HEAT NETWORK EFFICIENCY SCHEME

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The Power of HNES: Case Studies from Greater London

Welcome

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If you are not speaking, please turn off webcams to improve video quality

Please ask questions using the Q&A functionality

This webinar is being recorded and slides will be distributed after

Agenda

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Session	Presenters
HNES Funding to Date	**Louise Singleton**, HNES Programme Manager, Talan
Funded Project: Glyn Street Estate	**Jennifer Mclean**, Major Works Project Manager, Notting Hill Genesis
Funded Project: Citigen heat network	**Zoë Abela**, Project Engineer, Citigen
How you can benefit from HNES funding	**Katy Ansari**, HNES Application and Grant Funding Lead, Talan
Q&A	

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HNES Funding to Date

Louise Singleton, HNES Programme Manager

What HNES has achieved so far…

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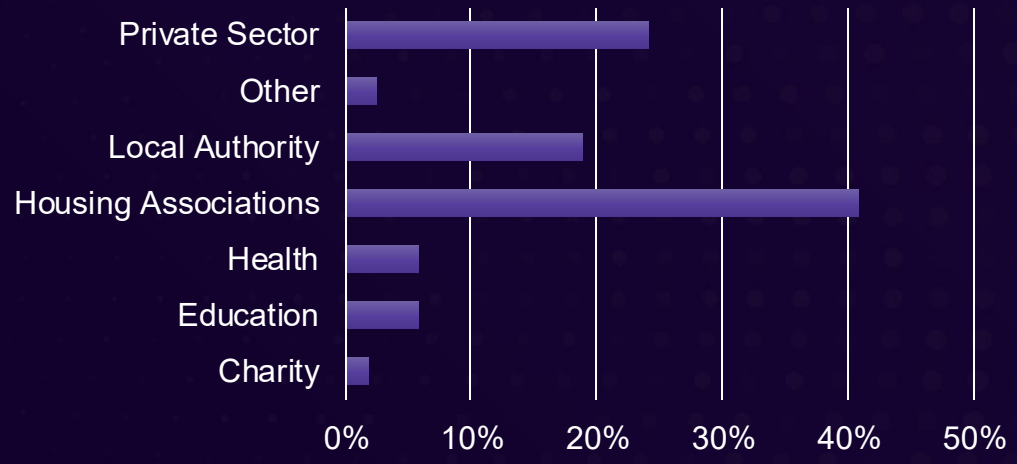
449 Heat network projects funded

Capital and revenue funding awarded **£81.2M**

80,400 Residents benefitting

One-way flights from London to New York worth of carbon emissions saved **124,680** Averaged over 40 years

Percentage of Funded Sectors



*Private Sector includes resident associations

Round 10 Successful Projects

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£15.6 million awarded

94 heat networks

Set to benefit 10,400 residents

£15.6 million awarded in HNES Round 10 | HNES

Funded Projects in Greater London

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179 Heat network projects funded

57 Capital and 122 Revenue Projects

£33.7M Funding Awarded

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Funded Project: Glyn Street Estate

Jennifer Mclean, Major Works Project Manager, Notting Hill Genesis

Glyn Street HNES Project

Jennifer Mclean
Major Works Project Manager

Glyn Street Heat Project

- **69-dwelling residential scheme, in Lambeth Borough**
- Project: Optimisation and conversion of communal heat network
- Delivered July 2023 – February 2024
- Fairheat principal designer and principal contractor
- Watkins delivery sub-contractor
- Post works performance review completed 2024

Glyn Street, Vauxhall

- **Mixed tenure development**
- Two blocks named Dexter House & Muscovy House
- 37 rented flats and 32 leasehold units
- Built in 2010

Background

- **4-pipe system providing heating and hot water**
- System was approximately 12 years old and underperforming
- High energy use, overheating and poor resident experience
- HNES Optimisation study in 2022 to identify underlying causes of inefficiency
- Report received from Fairheat in September 2022

Key Issue: Efficiency and Cost

- **High network heat losses due to 4-pipe design**
- Elevated gas and electricity consumption
- Inefficient plant operation and control strategy
- Bypassing HIUs
- Poor insulation of pipework
- Increased operational cost and carbon emissions

Key Issue: Overheating

- **Corridor and communal temperatures reached extreme levels**
- ~32°C in winter and >40°C in summer
- Residents forced to open windows, increasing heat loss
- Significant resident dissatisfaction and comfort issues
- Low individual heat consumption, lower cost recovery

Key Issue: Risk and Reliability

- **Risk of scalding from high-temperature domestic hot water**
- Cold water system instability risks identified
- Frequent reactive maintenance callouts
- Overall risk of service failure and disruption to heat supply

HNES Application

- **Capital Application made in HNES Round 1**
- HNES Grant Award of £461,847.98 in 2023
- NHG Match Funding of £463,699.07 in 2023/2024
- Total Project Value **£925,547.05**

Solution Strategy

- **Conversion from 4-pipe to 2-pipe system**
- Removal of central domestic hot water system
- Installation of new HIUs and smart meters in all homes
- Enhanced pipework insulation
- Focus on reducing temperatures and improving system controls

System Design and Delivery

- **Reuse of existing boilers and distribution pipework**
- Plantroom reconfiguration including thermal storage
- Weather compensation introduced to reduce flow temperatures
- Installation of water quality equipment and remote monitoring devices

