



Department for  
Business, Energy  
& Industrial Strategy

# PHASE 1 APPLICATION WORKBOOK

Guidance Document



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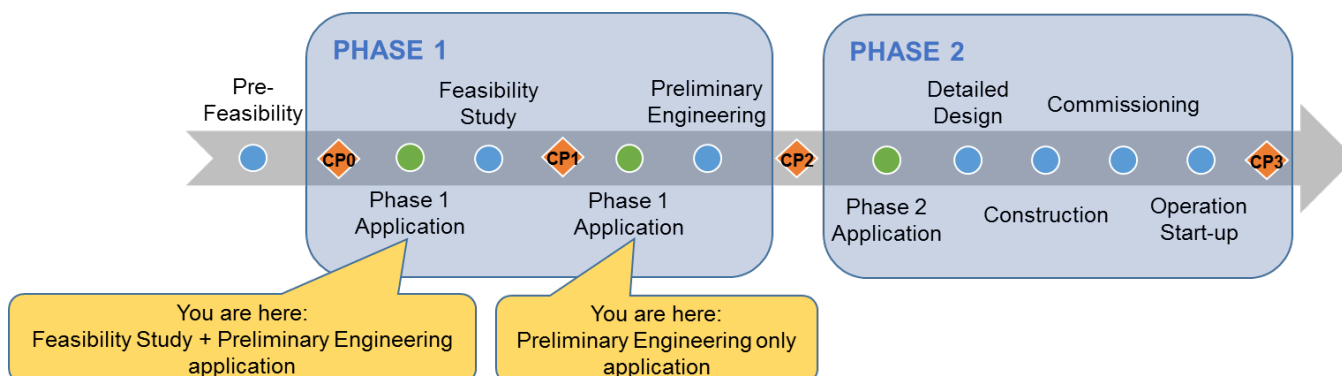
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# Intention

*This document provides guidance to Industrial Heat Recovery Support (IHRS) Programme applicants completing and submitting a Phase 1 Application Workbook. Before starting the application, applicants must ensure they have submitted the appropriate Checkpoint form (CP0 or CP1 depending on entry point) and obtained a confirmation note to proceed with Phase 1 Application from the Delivery Partner.*

**Figure 1 IHRS Programme Phase 1 Application overview**



This Guidance Note has been prepared to support the process of completing the Phase 1 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 1 Application is a competitive process for applicants entering the Programme and requires a greater level of detail in all areas than covered at the Checkpoint stage. For existing participants continuing from IHRS-grant funded feasibility study to preliminary engineering, the submission of an updated Phase 1 Application Workbook is part of the review process for progression on to preliminary engineering.

## 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 applicant 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>

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# 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.

If you are an existing participant continuing from IHRS-grant funded feasibility study to preliminary engineering, you must update the Application Workbook with the findings from the feasibility study. This information will be used to check that the project remains aligned with IHRS aims and objectives.

It is possible to make changes to the project at this stage, but these changes must ensure the project remains aligned with IHRS aims and objectives. Proposed changes will be reviewed by the Delivery Partner and BEIS.

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
<b>Section 0.1</b>	<b>You must provide the following further Company / Organisation Information not collected in the Checkpoint forms.</b>
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.
<b>0.2 Company Contact details</b> <b>0.3 Supporter Contact Details</b>	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.

Section	Requirements
<b>0.4.2 Project information.</b>	
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 an uplift in IHRS grant funding. Please refer to section 5.2 of this Programme Guidance Document for further information.

## Technical Concept

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 0 and 1 where appropriate, and provide further technical details;
- Incorporate key outputs and findings from the feasibility study and preliminary engineering activities where they have been completed;
- Present robust technical evidence to support the information provided.

[Table 2](#) provides further guidance on the required information of this section.

**Table 2 Technical Concept Requirements for Phase 1 Application**

Section	Requirements	Further Guidance
1.1	What is the potential heat source and what energy sources provide its heat?	<p>Provide an overview of 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.).</p> <p>Applicants are advised to provide any historical data and explain calculation methods substantiating the quantification of waste heat.</p> <p>The more detail and clarity you can provide the more likely you will score well in the application assessment.</p>
1.2	How do you envisage heat might be recovered from the heat source?	<p>Provide an overview of the proposed technical solution for recovering waste heat. As a minimum, this should include the heat recovery method, estimated thermal efficiencies, rated outputs, 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</p>

