



Full Circle End of Phase Meeting



Ofgem Strategic Innovation Fund



UK Power Networks
Delivering your electricity



SGN Commercial Services

ARUP

atelier ten

INVESTORS IN PEOPLE™
We invest in people Platinum



Contents



01

Project update

- Project summary
- Project outputs
- Lessons learnt
- Final update on project plan
- Summary of each work package

02

Retrospective Review

- Barriers, risks, issues that you identified and overcame
- Project specific conditions

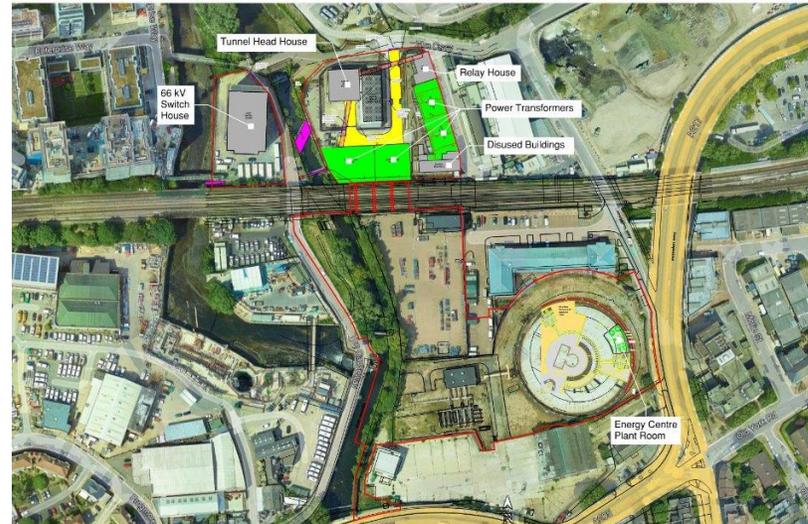
03

Looking Ahead

- Comms and engagement plans going forward
- Next steps

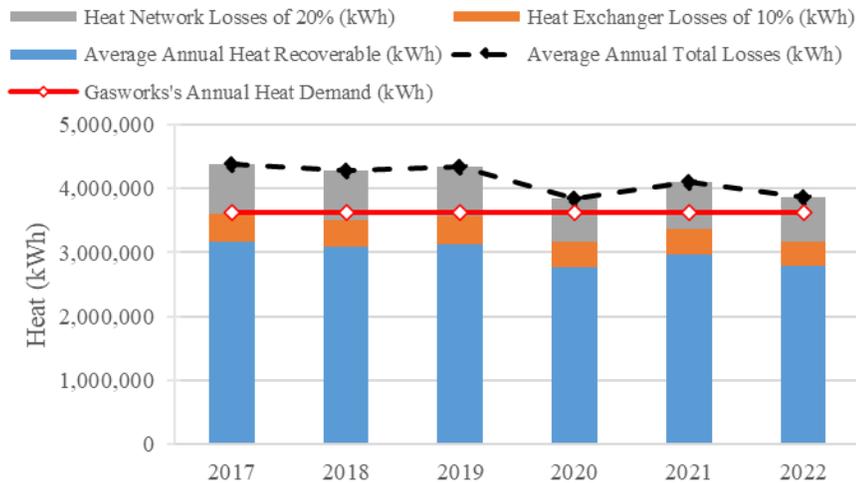
Project summary

- SGN has a planned development of 637 homes and commercial space on its disused gas holder site at Wandsworth
- The proximity of the UK Power Networks transformers has created an opportunity to recover waste heat to reduce energy generation and customer bills



Project summary

A plate heat exchanger can recover up to 70% of the waste heat from the transformer, based on modelling calculations



| Heat Source | Energy Mix 1 (3500 kWh) | Energy Mix 2 (3500 kWh) |
|----------------------|----------------------------|----------------------------|
| Transformer losses | 0% | 92% |
| Air Source Heat Pump | 100% | 8% |
| Cost | £298 | £185 |

Modelling results show that waste heat could supply up to 92% of the site heat demand and after capex and O&M costs would be a saving of 38% on customer energy bills

Outputs

- Design for the transformer heat recovery system has been produced
- Agreed piping route from Wandsworth Substation to SGN site via the train track viaduct
- GIS (Geographic Information System) based mapping tool shows potential to invest further in district heat networks and transformer waste heat
- Raised awareness of waste heat potential through interaction with Local Authorities
- Developed connection roadmap to help future developers

Lessons

- Site visit is very helpful in assisting the Alpha Phase design, allowing spatial scan and temperature measurements on site.
- The transformers due to their age do not have digitised historical temperature data. It would have been better if we could install monitoring equipment to acquire more granular operating temperature data. We plan to do this in the subsequent phases of the project.
- Early engagement with UK Power Networks stakeholders turned out to be critical, which had led to changes to the technical design as well as framing the regulatory and commercial aspect of the project. We need to continue close engagement in future work.
- The calculations show significant benefits from transformer heat recovery, but the stakeholders have raised that a demonstration through installing and operating the real system will be critical, particularly to validate these calculated benefits, such as the estimated savings on customer bills around 60%. This will be delivered through a future implementation of the whole system.
- Although the GIS mapping tool we developed can identify opportunities for replicating this pilot scheme, the stakeholders and the project team also recognise the assumption and gaps behind the mapping tool, of which some can be improved but some may rely on detailed study on a case-by-case basis.