Monitoring and Data

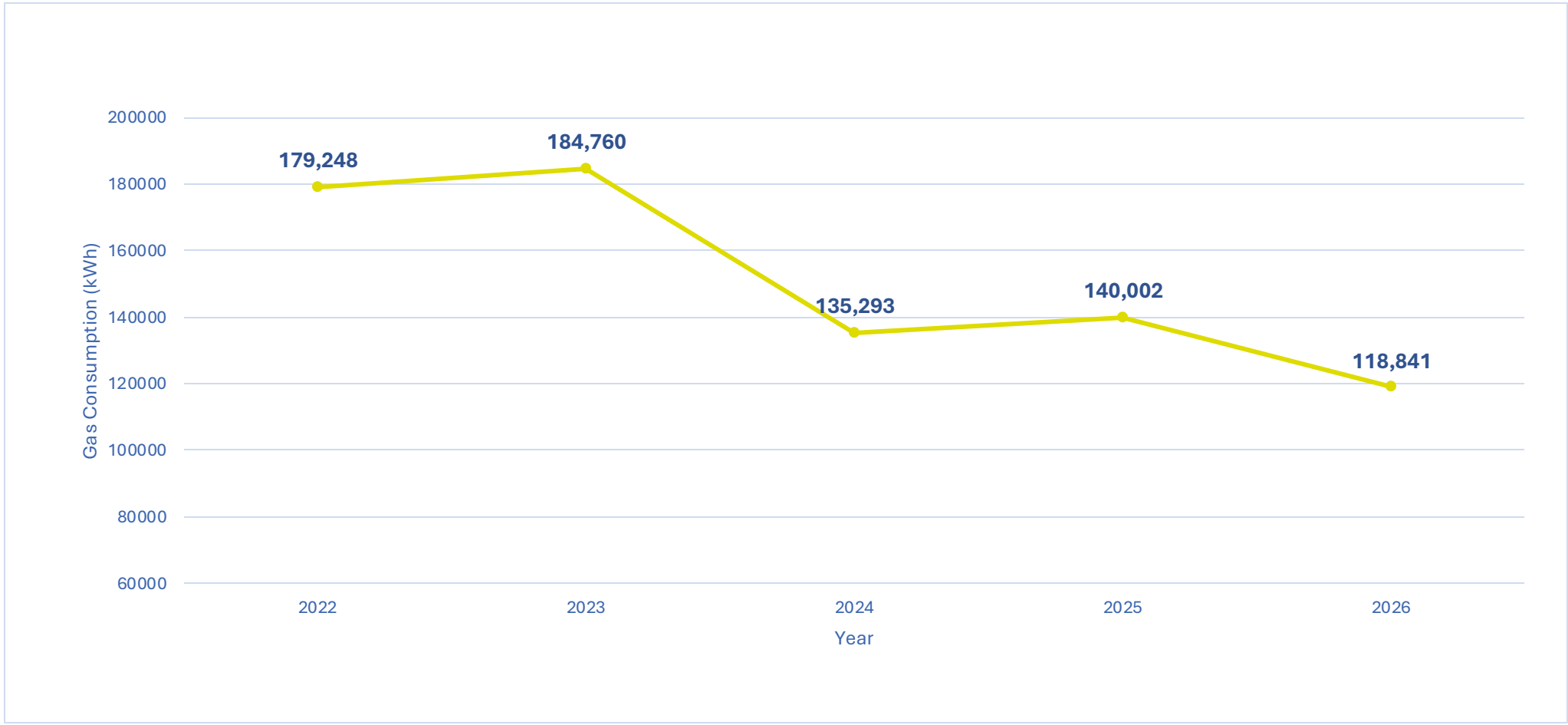
- **Guru monitoring installed across all dwellings**
- Improved visibility of system and dwelling performance
- Plantroom metering retained
- System connected to remote BMS platform
- Remote water quality alerts/notifications

Performance: Energy Costs

- **Gas consumption meeting optimisation targets**
- ~45% reduction in gas cost achieved 1 year post works
- Exceeds original business case target of 39%
- Sustained energy savings observed across monitoring period

