



Department for
Business, Energy
& Industrial Strategy

INDUSTRIAL HEAT RECOVERY SUPPORT (IHRS) PROGRAMME GUIDANCE

Draft

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Industrial Heat Recovery Support (IHRS) Programme Guidance Document

This document provides programme guidance to potential Industrial Heat Recovery Support (IHRS) Programme applicants.

[Please note that this document is published in draft and may be subject to change before it is finalised. Readers should treat all content as indicative of the likely programme.]

1. Programme Background

Industrial heat recovery is a process by which heat generated in or for an industrial process, that otherwise would be wasted, is recovered and utilised. This waste heat can be used within the same industrial facility for heat or cooling, by another end-user (e.g. via a new or existing heat network), or by converting the waste heat to power.

Industrial heat recovery has the potential to realise significant energy bill and carbon savings for industry through a reduction in primary fuel use. It therefore contributes to the Government's aims of achieving a low cost, clean and secure energy system, and can also provide competitiveness and productivity gains, giving it strong links with the Industrial Strategy.

A recent study by Element Energy found that 11 TWh/year of industrial heat used in 2014 could have been technically recovered from industrial processes in eight key energy intensive sectors, but that only 5 TWh/year of this would have been commercially viable. This demonstrates that the deployment of industrial heat recovery is falling well short of its potential at present. This is due to a number of technical barriers including insufficient knowledge and information, technical barriers associated with the complexity of fitting heat recovery technologies to certain industrial processes and commercial barriers regarding the payback of investments and availability of capital.

BEIS has developed the Industrial Heat Recovery Support (IHRS) Programme to further understand the identified challenges and barriers to adoption, and to increase industrial confidence in deploying heat recovery technologies by working with industry to address these barriers.

There is up to £18m of funding available to support the uptake of industrial heat recovery projects which will be allocated as grants through a competitive process. Eligible proposals that are well aligned with the aims and objectives of the Programme will be able to apply for grants to co-fund the proposed project from Concept through to Delivery. This includes co-funding for feasibility studies, preliminary engineering and capital delivery (including detailed design) or all of the above. Failure to comply with State aid law can lead to the recovery of any funds granted under this scheme (see section 4.3.1.1).

1.1. Project Scope

The Programme will be open to companies in all industrial manufacturing sectors as set out in the Office of National Statistics (ONS) Standard Industrial Classification (SIC) codes 10 – 33. The Programme will also be opened to Data Centres, given their emerging significance and high impact potential¹.

The Programme will be open to projects in England and Wales only.

The Programme will support the recovery of heat which meets the following criteria:

- The heat should be generated in or for an **existing industrial process** but is currently emitted to the environment once utilised.
- The heat should be carried in **specific flows**, including (but not limited to): hot flue gases, exhaust air, cooling fluids from cooling systems, hot product or waste product, hot water drained to a sewer, super heat or condenser heat rejected from refrigeration.
- The heat should be recovered from these specific flows via an appropriate heat recovery technology and used in one of the following ways:
 - **Immediate use on-site**, to satisfy existing or potential commercially viable heating or cooling demand.
 - **Use off-site**, to satisfy existing or potential commercially viable heating or cooling demand, potentially through a new or existing heat network.
 - **Conversion to electrical or mechanical power**, for use on-site or another industrial site to satisfy existing or potential commercially viable power demand, or for export to the national grid or private wire system.
- The recovered heat should be capable of being metered or otherwise estimated, as this will help with monitoring and evaluating the Programme and will increase industry awareness of heat recovery opportunities.

Rather than focus on one specific type of heat recovery, the Programme will be technology neutral and support the deployment of TRL 9 or commercially available technologies only.

The recovery of waste gases, which are subsequently combusted, and the heat of combustion utilised is not within the scope of this programme, because its focus is on waste heat only.

¹ Facility HVAC and ancillary systems only. Does not apply to internal processor cooling.

2. Programme Overview

The IHRS Programme is a competition based grant funding programme designed to support heat recovery projects through various stages of development; from Concept to Definition through to Implementation and Operation.

To achieve this, the Programme has been split into two distinct phases: Phase 1 and Phase 2. Phase 1 supports concept and definition activities by providing co-funding for:

- Feasibility study and preliminary engineering study; or
- Preliminary engineering study only (for applicants who have already undertaken a feasibility study independent of the IHRS).

Phase 2 supports capital delivery activities including detailed design, construction and commissioning, and post project evaluation by grant co-funding. Funding granted under this scheme must only be used to cover the eligible costs of the project.

Further information on Programme phases can be found in Section 3.5. The alignment between the Programme phases and typical project phases (Concept, Definition, Implementation and Operation) is shown in Figure 1 below:

