product price. Provide a summary of all core assumptions associated with this estimation.
5.3.26	Annual quantification of Other Benefit(s)	Provide a detailed quantification of any other associated benefit(s) due to the implementation of this project. This may be associated with the wider benefits beyond the proposed project site itself, such as client perception, brand reputation. Provide a summary of all core assumptions associated with this estimation.
5.4	Additional benefits associated with the heat recovery project	Please describe, in qualitative and quantitative terms, the additional benefits that the heat recovery project may yield (e.g. environmental, economic, employment, social, etc.). This should correspond with the quantification of other benefits in section 5.3.26 of the Application Workbook.
5.5	Replicability of the heat recovery project at other sites	Provide an analysis of the replication potential across other sites with similar processes, within similar sector or other sectors, of the chosen technology or solution. This may include other organisations which is non-related to the applicant's organisation. Applicants are advised to take reasonable and pragmatic steps to provide this assessment and present any available evidence to substantiate this assessment.
5.6	Factors which may affect the benefits from the propose heat recovery project.	Provide an overview of the key factors which may affect the potential benefits of the proposed project. Applicants are expected to develop a detailed sensitivity assessment of the key factors affecting the potential benefits specific to the project. Please append copies of this analysis to this application.

Note: Applicants are expected to develop internal detailed calculation sheets to substantiate the project benefits. Please append copies of this analysis to this application, along with a brief narration of the calculation results.

Signed Declaration

The purpose of section 6 is to:

- Summarise back to the applicant all additional information to be provided along with this application. Applicants should append all documents requested within this application,

and other supporting documents which may substantiate the information provided in this application.

- Provide a final confirmation from the Applicant that the project is eligible when considering the four factors of location, existing heat source, State aid and accepting the Grant Offer Letter and Grant Funding Agreement.

- Prior to the submission of this application, applicants shall ensure that the authorised person nominated by the organisation approves and attaches their signature to this Application Workbook. Should there be any changes to the details of the authorised person, applicants may write to the Delivery Partner (ihrsprogramme@icf.com) to receive further submission instructions.

This publication is available from: https://www.gov.uk/guidance/industrial-heat-recovery-support-programme-how-to-apply

If you need a version of this document in a more accessible format, please email enquiries@beis.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.