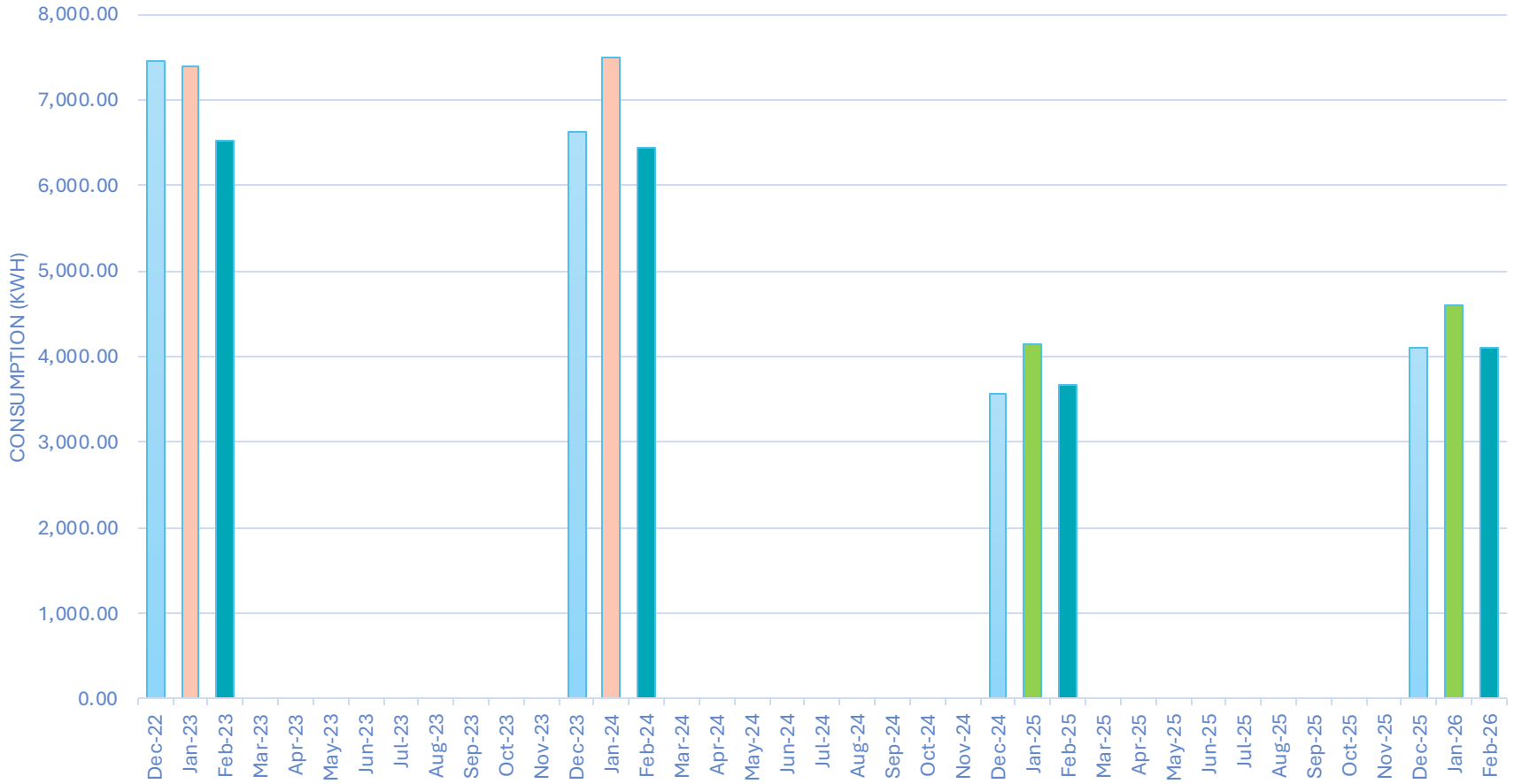
Gas Consumption Reduction

Winter Months (Dec – Feb)