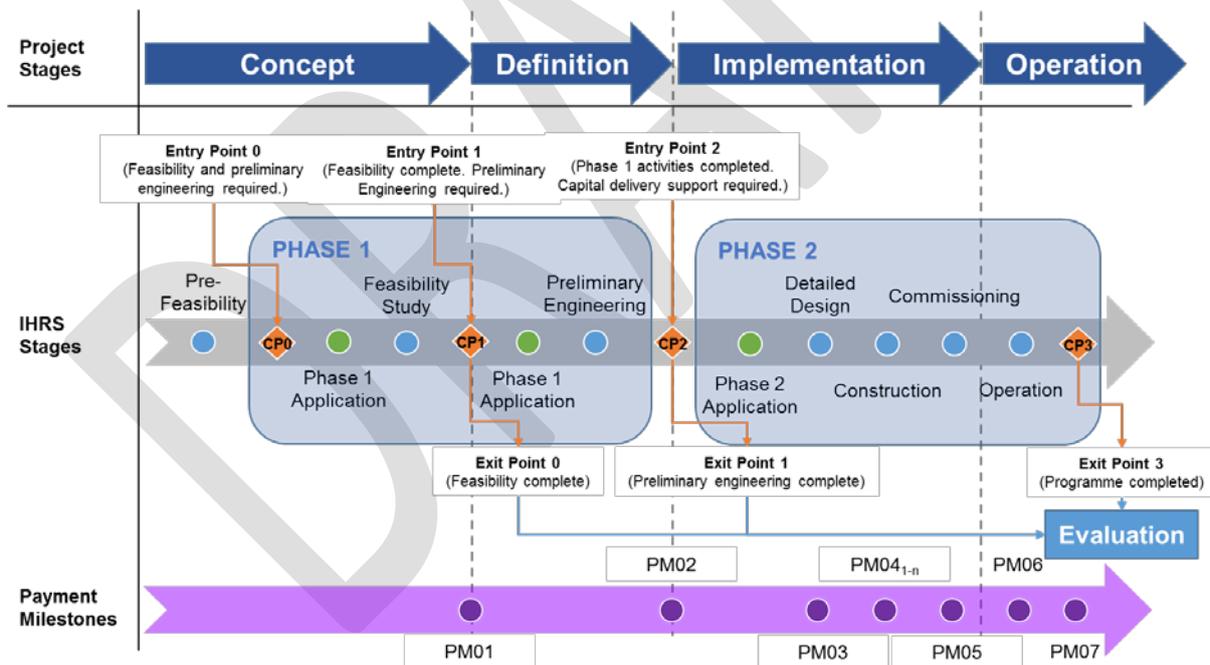


Figure 1: IHRS project phases and alignment with overarching project phases. Please see Appendix B for enlarged version.

Funding will be allocated in line with the State Aid General Block Exception Regulation (GBER). Phase 1 funding for Feasibility Studies and/or Preliminary Engineering must comply with the stipulations of GBER Article 25, and Phase 2 funding for Capital Grants must comply with the Stipulations of Article 38. Further detail on grant funding allocations, including SME and Assisted Area uplifts can be found in section 3.1.

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To add flexibility and to support successful applicants through the Programme, an underlying Checkpoint process has been devised. The Checkpoints perform the following functions:

- Ensures that proposed projects align to IHRS scope and contain sufficient information prior to formal application assessments.
- Provides Entry and Exit opportunities throughout the Programme at logical points.
- Mechanism for submission of evidence for grant payments.

The programme is a competitive process, for defined industrial sectors with minimum eligibility criteria. Please see section 4.3.1 Eligibility Criteria for further information on eligibility.

Applications for IHRS grant funding can be submitted for competitive assessment at any point during the programme rolling Application Window (timing to be confirmed). Applications will be assessed by a panel and confirmation of grant funding issued every two months. For further guidance on Assessment Windows and their timings please see section 3.1.

2.1. Checkpoint Process

Depending on the Programme entry point and the type of funding required, applicants are required to submit up to four Checkpoints throughout the Programme for review by the Delivery Partner. The mechanism for submission of Checkpoints is via the Checkpoint Form which is a document to be updated according to the applicable Checkpoint requirements.

The Checkpoint process provides a framework to update project information, facilitate efficient progression through programme stages, ensure the project is in scope and suitably developed for the next programme phase. The Checkpoints are intentionally aligned to typical internal governance and stakeholder engagement requirements.

How will my Checkpoint Form be assessed?

Checkpoint Form submissions are not competitively assessed but are subject to review and approval by the Delivery Partner before an applicant may proceed onwards from their current Checkpoint. See individual Checkpoint guidance notes for further information on the Checkpoint Review process.

The Checkpoint Forms are also required to be submitted as part of Phase Applications to serve as the project summary. The pre-determined stages for the Checkpoint Form to be submitted are outlined in Table 1. Applicants should allow two weeks for a response to a Checkpoint Form:

Table 1: Checkpoint Submission Timings and Purpose within Programme

Checkpoint	Submission Timing	Purpose
Checkpoint 0	If applying for Feasibility Study and Preliminary Engineering, the Checkpoint Form must be submitted and approved before a Phase 1 Application can be made.	To ensure project aligns with aims and objectives of IHRS.
Checkpoint 1	<u>Continuing the Programme</u> Checkpoint Form to be submitted after Feasibility Study before continuing with project.	To ensure outputs of Feasibility study are sufficient for project to move to Preliminary Engineering with BEIS funding. Completed Checkpoint Form required for Milestone Payment 01.
	<u>Exiting the Programme:</u> Checkpoint Form to be submitted after Feasibility Study.	To ensure the learnings from the Feasibility Study are captured; The completed Checkpoint Form and completion of the evaluation process are required for Milestone Payment 01
	<u>New Entrants:</u> Applying for Preliminary Engineering only: Checkpoint Form to be completed to Checkpoint 1 requirements and approved before a Phase 1 Application can be submitted.	To ensure project aligns with aims and objectives of IHRS and that outputs of an independently funded feasibility study are sufficient for project to move to Preliminary Engineering.
Checkpoint 2	<u>Continuing the Programme:</u> Checkpoint Form submitted after completion of Preliminary Engineering, before continuing application to Phase 2	To ensure project aligns with aims and objectives of IHRS and that outputs of preliminary engineering are sufficient for project to move to Phase 2. Aligns with Milestone Payment 02.
	<u>Exiting the Programme:</u> Checkpoint Form submitted after completion of Preliminary Engineering before exiting the Programme	To ensure the learnings from the Preliminary Engineering are captured. Completed Checkpoint Form and completion of the Evaluation Process required for Milestone Payment 02.
	<u>New Entrants:</u> Checkpoint Form to be completed and approved before a Phase 2 Application can be submitted.	To ensure project aligns with aims and objectives of IHRS and that outputs of an independently funded preliminary engineering are sufficient for project to move to Phase 2. Completed Checkpoint Form required for Milestone Payment 02.

Checkpoint 3	Checkpoint Form to be completed after Phase 2 activities.	To capture case studies and lessons learned from Phase 2 projects. Completed Checkpoint Form and completion of the Evaluation Process required for Milestone Payment 07.
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Further information on individual Checkpoints can be found in the following guidance notes:

- Checkpoint 0 Guidance Note
- Checkpoint 1 Guidance Note
- Checkpoint 2 Guidance Note
- Checkpoint 3 Guidance Note

2.2. Entry Points

There are three entry points depending on the maturity of the proposed project, with two for Phase 1 and one for Phase 2. Applicants can enter the Programme at any of these points regardless of prior IHRS participation, as long as the Checkpoint entry requirements have been completed.

