HEAT NETWORK EFFICIENCY SCHEME

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Department for Energy Security & Net Zero

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Agenda

Time	Session
14:00 – 14:10	Overview
14:10 – 14:25	Introduction to HNES
14:25 – 14:30	HNES Key Points
14:30 – 14:45	Optimisation Studies Deep Dive
14:45 – 14:50	Support and Next Steps
14:50 – 15:00	Q&A

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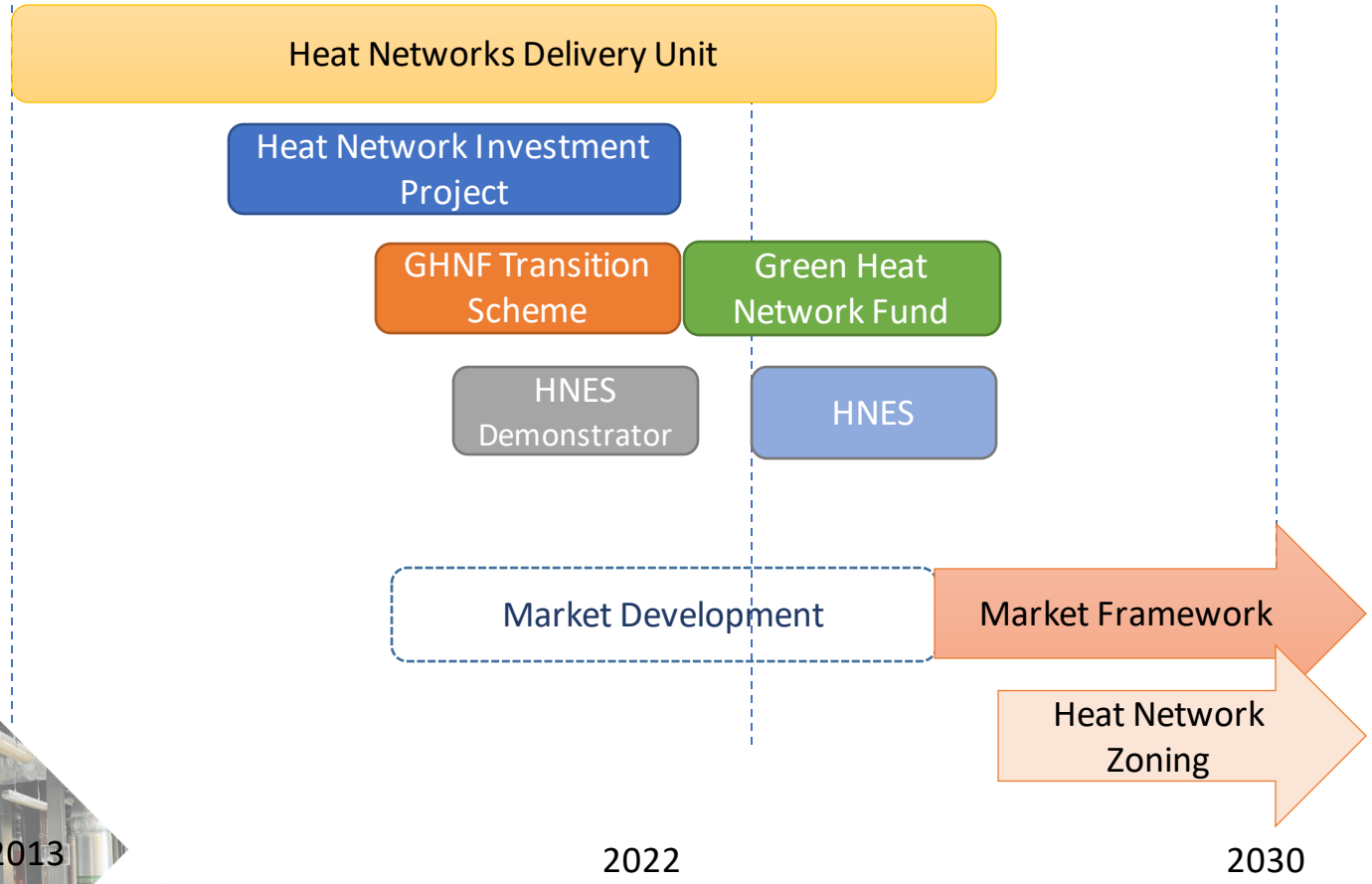
HEAT NETWORKS TRANSFORMATION PROGRAMME