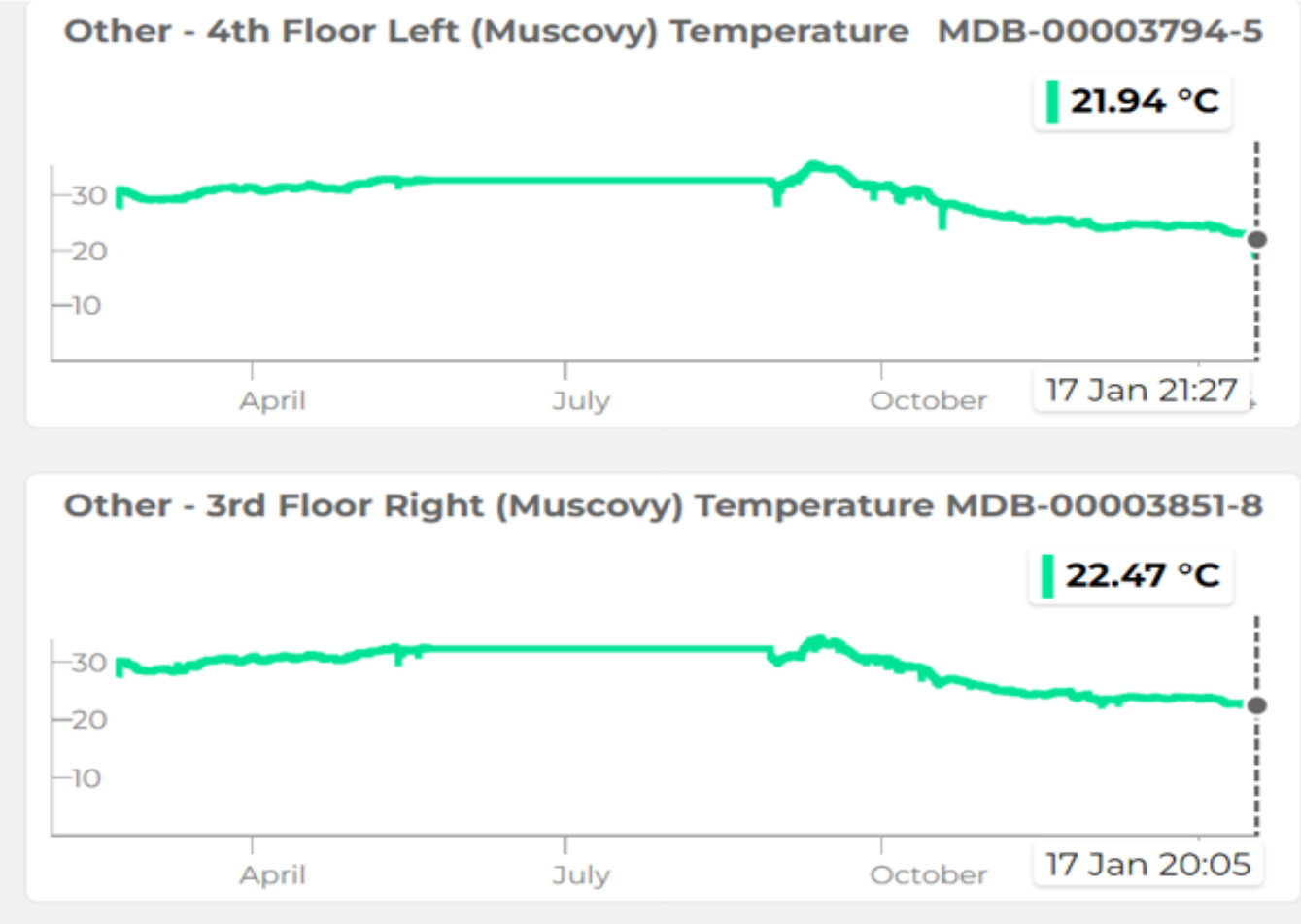


Electricity Consumption Reduction

Winter Months (Dec – Feb)



Reduced Corridor Temperatures

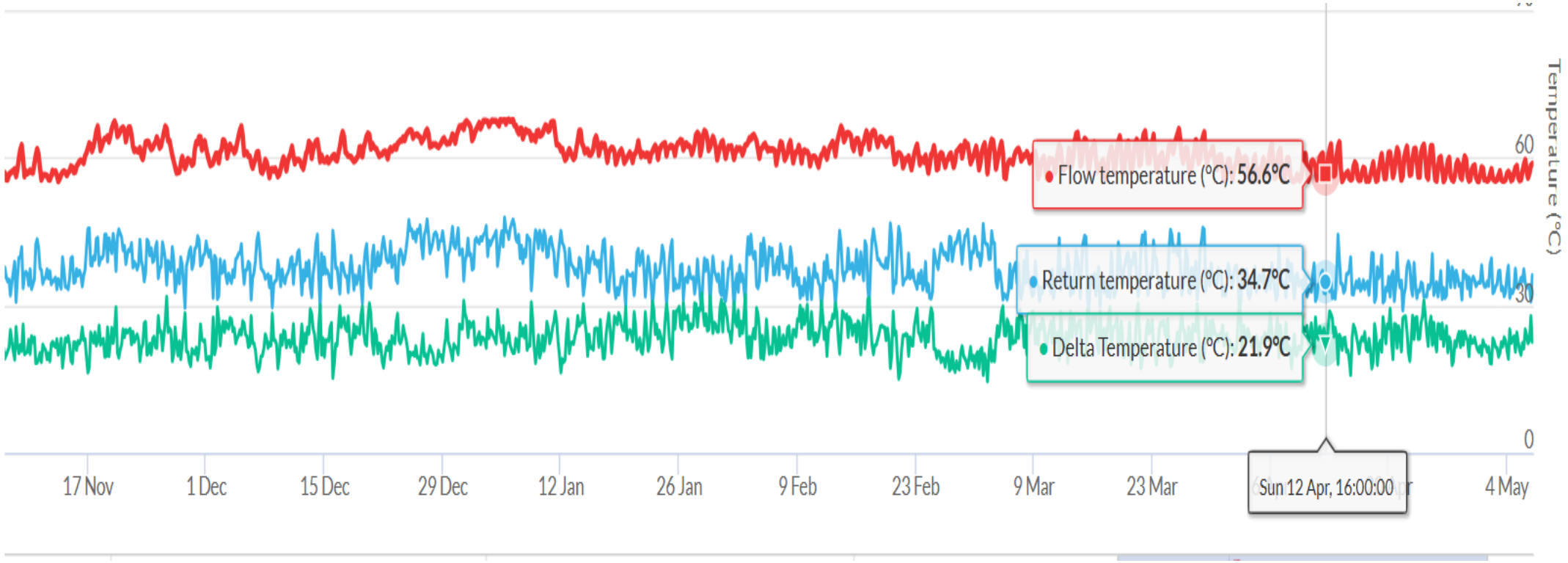


Visibility of Network – Pinpoint List View

	Volume weighted average return temperature (VWART)					
Metering point name	Overall	Standby	Hot water	Space heating	VWAFT	Flow rate
Dexter House Flat 06	23.9 °C	36.7 °C	23.0 °C	21.6 °C	53.8 °C	0.020 m³/h
Muscovy House Flat 32	25.3 °C	32.7 °C	22.0 °C	20.4 °C	49.2 °C	0.002 m³/h
Muscovy House Flat 37	25.4 °C	33.1 °C	20.5 °C	18.8 °C	47.4 °C	0.002 m³/h
Dexter House Flat 18	25.4 °C	32.8 °C	25.1 °C	22.3 °C	51.8 °C	0.011 m³/h
Dexter House Flat 20	25.7 °C	37.8 °C	22.7 °C	!	53.4 °C	0.009 m³/h
Dexter House Flat 07	26.0 °C	41.9 °C	23.8 °C	21.4 °C	54.3 °C	0.025 m³/h
Muscovy House Flat 10	26.3 °C	33.3 °C	22.0 °C	!	49.3 °C	0.002 m³/h

Visibility of Network – Block Level

Flow and Return Temperatures



Performance: Heat Loss and Efficiency

- Heat loss reduced to ~167 W/dwelling
- Approx. 70% reduction from baseline
- Significant improvement in overall system efficiency
- No site outages in year 2025/26
- Only one unplanned site outage in 2024 (August)
- No reactive maintenance repairs in the last two financial years