- Phase 1: Pre-Feasibility Study (Checkpoint 0)
- Phase 1: Pre-Preliminary Engineering (Checkpoint 1)
- Phase 2: Capital grant funding (Checkpoint 2)

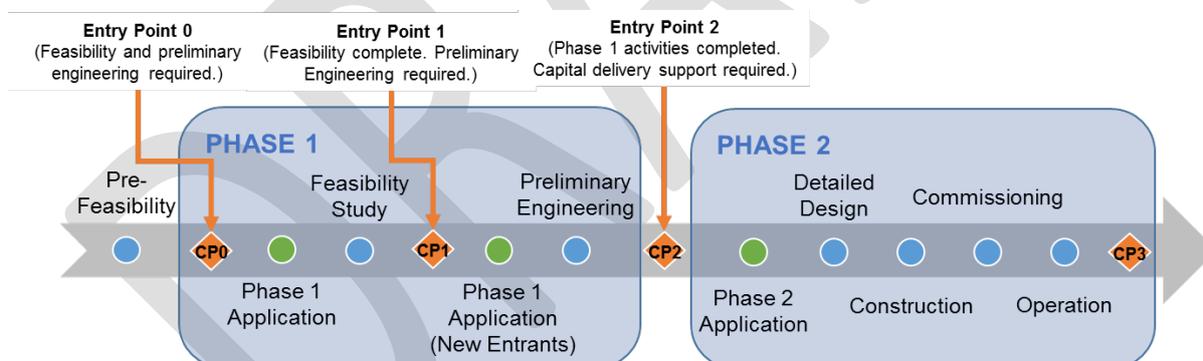


Figure 2: IHRS Programme Phases and Application Process Entry Points

2.3. Exit Points

Exit points where BEIS and IHRS participants can withdraw applications from the Programme have been incorporated into the Checkpoint process. Applications can be withdrawn for a number reasons and neither BEIS nor applicants are obliged to continue with a project should it be determined it is no longer in the best interest of the project or the Programme to do so.

Irrespective of the rationale for exiting the Programme, all applicants withdrawing are required to provide feedback to BEIS via the Checkpoint Form stating the reasons for exit. The completed Checkpoint Form and completion of the evaluation process are required in order to receive any Payment Milestones associated with the Checkpoint.

Exit points from the Programme for Phase 1 and Phase 2 are as follows:

- Phase 1: post-Feasibility Study (Checkpoint 1)
- Phase 1: post-Preliminary Engineering (Checkpoint 2)
- Phase 2: Project completion (Checkpoint 3)

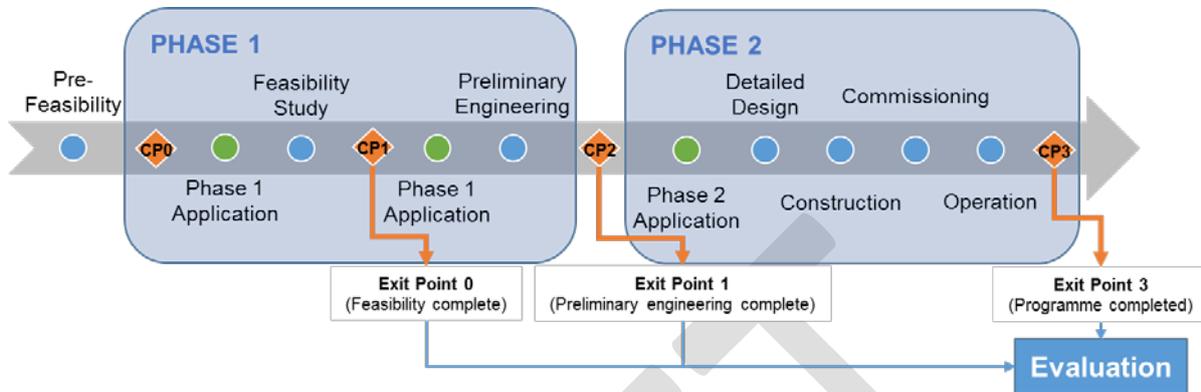


Figure 3: IHR Programme Phases and Application Process Exit Points

2.4. Payment Milestones

The Programme has pre-defined Payment Milestones where grant funding is released to the applicant. For Phase 1, the Payment Milestones align to Checkpoints 1 and 2 i.e. completion of a Feasibility Study and completion of Preliminary Engineering. For Phase 2, Payment Milestones align to stages within capital delivery.

As part of the Checkpoint process; Applicants are required to state the anticipated dates for submission of the Checkpoint Form. For Phase 1 and 2 applications this is extended to defining deliverables (where appropriate) and the breakdown of funding and costs associated with each Payment Milestone. The final milestone payment schedule will be agreed and formalised once an applicant has been successful in the competitive assessment process. This will be set out as a schedule to the Grant Funding Agreement. Further details concerning Payment Milestones can be found in section 4.3.2.

3. Competitive Process

The Programme will operate as a competitive process to ensure that funded projects:

- Meet the Programme aims and objectives,
- Can demonstrate value for money for BEIS,
- Provide a portfolio of heat recovery project case studies for a range of project sizes and across industrial sectors.

Applications for Phase 1 and Phase 2 will be subject to review by the BEIS Assessment Panel which will decide if funding shall be awarded.

Applications can be submitted at any point during the Programme's Application Window (duration to be confirmed), however, applications will be collated every two months, and then assessed over the following two months by the Delivery Partner and

the Assessment Panel. The two-month review periods are referred to as Assessment Windows.

Further details of the Programme, step by step, are outlined in section 4. Programme Phases

3.1. Programme Funding

The Industrial Heat Recovery Support Programme has up to £18m of funding available as grants to support uptake of industrial heat recovery projects from Concept through to Implementation. This includes co-funding for feasibility studies, preliminary engineering and capital delivery (including detailed design) or all of the above.

Funding for Phase 1 will be distributed amongst both those applicants seeking funding to support feasibility study and preliminary engineering, and those applicants seeking support for preliminary engineering only.

It should be noted that applicants seeking funding to support feasibility studies in conjunction with preliminary engineering will not be disadvantaged as BEIS aims to award funding to a variety of projects at different stages of development.