Section	Requirements	Further Guidance
		<p>technology in a similar application and/or within the sector from which the Project is proposed.</p> <p>Applicants are advised to provide any relevant technical concept documentation (e.g. specification sheets, technical concept layout drawings, conceptual schematic diagram(s) for key process and instrumentation, etc.) of the chosen heat recovery technology.</p>
1.3	<p>What is the envisaged use for the recovered heat and what is the technological solution to using it?</p> <p>What energy source is being replaced by the recovered heat?</p> <p>Please include all options that are being considered.</p>	<p>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.</p> <p>The factors (production, temperature, gas quality, etc.) affecting the operation of the heat or energy user should also be elaborated in detail.</p> <p>Applicants are advised to provide any historical data and explain calculation methods quantifying its energy consumption. Relevant technical concept documentation should also be provided. The information provided here should incorporating details from the feasibility study if you have completed it (applying after CP1).</p> <p>Where other options were considered, present the comparison analysis results and discuss the deciding factors leading to the proposed solution.</p>
1.4	How do you envisage the heat being transported from the source to the heat or energy user?	Provide an overview of the technical concept of the heat transport or energy delivery to the user. As a minimum, this should include a conceptual plant layout plan, conceptual schematic diagrams, relevant technical specifications gathered of the proposed heat / energy transfer solution being assessed.
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 recovered waste heat should be clearly presented along with the applied quantification methods or step.
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 undertaken with respect to this heat recovery opportunity prior to this application.	Present any previous activities which contributed to the decision to pursue the proposed Phase 1 activities (e.g. specific measurements, bespoke studies, pre-feasibility etc).

Section	Requirements	Further Guidance
		Applicants are advised to elaborate on the efforts taken so far during the pre-feasibility assessment of the proposed heat recovery opportunity.

**Note:** It is expected that applicants may develop further relevant technical concept documentation, specific to the heat recovery opportunity, which may not be listed here. Please append copies of these to this application when submitting the application.

## Delivery Plan

The purpose of this section is to provide further detail on the Delivery Plan of the proposed Phase 1 activities beyond what is submitted within the Checkpoint 1 form. Information should be provided about all aspects of the Delivery Plan and consider the requirements and further guidance as detailed in [Table 3](#).

**Table 3 Delivery Plan requirements for Phase 1 Application**

Section	Requirements	Further Guidance
<b>Section 2.1: Objectives</b>		
2.1.1	Objectives of the feasibility study	If required additional information about the objectives and purpose of the proposed (or previously conducted) feasibility study activities can be provided, in addition to the information provided in Checkpoint 1. 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	Objectives of the preliminary engineering	If required additional information about the objectives and purpose of the proposed preliminary engineering activities can be provided, in addition to the information provided in Checkpoint 1. Where applicable, please explain the specific objectives of each activity.
2.1.3	Please provide an overview of how the feasibility study and/or preliminary engineering activities will be delivered to meet the objectives.	The approach may include key steps, activities, resource deployed, approval steps, impact assessment, permit planning, and other relevant technical, commercial, financial and management methods.
<b>Section 2.2: Project Plan</b>		
2.2.1	Please outline a plan, separated into tasks, for delivery of your feasibility study and/or preliminary engineering activities.	You should show breakdown of the activity into sufficient tasks to be able to clearly show the activity is deliverable and the benefits that the activity will bring. For each task in your project plan provide details on:

Section	Requirements	Further Guidance
		<p>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 activity;  Explain in detail what will be done in the task and how the task is achievable and relevant to the overall activity;  You will need to give a target completion month for each task that will show realistic timescales and be reflected in the detailed Gantt chart.  Applicants are advised to ensure that with these tasks all reasonable steps are undertaken to successfully implement the Phase 1 activities.</p>
2.2.2	<p>Please provide a Gantt chart to provide more detail on when each task will be undertaken.</p> <p>Further sub-tasks can be added in the Gantt chart to help add more clarity.</p>	<p>Provide a detailed Gantt chart to supplement the details provided in Section 2.2.1 of the Application Workbook.</p>
<b>Section 2.3: Team Overview</b>		
2.3.1	<p>Please list the key companies involved in the delivery of the feasibility study and/or preliminary engineering activities.</p>	<p>Where external resources are engaged, please provide their organisation details, along with their specific role and responsibilities.</p>
2.3.2	<p>Please list the key individuals involved in the delivery of the feasibility study and/or preliminary engineering activities.</p>	<p>For each person listed in the Team Overview table, please describe their specific role, responsibilities, summary of skills and experience and the organisation associated with the personnel. A CV should also be attached for each listed personnel.</p> <p>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 carrying out the Phase 1 activities.</p>
<b>Section 2.4: Non-Personnel Resources</b>		
2.4.1	<p>Please describe if any other resources are needed to successfully deliver the feasibility study and/or preliminary engineering activities.</p>	<p>Where applicable, please provide details of any non-personnel resources such as testing equipment, research data or access permissions.</p>
<b>Section 2.5: Key Risk Assessment and Management</b>		

Section	Requirements	Further Guidance
2.5.1	Please provide a summary assessment of key risks in delivering the feasibility study and/or preliminary engineering activities.	<p>The risks identified should be specific to the activity and should have practical mitigation procedures for effectively managing the risk posed. You should consider delivery, technical, commercial, contractual, safety and environmental risks.</p> <p>It is expected that companies will generate their own internal risk registers and management procedures. Please also append copies of these to the application.</p>

**Note:** Items under the value of £1,000 does not need individual reporting.

If applicants intend to capitalise staff costs internally, you must break these costs down into the relevant Payment Milestones for the purpose of this Programme. Further information is available in the Programme Guidance document (Section 5.3 – Programme Administration).