Network Operation

- **Flow temperatures 55–70°C with weather compensation**
- Return temperatures ~35°C (within practical range)
- Average Delta-T of 25°C recorded for each riser
- Stable system operation and improved control
- Performance meets practical expectations despite legacy constraints

Outcomes

- Corridor temperatures reduced on average by 8-10°C improving comfort
- 100% access rate to properties
- Maintenance callouts significantly reduced
- Stable and efficient network
- 84% resident satisfaction with communal temperatures post works
- Approach has provided replicable model for wider NHG portfolio

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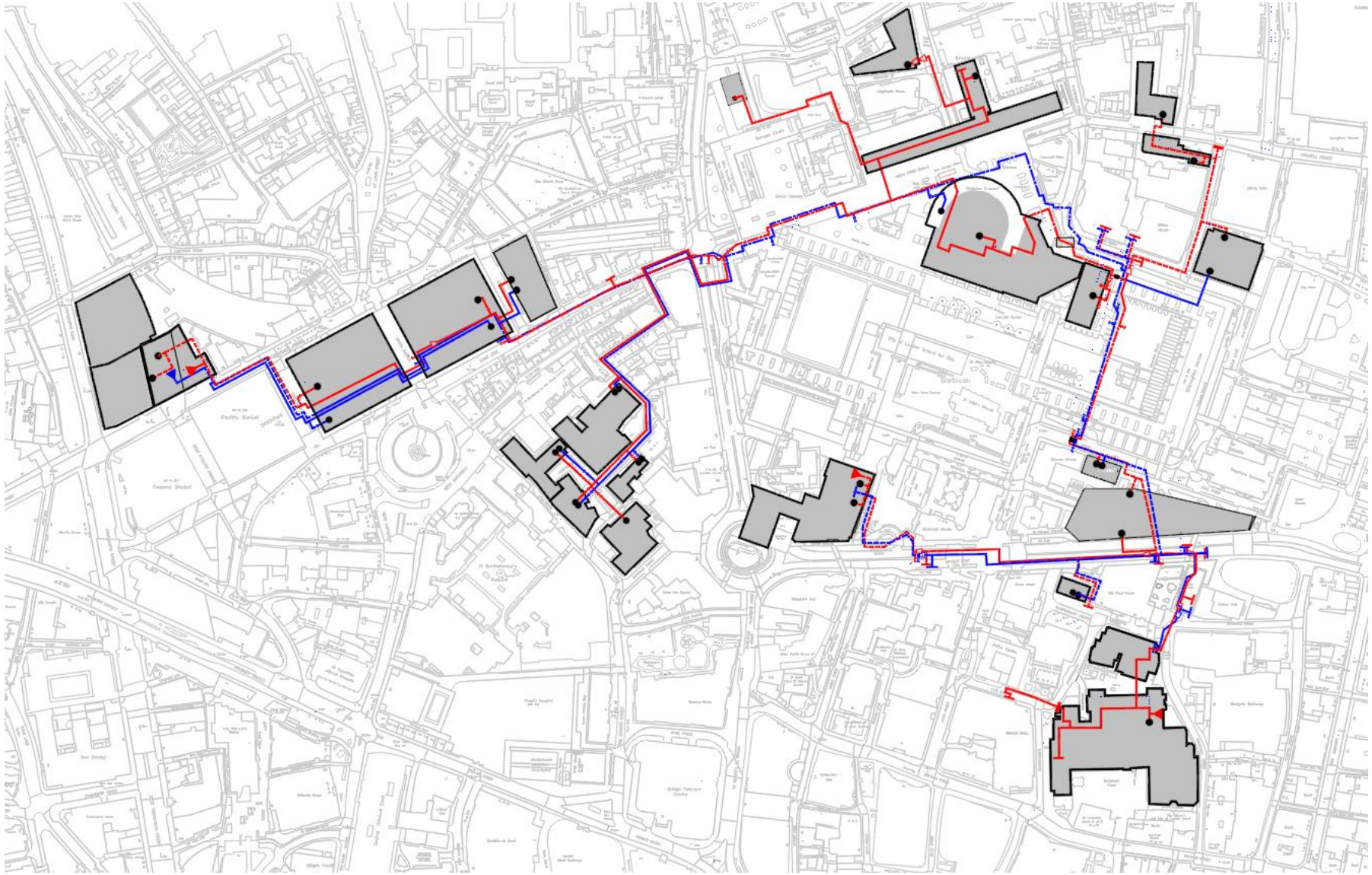
Funded Project: Citigen heat network

Zoë Abela, Project Engineer, Citigen

Citigen HNES Project

Improving Heat Network Return Temperatures

Citigen Overview



Brief History of Citigen

1993

Citigen was born

Known to be one of the oldest heat networks within the Square Mile connected to various City of London connections

2014

Upgrade

2 x Oil fired gas engines were replaced with

2 x high efficiency Gas CHP engines

2016

Growth Opportunities

New expansion during this period took connections to a total of 39 sites. This includes a mix of commercial and high-end residential customers and properties

2019

Improvements

Network Temperatures were lowered from 105(F)/75(R)degC to 85(F)/65(R)degC

2022

HNES Funding

Application submitted with approval received in May 2023.