Funding for Phase 2 covers the entirety of Capital Delivery including:

- Detailed design
- Engineering and Construction
- Commissioning

Additional Phase 2 Activities that applicants need to plan for includes:

- On-going Monitoring and Verification of project benefits
- Post project evaluation - Funding granted under this scheme must only be used to cover the eligible costs of the project.

3.2. Application Process

Phase 1 and Phase 2 Applications are both to be submitted via the Application Workbook Microsoft Excel file. The Application Workbook captures all the relevant information required for competitive assessment at each stage for Phase 1 and Phase 2 Applications.

Please see Application Workbook Guidance for further information on the Application Workbook.

Applicants must also submit the relevant and approved version of the Checkpoint Form and any additional required supporting documentation and appendices. The Application Workbook and Checkpoint Form can be downloaded from [*route to be confirmed*].

Completed applications should be submitted to the Delivery Partner via [*route to be confirmed*]

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Please note, Applicants are not required to repeat any activities that may have been completed previously outside of the Programme i.e.

- If a feasibility study has been completed the applicant may proceed directly to Preliminary Engineering (Checkpoint 1)
- If preliminary engineering has been completed the applicant may proceed directly to Capital Delivery (Checkpoint 2)
- If detailed design has already been completed the applicant may simply reduce the cost and scope of Capital Delivery activities but must make Delivery Partner aware of this in Checkpoint 2 and provide evidence in the Phase 2 Application.

3.3. Assessment Windows

An outline of the schedule of the Assessment Windows is summarised in Figure 4 below with the following details;

- Applications can be submitted throughout the Programme’s Application Window (timings to be confirmed) following Checkpoint Form approval by the Delivery Partner.
- Applications will be reviewed by the BEIS Assessment Panel and results announced every 2 months.
- It is anticipated that there will be 6-7 assessment windows for each Phase dependent upon uptake and availability of grant funding
- Assessment windows will be staggered for Phase 1 and 2 on alternate months to allow for processing and evaluating each Phase independently.
- Applications can be received at any time during the application window, with received applications passed through to assessment every two months as shown below;

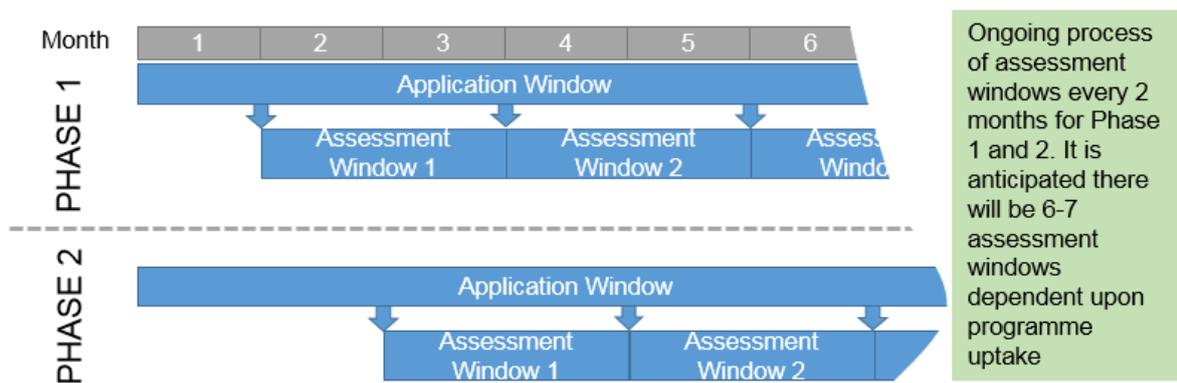


Figure 4: Application Window Outline Schedule

Applicants should consider the above rolling schedule within the programme plan when considering applying at Phase 1 and continuing to Phase 2.

3.4. Assessment Criteria

[Please note the Assessment Criteria are subject to finalisation, the section below is to provide indication of the likely assessment criteria. Further information will be provided in due course.]

Applicants seeking grant funding will be assessed on a competitive basis. Overall BEIS are looking for applicants with suitable projects to demonstrate that they have considered and assessed the technical, cost/benefit and delivery requirements of the proposed project.

Summaries of the key criteria for assessment are as follows:

Project overview – Aims and objectives, alignment with the Programme and diversity within the Programme portfolio.

Project design and deliverability – Project structure, planning, team and risk management.

Potential results – Baseline energy consumption, potential heat recovered, fuel offset, CO₂ mitigated, and any wider benefits.

Project costs – Value for money for BEIS, primarily grant funding against MWh recovery.

What data should I be collecting for my application?

Primarily data concerning energy flows around the process targeted for the project e.g. heat and cooling flows, heat wasted, process flows, temperatures, production throughput, electricity consumption, fuel consumption, fuel type, and anything additional that may be relevant to the proposed project.

3.5. Evaluation Process

[The Evaluation Process requirements and mechanism of operation are currently being considered by BEIS. The section below provides insight to the current thinking and are subject to change. Further information will be provided in due course.]

A key objective of the Programme is to further understand and address barriers to implementation of industrial heat recovery projects. As such, wherever in the programme a project exits the IHRS there will be an evaluation process to collate information and learn lessons. This is likely to be facilitated by a) The Checkpoint Form and Checkpoint process b) An evaluation interview (either in person or by telephone). Completion of both these evaluation elements are required to receive any Payment Milestone which may be associated with the exit point.

BEIS do not envisage the evaluation to be onerous with the exception of Checkpoint 3 as this will required review of a successful project with a full year's data.