## 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 the [Table 4](#).

**Table 4 Wider Benefits of Phase 1 application**

Section	Requirements	Further Guidance
4.1	Company energy use	Provide the estimated current annual electricity and fuel consumption of the Company.
4.2	Site baseline data	<p>Provide a 12-month historic data of the electricity and fuel consumption of the site where the proposed heat recovery opportunity is located. Data for each fuel should be supplied separately.</p> <p>Provide the electricity / fuel cost for each energy type provided in this section.</p> <p>Provide any key assumptions substantiating the baseline data provided here in the 'Comments about data' sections (4.2.8 and 4.2.13 of Application Workbook).</p>
4.3.1	Baseline annual heat generation	<p>Provide an estimate of the annual energy consumption of the heat source or process generating the heat source.</p> <p>The data should correspond to the detailed analysis carried out in section 1 of the Application Workbook.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>

Section	Requirements	Further Guidance
4.3.2	Baseline annual heat wasted	<p>Provide an estimated quantification of the annual heat being emitted to the environment (i.e. annual waste heat generation). This should correspond with the detailed analysis carried out in section 1 of the Application Workbook.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.3	Baseline annual heat available for recovery	<p>Provide an estimated quantification of the annual potential heat that can be recovered from the heat source to be utilised.</p> <p>This should correspond with the outputs of any previous activities prior to the application and detailed analysis carried out in section 1 of the Application Workbook.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.4	Estimated heat that can be recovered	<p>Provide an estimated quantification of the annual potential heat that can be recovered by the shortlisted technology or solution (i.e. rated heat recovery capacity).</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.5	Estimated energy benefits	<p>Provide an estimated quantification of the annual savings in energy cost at the potential heat recovery site. This should correspond with the detailed analysis carried out in section 1 and 4 of the Application Workbook.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.7	Estimated carbon benefit	<p>Provide an estimated quantification of the annual reduction in carbon emissions directly related to the fuel / energy consumption of the heat source of the proposed site. This should correspond with the detailed analysis carried out in section 1 of the Application Workbook.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.9	Baseline operational costs	<p>Provide an estimate of the annual operational and maintenance cost for the shortlisted heat recovery technology or solution. This should correspond with the detailed analysis carried out in section 4 of the Application Workbook.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>

Section	Requirements	Further Guidance
4.3.10	Baseline of other costs	<p>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 should correspond with the detailed analysis carried out in section 1 and 4 of the Application Workbook.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.12	Estimated Operational Benefit	<p>Provide an estimated quantification of the annual operational benefit due to the implementation of this heat recovery opportunity. This may be associated with the wider operations (beyond energy benefits) within the proposed site, such as waste, product price.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.13	Estimated quantification of Other Benefit(s)	<p>Provide an estimated quantification of any other associated benefit(s) due to the implementation of this heat recovery opportunity. This may be associated with the wider benefits beyond the proposed project site itself, such as client perception, brand reputation.</p> <p>Provide a summary of all core assumptions associated with this estimation.</p>
4.3.15	Return on Investment Requirement	<p>Applicants shall demonstrate the conditions in which the heat recovery opportunity will be deemed financially feasible. This demonstration should include:</p> <ul style="list-style-type: none"> <li>Internal hurdle rates (with supporting evidence);</li> <li>Supporting narrative of the IHRS business case, with a focus on any differences between the IHRS investment vs. other investments;</li> <li>Minimum funding required for heat recovery opportunity to proceed.</li> </ul>
4.3.16	Estimated total capital cost to implement the heat recovery opportunity	<p>Provide a high level estimated total cost of capital in implementing the heat recovery opportunity.</p> <p>Where available, please append any specific quotations or pricing list which may have been obtained from previous activities to substantiate the cost estimates.</p>
4.4	Additional benefits associated with the heat recovery project	<p>Please describe, in qualitative and quantitative terms, the additional benefits that the heat recovery opportunity may yield (e.g. environmental, economic, employment, social, etc.). This should correspond with the quantification of other benefits in section 4.3.13 of the Application Workbook.</p>

Section	Requirements	Further Guidance
4.5	Replicability of the heat recovery project at other sites	<p>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 with the applicant's organisation.</p> <p>Applicants are advised to take reasonable and pragmatic steps to provide this assessment and present any available evidence to substantiate the assessment.</p>
4.6	Factors which may affect the benefits from the proposed heat recovery opportunity.	<p>Provide an overview of the key factors which may affect the potential benefits of the proposed heat recovery opportunity.</p> <p>Applicants are expected to have conducted initial sensitivity assessment of the key factors affecting the potential benefits specific to the heat recovery opportunity. Please append copies of this analysis to this application.</p>

**Note:** Applicants may have developed internal detailed calculation sheets to substantiate the proposed heat recovery opportunity 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. The signature shall be consistent with the one provided in the Application Registration form. Should there be any changes to the details of the authorised person, applicants must write to the Delivery Partner ([ihrsprogramme@icf.com](mailto:ihrsprogramme@icf.com)) to receive further submission instructions.

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

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