Works started later that year with commissioning in Summer 2025

HNES Selection Process

“Oversized” Heat Exchangers

Identify the need to improve and optimise systems by validating heat exchanger sizes meaning downsizing oversized heat exchangers or optimising from a single to a twin plate system

High Return/Poor dT

Working with customers to improve their water quality which indicated blocked plates leading to poor heat transfer

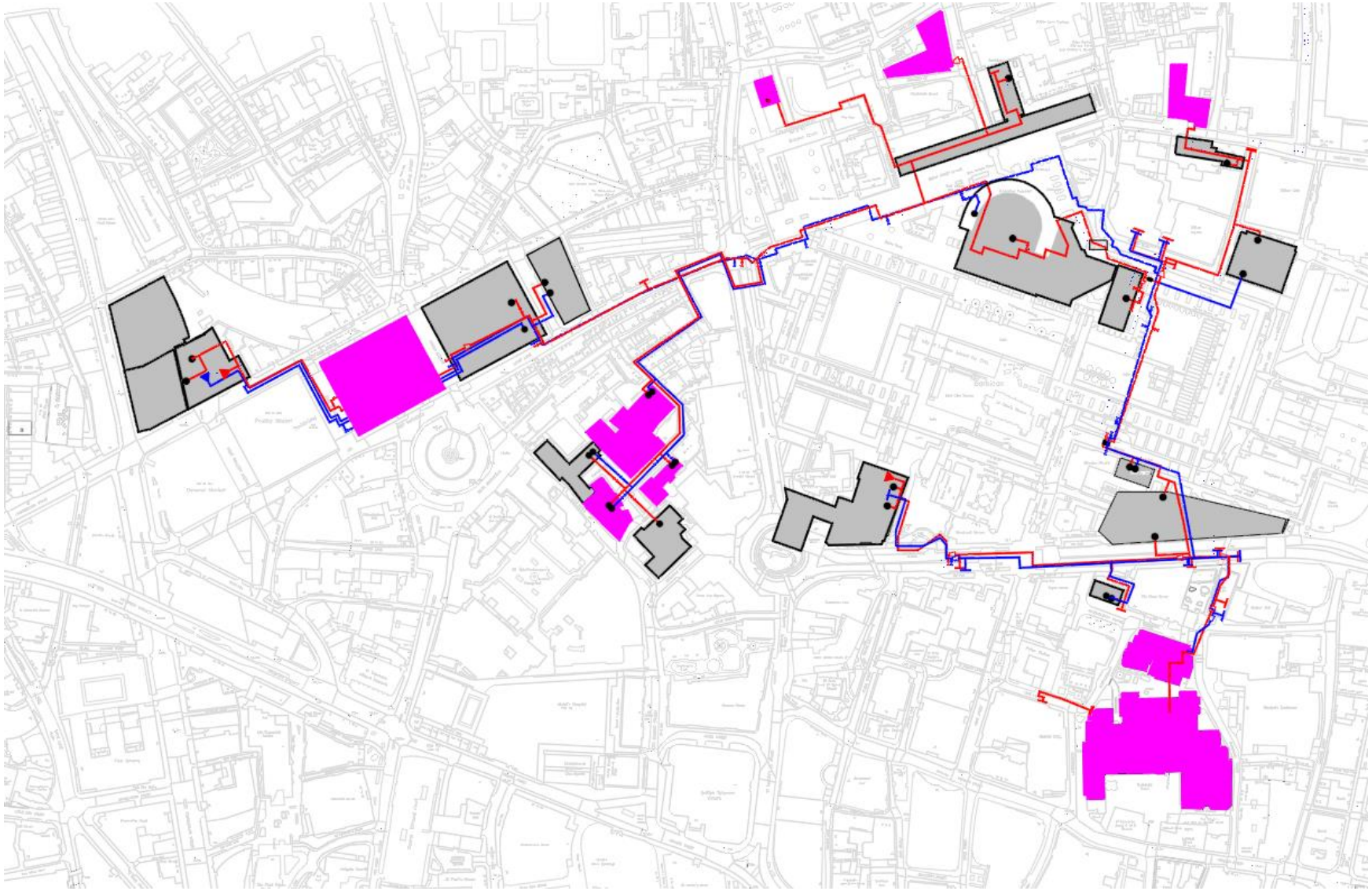
Controls

Outdated control systems

Erratic unreliable data

Heat Exchangers with minimal control instruments installed

HNES Sites



Challenges and How they were overcome

Customer Interruptions

Residential Customers who required heat on at peak times

Commercial Customers with sensitive supply requirements (theatres, art galleries etc)

Student Accommodation limited us to a 4 week window for works (Summer holidays)

Nature of the buildings

Demand peaks at different times due to the nature of the buildings

Student Accommodation usage being 24/7

Avoiding impact from our works and the day to day use of the buildings

Data (or Lack of)

Old control panels (no longer supported)

Erratic and unreliable data from old connections

Access Restrictions

Working in Central London comes with its limitations

Old Buildings

The Guildhall

Home to the City of London

Build circa 800 years ago and extended over the years

Project Scope

To upgrade and improve the heat supply into the building alongside upgraded control panel

<u>Original System</u>

- 1 x Single 5MWt Plate Heat Exchanger
- Minimum controls
- Control panel no longer supported by engineers or OEM Manufacturers