4. Programme Phases

The IHRS Programme has been developed to overcome some of the key barriers associated with heat recovery projects in industry by providing co-funding support to proposed projects from Concept through to Implementation. The alignment between the Programme phases and overarching project phases (Concept, Definition, Implementation and Operation) is shown in Figure 5 below:

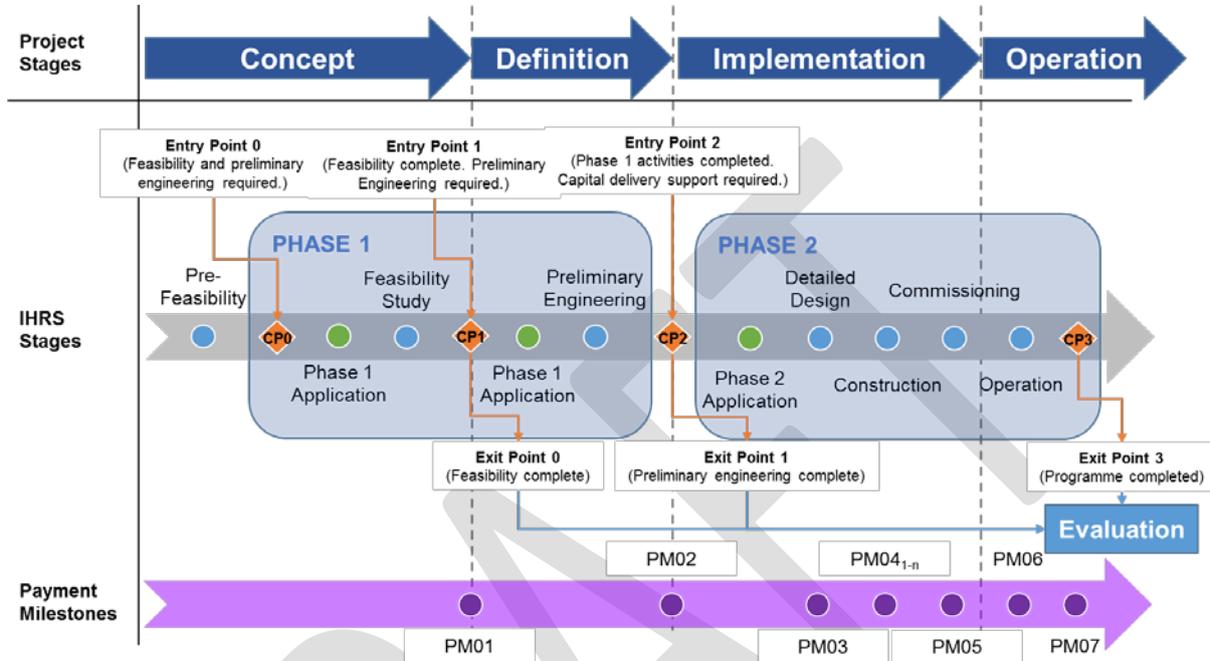


Figure 5: IHRS Phase 1 and Phase 2 alignment with key project stages

To see how elements of the IHRS interact across the Programme please see Appendix C. – Programme Process Flow Diagram. It may be useful to view this document alongside the following sections 4.1 to 4.2.5.

4.1. Phase 1

Phase 1 supports Concept and Definition activities by providing co-funding for:

- Feasibility study and preliminary engineering study; or
- Preliminary engineering study only (for applicants who have already undertaken a feasibility study independent of the IHRS)

Applicants who have already completed these activities outside of the Programme can proceed directly to Checkpoint 2 and Phase 2 Application.

Already completed a feasibility study?

Applicants who have completed a feasibility study independent of the IHRS Programme must proceed to Checkpoint 1 and then apply for preliminary engineering funding via a Phase 1 Application.

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Successful applicants supported under the Phase 1 Programme will submit information on proposed projects under four main sections that are aligned to the assessment criteria.

- Project Description
- Potential for Results and Benefits
- Project Design and Deliverability
- Business Financial Case

Further information on the submission points for Phase 1 is provided in the following sub-sections.

4.1.1. Pre-Feasibility

All IHRS applicants must have completed all 'pre-feasibility' activities prior to entry to the Programme at Checkpoint 0.

Pre-feasibility activities include:

- Understanding a project option to pursue with feasibility study.
- Consideration of board and / or Senior Management briefs to inform of intention to engage with the IHRS programme.
- Verification that all necessary data collection processes are in place to capture assessment criteria data (see section 3.4 for more detail).

4.1.2. Checkpoint 0

At Checkpoint 0, Applicants need to provide an overview of the proposed project to the Delivery Partner who will confirm whether, at a high-level, the project is aligned to the Programme's aims and that the anticipated benefits are sufficient to continue the application process. Applicants required approval from the Delivery Partner in order to continue onto Phase 1 application.

Checkpoint 0 improves the efficiency of the Phase 1 Application process, ensuring that applicants only undertake the application process where the proposed project meets the threshold criteria of the Programme. This will reduce the risk of applicants spending time to complete applications for proposed projects that are not aligned to the Programme.

Checkpoint 0 provides applicants with the opportunity to:

- Confirm high level project idea prior to Phase 1 Application.
- Utilise the project summary for internal stakeholder engagement.

The Applicant should undertake the following to prepare for Phase 1 Application:

- Agree resource (internal or external) for feasibility and / or preliminary engineering study,
- Obtain costs for feasibility and estimated costs for preliminary engineering study,

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- Secure internal budget / spending approval for feasibility and / or preliminary engineering study.
- Collate high-level project data
- Complete Project Summary (Checkpoint 0)
- Receive approval and/or feedback about the project proposal

The **Checkpoint 0 Guidance Note** provides additional information and support to applicants considering submitting project proposals for at Checkpoint 0

If applying for Preliminary engineering only, Applicants should proceed directly to Checkpoint 1 before submitting a Phase 1 Application.

4.1.3. Phase 1 Application

The Application Workbook is to be completed for Phase 1 and submitted by applicants with project proposals that have gained initial approval by BEIS at Checkpoint 0 (or Checkpoint 1, for those applying directly for a preliminary engineering study).

Information on project proposals will be submitted by applicants at different levels of detail depending on whether the applicant is applying for funding to support both the feasibility study and preliminary engineering or preliminary engineering only.

Applicants applying for support under Phase 1 of the Programme for co-funding of preliminary engineering only must have previously completed a feasibility study, the outputs of which must be submitted as part of the Phase 1 Application, along with the Checkpoint Form completed to Checkpoint 1 level.

Applicants must return a signed acceptance of the terms and conditions outlined in the Grant Offer Letter as part of the Phase 1 Application (See section 4.3.1.1 for more information).

Applicants applying directly for a preliminary engineering study should also refer to section 4.1.5 for advice on completing of Checkpoint 1 to accompany the application.

The **Phase 1 Application Guidance Note** provides additional information and support to applicants.