Supporting and growing the heat network market



Project/Policy	Timeframe	Budget
Heat Network Investment Project (HNIP)	16/17 – 21/22	£320m
Green Heat Network Fund (GHNF)	22/23 – 24/25	£288m
Heat Network Efficiency Scheme (HNES)	21/22 23/24 – 25/26	£5.1m £32m
Heat Network regulation	24 onwards	Regulatory
Heat Network Zoning	25 onwards	Regulatory

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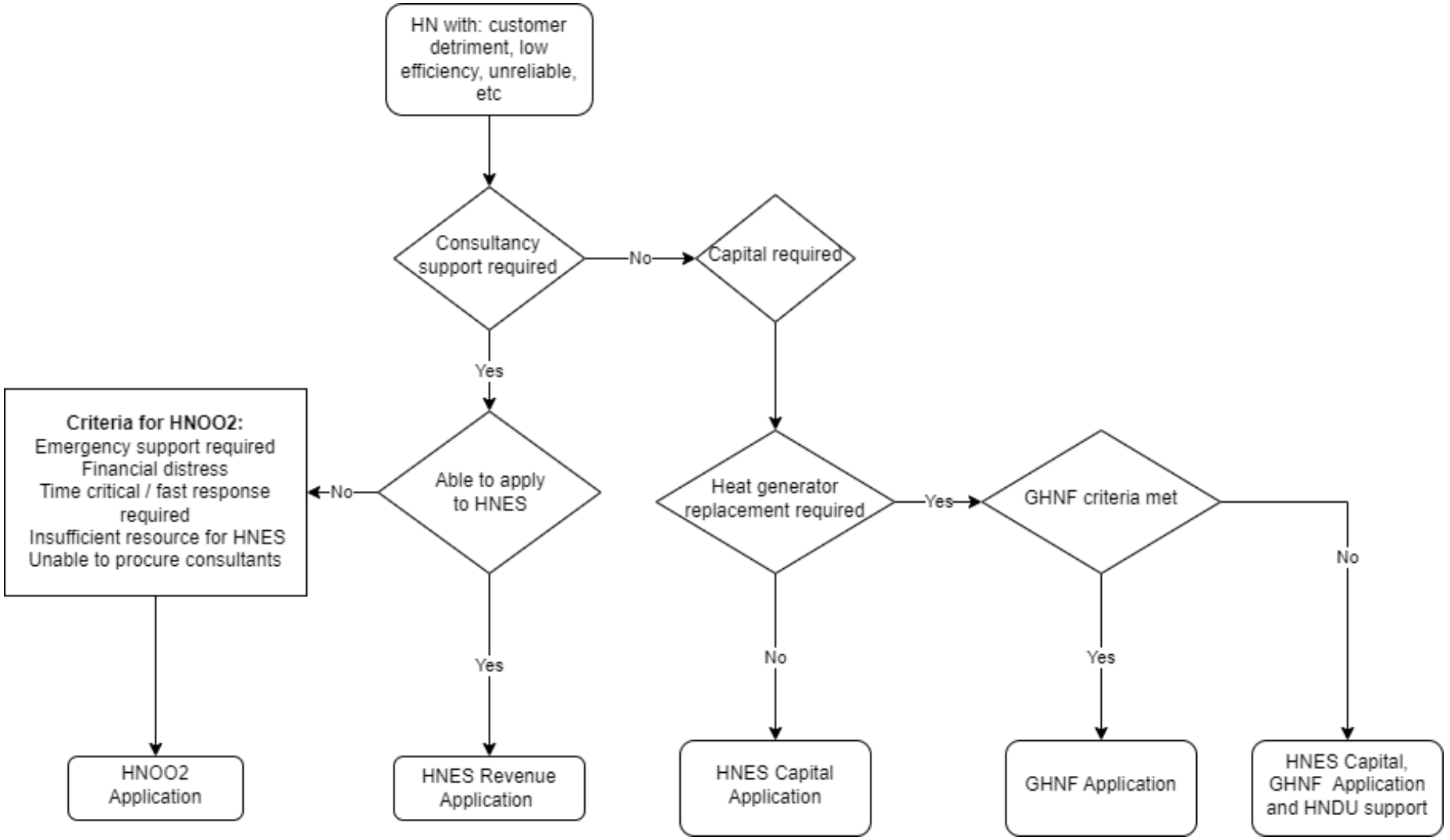
HNES, HNOO2 and GHNF