Project Scope

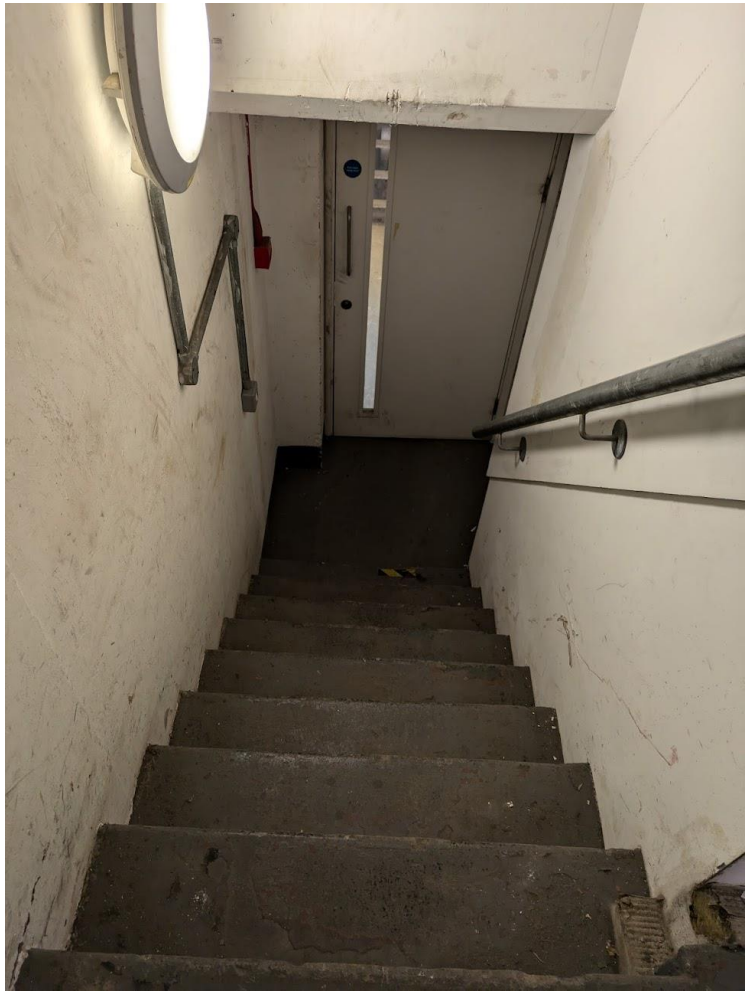
New System

- 2 x 2.5MWt Plate Heat Exchanger relocated to a new space within the plant room
- New connecting pipework in a boiler room with very little space
- Upgraded control panel

Access Constraints

There were only 2 ways into the plant room

- A two flighted 800mm wide staircase with tight corners, or
- A 700mm wide hooped ladder with direct access into the plant room



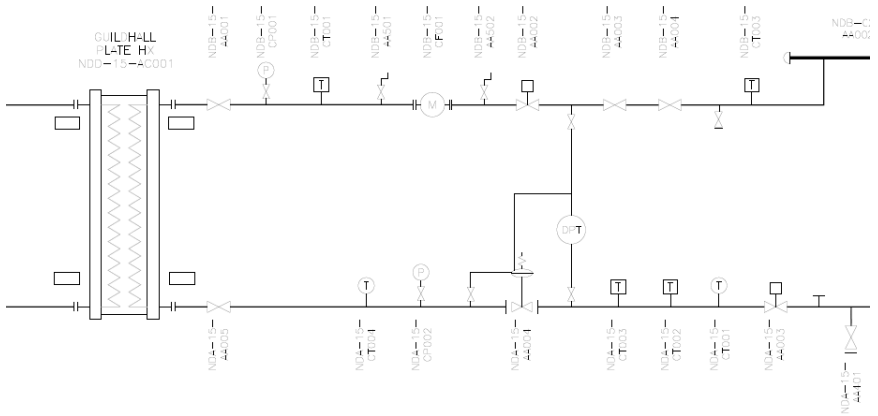
Considerations and Risks

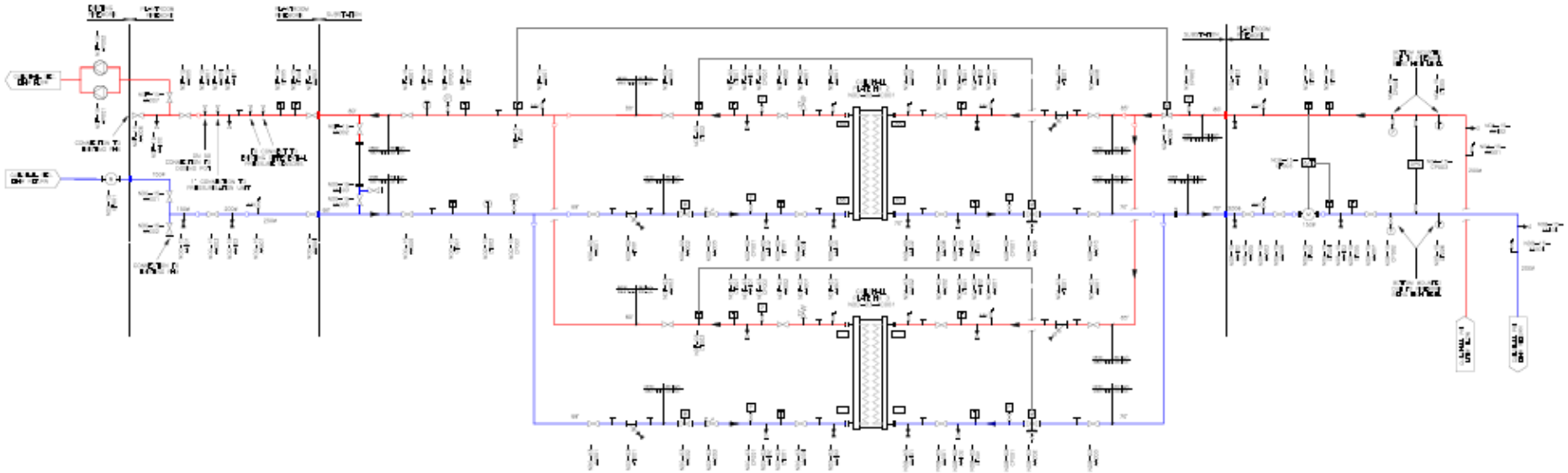
- Manual Handling
- Lifting plans
- Personnel Interactions (for deliveries and movement of plant)
- Events in the building outside of working hours