4.1.4. Feasibility Study

Where applicants have successfully secured BEIS grant funding through the Phase 1 Application process, an on-site feasibility study must be undertaken to agreed timescales. Feasibility studies may be undertaken by internal or external resources. Details of the delivery route chosen must be stated in the Phase 1 application.

The list below provides an outline of the minimum requirements expected from the feasibility study:

- **Summary**
 - High level overview of process
 - Overview and description of waste heat sources
 - Results of pre-feasibility options screening

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- Account of previous energy efficiency / heat optimisation activities perform relevant to this project.
- **Proposed project scope aims and objectives**
 - Waste heat source
 - Waste heat utilisation methods - recovery, conversion, export
 - Technology overview
 - High level PFD / Energy balance
 - Benefits - Heat recovered / financial benefit / CO₂ benefit / other
 - Potential environmental impacts
- **Project delivery**
 - High level programme
 - FEED / Sign off / Implementation
 - Risk and mitigation register
- **Financial Business Case**
 - Costs – Capital expenditure (CAPEX) / operating expenditure (OPEX) / revenues etc.
 - Other benefits - employment / growth etc.

Many aspects of this list are directly linked to information required at Checkpoint 1 and for the Phase 2 Application. Structuring the feasibility study according to the list will help in the collection and structuring of information required for later programme requirements.

A high-level sensitivity analysis should also be undertaken to demonstrate the dependence of project feasibility on key technical, operational and economic parameters.

The outcomes of the study should provide a sufficient evidence base to revise the technical and economic feasibility of the project. Following the completion of the feasibility study and Checkpoint 1, the Delivery Partner and IHRS participant will consider whether the project should be progressed to a preliminary engineering study or withdrawn from the Programme.

4.1.5. Checkpoint 1

Following completion of the feasibility study, the IHRS participant is required to revise the technical and economic case for the proposed heat recovery project based on the study outcomes. New entrants (applicants requiring preliminary engineering only) are similarly expected to revise internal business cases with independently funded feasibility outputs for inclusion in a Checkpoint 1 submission. Checkpoint 1 requires applicants to undertake the following:

- Complete or revise project summary to confirm viability
- Confirm match funding for preliminary engineering study
- Exit from the Programme should anticipated risks, costs and benefits render the proposed project unviable (existing participants only).

The Delivery Partner will assess the Checkpoint 1 information for the proposed project against the aims of the Programme and will either give feedback to the participant to

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progress the project to preliminary engineering or withdraw further support where the project is no longer aligned with the Programme or would not deliver the required benefits.

The first Milestone Payment is associated with the completion of the feasibility study and subsequent submission of Checkpoint 1 for all IHRS participants that entered the Programme at the Checkpoint 0. If a participant decides to exit at Checkpoint 1 they must update the Checkpoint Form explaining the decision to leave.

The **Checkpoint 1 Guidance Note** provides additional information on completion of the Checkpoint 1 Form.

4.1.6. Preliminary Engineering

Successful Phase 1 applicants that have secured grant funding and had Checkpoint 1 approval may proceed to undertake Preliminary Engineering. Preliminary Engineering enables the applicant to further develop the business case and determine technical limitations, benefits and risks associated with the implementation of a heat recovery project on site. This may be done either using internal resources or outsourced via a procurement exercise undertaken in accordance with the inputs to the “Deliverability” section submitted as part of the Phase 1 Application. Applicants can define the scope and activities completed under Preliminary Engineering provided that all necessary information to progress to Phase 2 is captured. This allows Preliminary Engineering to be aligned to internal governance for capital expenditure approval.

Additional technical information should be used to refine the potential energy savings and carbon reduction benefits as evidenced by an energy and mass balance. Further refinement of the business case should be undertaken in line with the more accurate assessment of the process and energy flows on-site.

A comprehensive sensitivity analysis should be conducted as part of preliminary engineering to demonstrate the range of anticipated benefits associated with the project. This will help IHRS participants and BEIS to determine the value of progressing the project to Phase 2 (Implementation).

Applicants can define the scope and activities completed under Preliminary Engineering provided that all necessary information to progress to Phase 2 is captured. This allows Preliminary Engineering to be aligned to internal governance for capital project approval.

4.1.7. Checkpoint 2

Following the outcomes of preliminary engineering, the Applicant is required to revise the technical and financial business case for the proposed heat recovery project. Checkpoint 2 also provides the initial entry point for applicants that were not previously engaged with the Programme but are seeking funding to take forward project proposals for which preliminary engineering has been conducted independently. Checkpoint 2 requires applicants to undertake the following:

- Assess outputs from preliminary engineering study (independent or IHRS funded)

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- Confirm project viability prior to Phase 2 Application
- Exit from the Programme should anticipated benefits, risks costs and benefits render the proposed project unviable.

The Delivery Partner will assess the Checkpoint 2 information for the proposed project against the aims of the Programme and will either give feedback to the participant to progress the project to preliminary engineering or withdraw further support where the project is no longer aligned with the Programme or would not deliver the required benefits.

The second Milestone Payment is associated with the completion of Preliminary Engineering and subsequent submission of Checkpoint 2 for all IHRS participants that entered the Programme at the Checkpoint 0 or 1. If a participant decides to exit at Checkpoint 2 they must update the Checkpoint Form explaining the decision to leave.³

The **Checkpoint 2 Guidance Note** provides additional information and support for completing Checkpoint 2.

4.2. Phase 2

The Phase 2 Application process has been developed for applicants seeking capital funding to support detailed design, implementation and delivery of developed project proposals for heat recovery projects through to Operation.

There is no requirement for Phase 2 applicants to have completed Phase 1 provided that there is sufficient evidence of Concept and Definition activities undertaken and submitted at Checkpoint 2.

The technical and economic information of the proposed project must be submitted with a high degree of detail and confidence at this stage. Projects submitted must consider the following key points:

- Project Description
- Potential for Results and Benefits
- Project Deliverability
- Project Financial Business Case

Further information for the following submission points for Phase 2 is provided in the next sub-sections.

4.2.1. Phase 2 Application

To apply for Phase 2 funding, applicants must have first received approval to do so following the Checkpoint 2 process. Once approved, Phase 2 applicants must complete the Application Workbook to Phase 2 standard.