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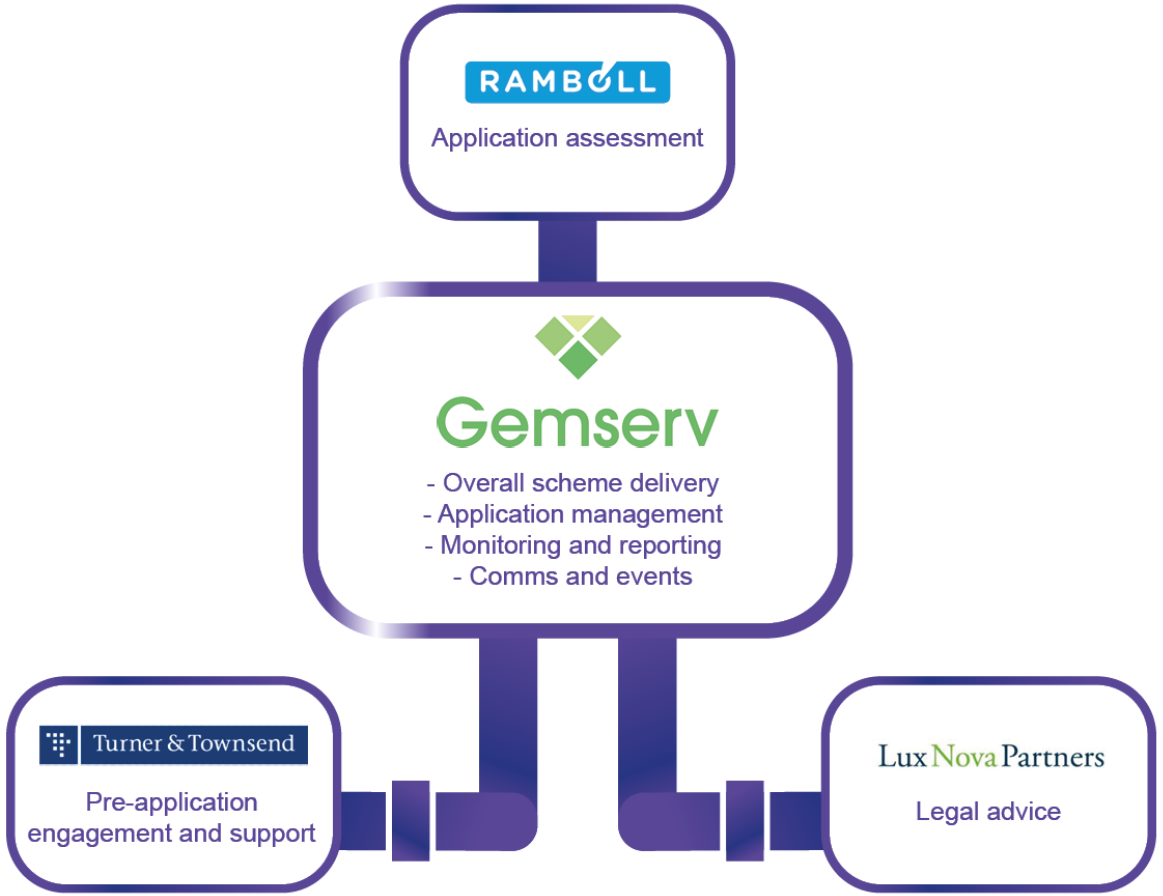
HNES Delivery Partner



- Gemserv and Ramboll have already successfully delivered the HNES Demonstrator together, supporting 110 projects to claim £5.1M in grant funding
- Turner & Townsend and Lux Nova have joined the Delivery Partner team for the Main scheme

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Introduction to HNES

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Aims and Objectives of HNES

1. Reduce carbon emissions by making heat networks more efficient

2. Reduce customer detriment to improve consumer confidence

3. Help prepare the heat network market for sector regulation and technical standards

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How much funding is available?