The details

- Originally assembled off-site to match the floor space available in the Guildhall's plant room, then disassembled for logistics
- Nearly 180m of 250mm diameter pipework
- 4 x 2.1m 450kg end plates
- 10 Valves
- 400 individual heat exchanger plates
- All equipment was then re-assembled in the plant room
- New and improved control strategy

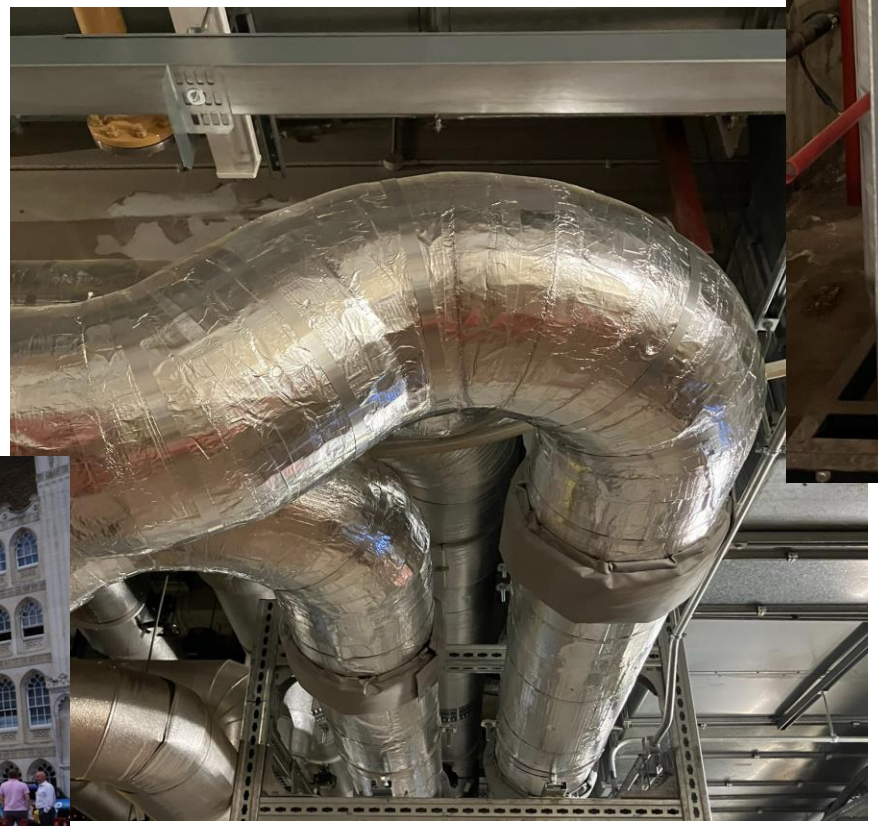
Before and After P&ID





The End Result

A brand new, highly efficient system now supplies a building that’s over 800 years old and I was finally allowed out of the Guildhall Crypts!



Thank you

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How you can benefit from HNES funding

Katy Ansari, HNES Application and Grant Funding Lead

How much funding is available?

Revenue Grants	Capital Grants
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.	Part funding **(up to but not including 50%)** available for the delivery (installation) of eligible intervention / improvement measures.
Up to £2m for FY23/24 - 24/25, plus further funding in future financial years subject to availability	Up to £105m across FY23/24 to FY29/30

- Grant funding must be spent within its allocated financial year
- Match funding does not have to be spent at the same time as grant funding

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Who can apply?

From Round 12 - capital applicants must support Customers in Need, or demonstrate strategic rationale for funding (i.e. links to Green Heat Network Fund (GHNF) projects, or Heat Network Zones)

- Operators of existing district heating networks or communal heating systems
- Heat networks situated in England or Wales
- 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

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Funding round closing dates

Round	Opening Date	Last Day to Request an Application Form	Closing Date for Applications
Round 12	7th April 2026	8th May 2026	22nd May 2026
Round 13*	Expected to open on 17th August 2026	Two weeks before closing date	Expected to close on 9th October 2026
Round 14*	Expected to open in December 2026	Two weeks before closing date	Expected to close in February 2027

*subject to budget availability

Guidance for Applicants document can be accessed **here**

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Where to find help and support

- Email **hnes@talan.com** for general enquiries and to request access to the HNES online portal and an application pack
- Read our **HNES Guidance for Applicants** document for further detail on the scheme
- Sign up to our **Mailing List** for the latest information and updates about the scheme
- Read DESNZ's **optimisation guide** and watch these **heat network optimisation guidance videos** for helpful tips on how to improve your network


Louise Singleton


Katy Ansari


Alison Sanders


Roisin Broomfield


Abigail Chu

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Q&A

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