A Phase 2 Application provides grant funding for the capital delivery phase of the project including the following;

- Detailed design

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- Procurement
- Construction
- Commissioning
- Handover and project monitoring

Phase 2 applicants are required to consider following:

- Agree resource (internal and / or external) for all key project stages in Phase 2.
- Obtain capital, maintenance, labour and other costs associated with each of the project stages.
- Supports internal budget / spending approval process
- Monitoring and Verification of project data
- Payment Milestone Schedule

Applicants must return a signed Grant Offer Letter as part of the Phase 1 Application (See Section 4.3.1.1).

The **Phase 2 Application Guidance Note** provides additional information and support to applicants that have completed Checkpoint 2 and are progressing the Phase 2 Application Form

4.2.2. Monitoring and Verification Plan

An essential part of the Programme is to be able to demonstrate the benefits achieved by the project against the baseline identified in the Phase 2 proposal. In order to ensure that all information required to conduct this comparison is captured, a detailed Monitoring and Verification (M&V) plan is to be developed between the Applicant and Delivery Partner. This will also enable BEIS to undertake IHRS programme evaluation and generate project case studies.

As part of the Phase 2 Application, applicants are required to outline a M&V plan to ensure any additional costs for measurement are captured. Finalisation of the M&V plan between the Applicant and BEIS will take place as part of project kick-off activities.

4.2.3. Capital Delivery Phase Requirements

The following section outlines key aspects of the Delivery phase of the Programme following the successful award of a Phase 2 Capital Grant. At this stage, participants are fully responsible for the delivery of the project from detailed design through to project handover and into monitoring and optimisation. While the applicant company and various projects will have different specific delivery routes, the intention of the guidance is to outline the activities which will be undertaken by BEIS and its programme Delivery Partner during the delivery phase of the capital project;

- Project kick off
- Reporting requirements
- Site visits
- Post project completion and evaluation
- Case studies

4.2.4. Project Kick-Off

The Delivery Partner will arrange for a project kick-off meeting post signing of the Grant Offer letter. As part of signing of the Grant Offer letter, the value of co-funding and schedule of Payment Milestones will be agreed. See section 4.3.1.1 for further information on Grant Offer letter.

The kick off meeting will review the project plan, determine when site visits are likely to occur and review the monitoring and verification requirements.

The monitoring and verification plan will be finalised with applicants, either as part of the project kick off meeting, or shortly thereafter based upon the outline submission from the application process with a greater emphasis on understanding how project success factors may be demonstrated without infringing on commercial sensitivity of certain data.

4.2.5. Reporting Requirements

During the Delivery phase there will be a requirement for applicants to complete monthly project progress reporting back to the Delivery Partner.

A defined template will be provided by the Delivery Partner, the intention is to keep the process to a minimum level, however it should be noted that applicants are responsible for their own project management.

The Delivery Partner on behalf of BEIS will be monitoring progress against the project plan, grant funding payments and key risks to project completion.

4.3. Programme Administration

This section outlines a number of key administrative aspects of the Programme.

4.3.1. Eligibility Criteria

Minimum requirements for prospective projects to be considered for participation in IHRS are described below. Any applications that do not conform to all the following criteria will be rejected by BEIS.

- **Location** - The project site must be located in England or Wales.
- **Compliance with State Aid Rules** - Failure to comply with State aid law can lead to the recovery of any funds granted under this scheme. As part of the application process applicants are required to confirm whether the project is receiving state funding from other sources.
- **Confirmation of Acceptance of BEIS Grant Offer Letter terms** - The Applicant must review and confirm acceptance of terms and conditions of the Grand Offer Letter before the application submission can be considered.
- **Project technology is commercially available** – The heat recovery technology chosen is at Technology Readiness Level (TRL) 9 or is commercially available.

The programme will be open to companies in all industrial manufacturing sectors as set out in the Office of National Statistics (ONS) Standard Industrial Classification (SIC) codes 10 – 33. The programme is also open to Data Centres, given their emerging significance and high impact potential².

4.3.1.1. Grant Offer Letter and Funding

Grant funding will be made available to successful applicants through signing of a Grant Offer Letter and the Grant Funding Agreement. Draft templates of these documents are available through the [route to be confirmed], and as part of the application process applicants are asked to confirm that they are in agreement with these terms.

To ensure the scheme is State aid compliant, grant funding allocations will be subject to the terms of the General Block Exception Regulation. Funding for Phase 1 will be governed under Article 25, and funding for Phase 2 under Article 38. This Programme will provide additional support to applicants in assisted areas and SMEs, where applicable. Definitions for SME and Large Enterprise are as below (Table 2). Both employee and annual turnover criteria apply. Failure to comply with State aid law can lead to the recovery of any funds granted under this scheme. Further guidance can be found here: <https://www.gov.uk/guidance/state-aid>.

Table 2: Definitions of SME and Large Enterprises

Enterprise	Definition
Small Enterprise	Employees < 50 persons Annual turnover / balance sheet < €10m (approx. £7m)
Medium Enterprise	Employees < 250 persons Annual turnover ≤ €50m OR balance sheet ≤ €43m
Large Enterprise	Employees ≥250 persons Annual turnover >€50m OR balance sheet >€43m

4.3.2. Payment Milestones

The table below summarises the payment milestones. Detail for these will be completed within the relevant Phase 1 or Phase 2 Application. Payment of completed payment milestones will be made through completion of a Grant Claim Form, available through [route to be confirmed].

Table 3: Phase 1 Payment Milestones

Payment Milestone Ref	Description	Guidance	Award Criteria (or payment release criteria)
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² Facility HVAC and ancillary systems only. Does not apply to internal processor cooling.