Capital Grants	Revenue Grants
Part funding (up to but not including 50%) available for the delivery (installation) of eligible intervention / improvement measures.	Full funding available for procurement or mobilisation of external third-party support to carry out Optimisation Studies. These studies will assess heat network projects to identify causes of sub-optimal performance and recommend costed intervention or improvement measures.
Up to £30m across FY23/24 and FY24/25	Up to £2m across FY23/24 and FY24/25

Projects can apply for funding across both financial years, but must spend all funding within each allocated financial year

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Who can apply?

Operators of existing district heating networks or communal heating systems

Public sector, private sector or third sector organisations

Legal entities, with authority to sign-off investment decisions for the heat network they are responsible for

Heat networks situated in England or Wales

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Funding round closing dates

Round	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24
Round 1	★	Friday 31st March 2023													
Round 2			★	Friday 19th May 2023											
Round 3					★	Friday 7th July 2023									
Round 4						★	Friday 25th August 2023								
Round 5								★	Friday 13th October 2023						
Round 6												★	Friday 2nd February 2024		
Round 7											Friday 22nd March 2024	★			
Round 8													Friday 10th May 2024	★	

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HNES Eligibility Criteria

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What capital grants will fund

- ✓ Category 1: Energy centre / plant room
- ✓ Category 2: Primary / secondary distribution network
- ✓ Category 3: Tertiary network
- ✓ Category 4: Metering

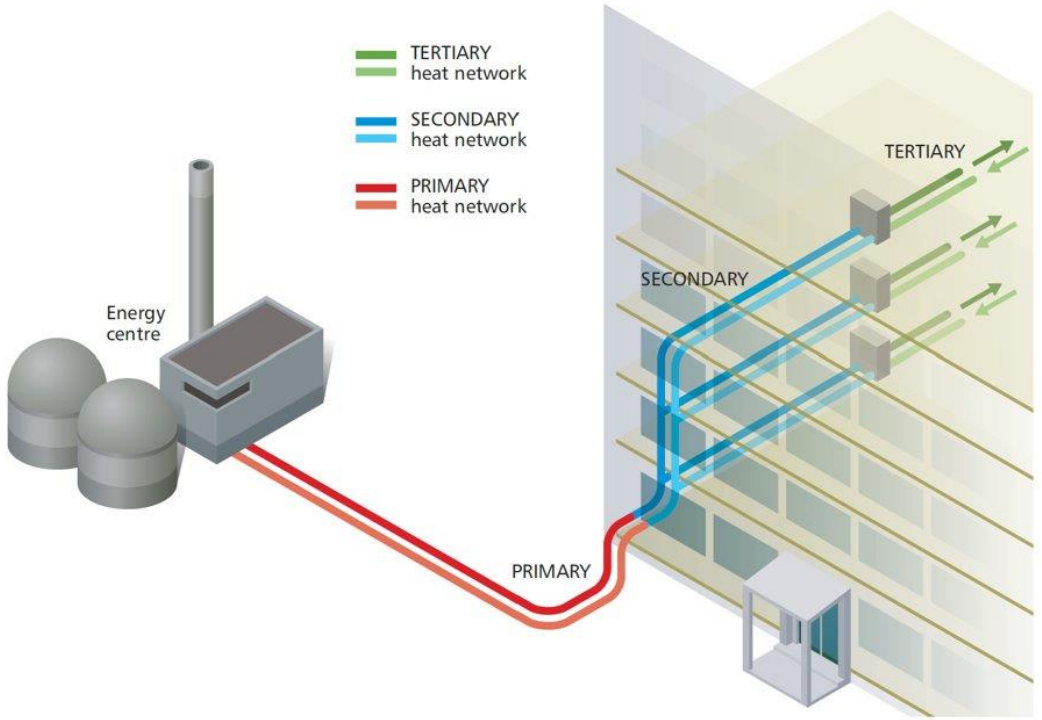

Image: Heat networks CP1: 2020

Further details on what is included in these categories can be found in our HNES Guidance for Applicants document

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What capital grants won't fund

- ✖ Any capital costs already **incurred prior** to an HNES award having been made
- ✖ Any capital costs **unrelated** to heat network infrastructure, e.g., improvements to building fabric
- ✖ Any costs relating to **engagement activities** (e.g., stakeholder management)
- ✖ Energy centre / plant room – costs for **replacement** of the primary heat generation source
- ✖ Tertiary systems – costs for **buying or replacing heat emitters** (e.g., radiators) within buildings or dwellings
- ✖ Metering – costs for metering that is required under the **HNMBR**