PM01	Feasibility Study	PM01 is grant funding payment for completion of Feasibility Study as applied for under Phase 1 Application	Submission and Delivery Partner approval of the Checkpoint Form at Checkpoint 1 with electronic copy of feasibility study
PM02	Preliminary Engineering Grant	PM02 is grant funding payment for Preliminary Engineering as applied for under the Phase 1 Application	Submission and Delivery Partner approval of the Checkpoint Form at Checkpoint 2 with electronic copy of Preliminary Engineering

Table 4: Phase 2 Payment Milestones

Payment Milestone Ref	Description	Guidance	Award Criteria (or payment release criteria)
PM03	Detailed Design completion	PM03 is funding payment for detailed design	Satisfy Delivery Partner that detailed design has been completed
PM04 _{A-n}	Installation / Construction Phase	<p>PM04 is intended to help improve cash-flow for procurement and construction of fixed assets.</p> <p>Applicants are free to sub-divide PM04 as they see appropriate.</p> <p>For example</p> <p>PM04a – Completion of civil works, supported by contractor invoice</p> <p>PM04b – Procurement of major capital item</p> <p>PM04c – Installation of major capital item</p>	Submission of proof of procurement and / or construction activities as agreed in Payment Milestone schedule (completed as part of application process)

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PM05	Construction completion	PM05 is the final grant payment and the completion of construction	Site tour with BEIS / DP team to demonstrate that construction works have been completed
PM06	Operational handover	PM06 is designed to allow for capture of costs associated with commissioning / optimization and handover of the project to operations	Demonstrate commissioning documents Potential site visits from Delivery Partner
PM07	Close out payment	This payment milestone is aligned to closing out the project, providing BEIS with relevant data demonstrating the performance of the project, and allowing for development of a case study if applicable.	Submission of Checkpoint Form at Checkpoint 3 with monitoring data (Data and reappraisal of business case) Close out interview with Delivery Partner.

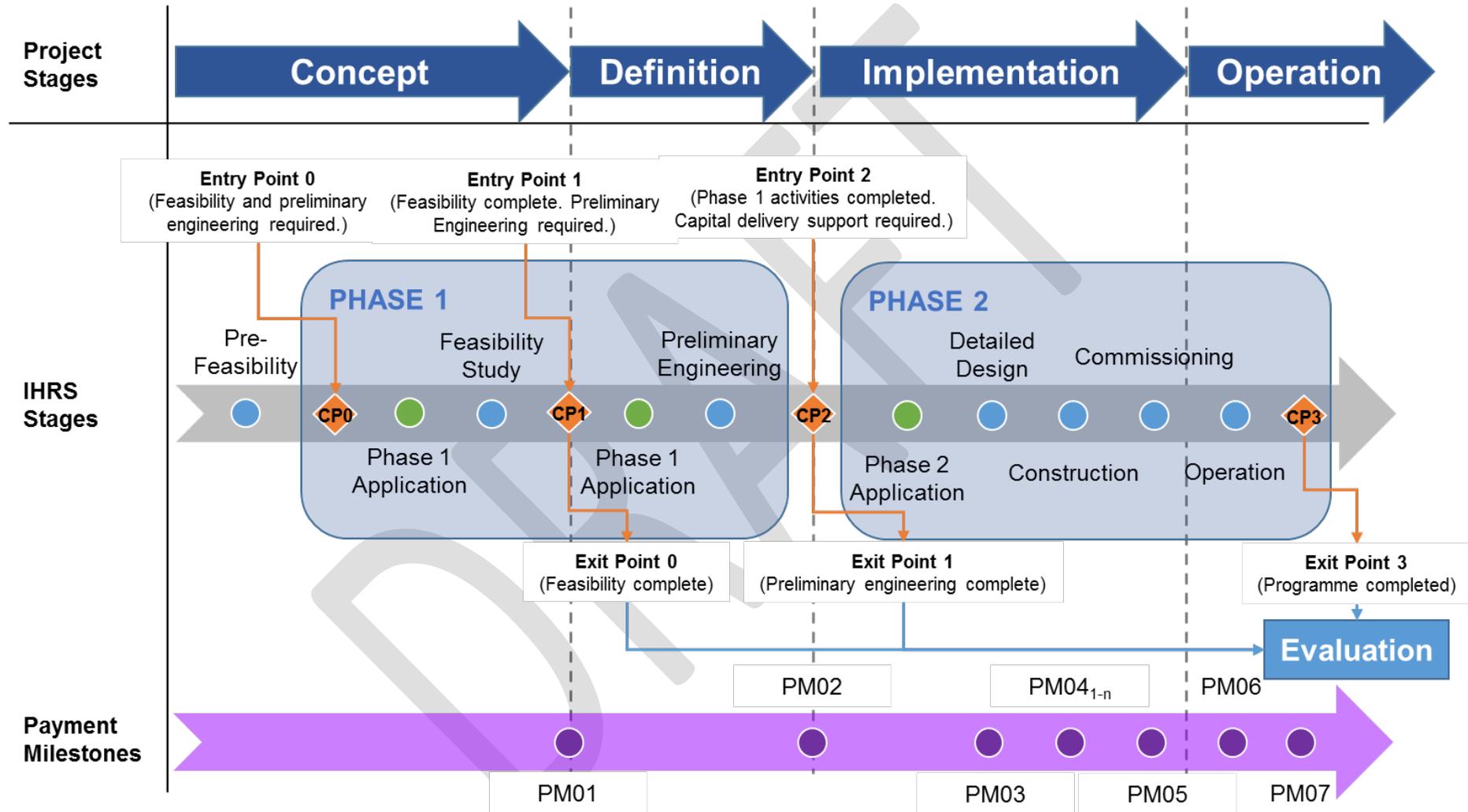
Appendix A - Definitions

Definitions of terms (in the context of this programme) used throughout the guidance are stated below

Term	Definition
Industrial heat recovery	Heat generated in or for an existing industrial process which is currently emitted to the environment, which can be recovered for either immediate use on site, offsite or converted to electrical or mechanical power.
Feasibility Study	The initial stage of a project, taking relevant information to assess whether a project is possible or not
Preliminary Engineering	Design phase post feasibility study where outline designs and cost estimates are developed allowing viability to be checked both technical and financially. Similar terms are Front End Engineering (FEE) or Basic Engineering
Detailed Design	Final project design phase creating Piping & Instrumentation Diagrams, schedules, final costs estimated.
Capital delivery	Construction of assets associated with the project

Please let BEIS know if there are any further terms which require definition.

Appendix B – Programme Overview



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Appendix C. – Programme Process Flow Diagram

[To be provided as a standalone document in due course]

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