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What revenue grants will fund

Optimisation Studies delivered according to the outline specification provided by HNES, including:

- ✓ Baselining of network performance and KPIs
- ✓ Data capture/analysis and site visit(s)
- ✓ Investigation of, and reporting on, network performance
- ✓ Development of a range of intervention measure packages for addressing areas of sub-optimal operation, including calculated impacts on KPIs
- ✓ Cost and cost-effectiveness assessment of intervention measure packages
- ✓ Recommendations reporting
- ✓ Completion of an Optimisation Study Outputs Annex (incorporated into the Revenue M&R template)

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What revenue grants won't fund

- ✗ Work **already commissioned** or incurred before the application
- ✗ Internal applicant staffing or secondment staff or charged agencies within applicant organisations, including for **project management** of the third party support / Optimisation Studies
- ✗ **Construction, operation and maintenance** of a heat network

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HNES Key Points

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Things to remember…

1. The named applicant must be the heat network operator, not a consultant as grants will only be paid to the heat network operator. Consultants can still support applicants in completing the application forms though

2. HNES will not fund multiple revenue applications by a single applicant where projects are considered similar in terms of engineering design/operation, indicators of sub-optimal performance and/or indicators of customer detriment

3. Work must start on a funded project within three months of GFA/MoU signature. We want to fund projects that can realise benefits as soon as possible (i.e. ahead of next heating season) and will be factored into the project plan / deliverability scoring

4. More detail can be found in the Guidance for Applicants document, available on gov.uk or at www.gemserv.com/heat-network-efficiency-scheme-hnes

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Optimisation Studies Deep Dive

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Optimisation Studies consist of two work packages

Work Package 1	Work Package 2
Assessment of network operational performance, including reporting	Development of network optimisation opportunities, including reporting and recommendations

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What your clients should provide to you:

- ✓ Descriptions, drawings and schedules (where available)
  - E.g. generation systems, controls strategy, HIU operation, metering systems, plant condition
- ✓ Quantified descriptive indicators of sub-optimal outcomes (where known)
  - E.g. heat losses, carbon content of delivered heat, # of outages, high bypass flow, high heat tariff
- ✓ Project data as available
  - E.g. energy centre fuel consumption, heat demands, network operating temperatures

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WP1 – Network Operational Performance

Aim – to investigate the current operation and condition of the network in order to develop a baseline against which optimisation measures can be developed and their impact quantified (WP2)

Outputs – heat network operator understands the causes of sub-optimal performance and the impact of these on the operation of the network and on customers

Steps

1. Data capture / analysis and site visit(s)
2. Baselining of network performance and KPIs
3. Analysis of network performance, including reporting

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WP1 – Network Operational Performance

1.1 Data capture / analysis and site visit(s)

To be informed by any identified areas of sub-performance highlighted by the client:

- Analyse data provided by client or gathered through temporary metering
- Undertake at least one site visit
- Produce a summary site visit report, confirming the condition and operation of all relevant network elements

1.2 Baselining of network performance and KPIs

Based on Task 1.1:

- Propose and quantify suitable metrics, targets and KPIs for measuring operational performance
- Baselining must cover assessment of the whole network architecture
- Suggested KPIs are listed in the Guidance for Applicants
- Metrics can be calculated or estimated, as agreed with the client

1.3 Analysis of network performance and reporting

Based on Tasks 1.1 and 1.2:

- Carry out analysis to assess performance
- Produce a summary report to present findings, including causes of sub-optimal performance and baseline metrics and KPIs
- Refer to external standards, data and guidance where relevant

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WP2 – Network Optimisation Opportunities

Aim – to identify potential optimisation measures and quantify the costs and impacts that implementing these could have on network performance

Outputs – heat network operator receives clear and robust analysis to define a pathway to improving customer outcomes and operational performance of the network

Steps

1. Development of optimisation measures and packages of measures
2. Cost and cost-effectiveness assessment of intervention measure packages
3. Reporting and recommendations

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WP2 – Network Optimisation Opportunities

2.1 Development of optimisation measures

Based on WP1:

- Develop a long-list of measures (or package of measures) to improve performance (technical, customer experience, decarbonisation)
- Categorise measures (H,M,L) based on levels of outcome, impact, cost or disruption, as agreed with the client
- Quantify impact of measures on project metrics and KPIs

2.2 Cost and cost-effectiveness assessment

Based on Task 2.1:

- Fully cost proposed optimisation measures (capital, operational, replacement, design)
- Costs should be based on actual quotes or other similar works
- Develop techno-economic analysis, showing costs and savings over a life-cycle period as defined by the client, and cost effectiveness (e.g. payback, IRR, NPV)
- Submit unlocked spreadsheet showing workings to the client

2.3 Reporting and recommendations

Based on Tasks 2.1 and 2.2:

- Develop a short-list of fully costed, recommended measures, detailing the impacts on project metrics and KPIs and rationale for the recommendation
- Produce a techno-economic report detailing the outcomes of the work done across both WPs
- Include a pathway for decarbonisation, including signposting to other sources of funding e.g. GHNF

WP2 – Minimum Quantified Metrics / KPIs

	Baseline	Optimisation measure(s) [X]	Optimisation measure(s) [X]	Optimisation measure(s) [X]
Annual fuel use, natural gas (kWh)				
Annual fuel use, natural electricity (kWh)				
Annual fuel use, other (kWh)				
Annual carbon emissions, kg.CO2				
Network efficiency, % (gas in / heat out)				
Network distribution efficiency, % (heat leaving energy centre / heat delivered)				
Network losses (kWh or W/dwelling)				
Cost of delivered heat (p/kWh)				
Annual service interruptions greater than 24 hours in duration (#)				

Other examples could include flow/return temperatures or heat tariffs (domestic/commercial)

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Monitoring and Reporting requirements

- A condition of grant funding is regularly submitting Monitoring and Reporting (M&R) returns
- Following feedback from the Demonstrator, this process has been simplified
- Project progress updates, risks and issues, budget drawdown etc. will be provided monthly by both capital and revenue projects
- Capital projects will also provide quarterly updates on progress against benefits and KPIs, covering the three months prior
- M&R returns are essential to track whether grant funding will be spent and also to ensure the Aims of HNES are being met

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Monitoring and Reporting timings

Capital	Revenue
Required from grant award to 24 months after project commissioning is complete	Required from grant award to sign-off of Optimisation Study Final Revenue M&R return will include an additional worksheet for consultants to complete, detailing outcomes of the Optimisation Study including proposed measures and costs

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Final Deliverables

Project Report
(Work Package 2.3)

Summary site visit report
(Work Package 1.1)

Techno-economic analysis spreadsheet
(Work Package 2.2)

Final submission of Revenue M&R worksheet
(including Optimisation Study Outputs Annex)

OPTIONAL
Completed HNES Capital Grant Application Form

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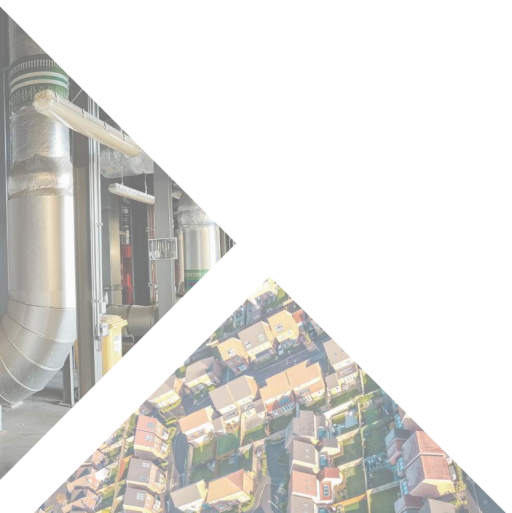
Support and Next Steps



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Where to find help and support

- Further detail on the scheme can be found in our HNES Guidance for Applicants document
- If you have a general enquiry about HNES or want to be added to our mailing list, please email hnes@gemserv.com
- DESNZ has recently published eight heat network optimisation guidance videos, which can be accessed on the gov.uk website

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Coming up…

Events

- **Sharing findings from the HNES Demonstrator (24th February)** – Guru Systems
- **NHS Heat Network Event (22nd March)** – GHNF and HNES

Key dates

- HNES funding round 1 closes (31st March)

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Q&A

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