Alpha Project - Gantt Chart

| | | | | | 2023 | | | | | | | | | | | | 2024 | | | | | | | | | | | | | |
|-----|--------|---|----------------|--------------|-----------|-----------|--------|--------|--------|-----------|--------|--------|--------|-----------|--------|--------|---------|-----------|-----------|--------|----------|------------|-----------|--------|--------|------------|------------|--------|--------|--------|
| | | | | | October | | | | | November | | | | December | | | January | | | | February | | | | March | | | | | |
| | | | | | w/c 2 Oct | w/c 9 Oct | w/c 16 | w/c 23 | w/c 30 | w/c 6 Nov | w/c 13 | w/c 20 | w/c 27 | w/c 4 Dec | w/c 11 | w/c 18 | w/c 25 | w/c 1 Jan | w/c 8 Jan | w/c 15 | w/c 22 | w/c 29 Jan | w/c 5 Feb | w/c 12 | w/c 19 | w/c 26 Feb | w/c 4 Marc | w/c 11 | w/c 18 | w/c 25 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WP1 | No. | Milestone Title | Milestone Lead | No | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M1.1 | Alpha phase contracting | UKPN | D1.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M1.2 | Project Governance setup | UKPN | D1.2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M1.3 | SIF End of phase documentation | UKPN | D1.3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M1.4 | UKPN SIF R2 Alpha event | UKPN | D1.4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M1.5 | Overall Project Report | ARUP | D1.5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WP2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M2.1.1 | RIBA Stage 3 design package | ARUP | D2.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M2.1.2 | RIBA Stage 3 design package | ARUP | D2.2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M2.2.1 | Tender documentation | ARUP | D2.3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M2.2.2 | Tender documentation | ARUP | D2.4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M2.3 | Heat network interfacing meetings | ARUP | D2.5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WP3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M3.1 | Heat Exchanger Integration & Performance, Control Spec & Local Operating Procedure , Input into Oil Recovery Design | SGN | D3.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M3.2 | Pipe & Thermal Storage Design Water heat Pump Integration | SGN | D3.2 to D3.6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M3.3 | Heat network interfacing meetings | SGN | D3.7 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WP4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M4.1 | O&M Framework developed | ARUP | D4.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M4.2 | RACI Matrix | ARUP | D4.2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M4.3 | Operational and plant replacement strategy plan | ARUP | D4.3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M4.4 | UKPN Consultation | UKPN | D4.4 | | | | | | | | | | | | | | | | | | | | | | | | | | |

Plan

Extension

Alpha Project - Gantt Chart

| | | | | | 2023 | | | | | | | | | | | | 2024 | | | | | | | | | | | | | |
|-----|------|---|----------------|--------------|-----------|-----------|--------|--------|--------|-----------|--------|--------|--------|-----------|--------|--------|---------|-----------|-----------|--------|----------|------------|-----------|--------|--------|------------|------------|--------|--------|--------|
| | | | | | October | | | | | November | | | | December | | | January | | | | February | | | | March | | | | | |
| | | | | | w/c 2 Oct | w/c 9 Oct | w/c 16 | w/c 23 | w/c 30 | w/c 6 Nov | w/c 13 | w/c 20 | w/c 27 | w/c 4 Dec | w/c 11 | w/c 18 | w/c 25 | w/c 1 Jan | w/c 8 Jan | w/c 15 | w/c 22 | w/c 29 Jan | w/c 5 Feb | w/c 12 | w/c 19 | w/c 26 Feb | w/c 4 Marc | w/c 11 | w/c 18 | w/c 25 |
| WP5 | No. | Milestone Title | Milestone Lead | No | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M5.1 | Commercial structure | UKPN | D5.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M5.2 | Bulk heat supply agreement, Commercial structure and contractual framework | SGN | D5.2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M5.3 | Implementation in BAU- Regulation issues | UKPN | - | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M5.4 | Commercial structure options workshop | ARUP | D5.4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M5.5 | Regulatory barriers and pathway forward workshop | ARUP | D5.3 D5.5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WP6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M6.1 | GIS-based mapping tool for potential scale-up opportunities across UKPN's network | ARUP | D6.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M6.2 | Transformer manufacturers future plan | ARUP | D6.2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M6.3 | Detailed network impact of solution across UKPN | ARUP | D6.3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M6.4 | technical information for Las LAEP Team | ARUP | D6.4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M6.5 | Potential UKPN locations replication to feed into the GIS mapping tool | UKPN | D6.5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M6.6 | Beta route to Market and BAU plan | UKPN | D6.6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WP7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M7.1 | Recieve and review consumption data | Atelier 10 | D7.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M7.2 | Receieve and review DER and TER | Atelier 10 | D7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M7.3 | Receive and review impact on energy stragery | Atelier 10 | D7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | M7.4 | Review and adjust energy strategy plan | Atelier 10 | D7.4 | | | | | | | | | | | | | | | | | | | | | | | | | | |

Plan

Extension

Work Package 1 – UK Power Networks

| Project Management | | |
|--------------------|--|--|
| Ref | Scope | Outcome |
| 1.1 | Project Governance – Financial, Roles, Project plan delivery | Project has been well managed throughout. All partners have shown good engagement and collaboration. Risks have been identified and mitigated; schedules have been adapted in instance where a risk impacted the project |
| 1.2 | Risk Matrix | |
| 1.3 | Setup communications and meetings | |
| 1.4 | Management and Interaction between the Project Partners and UK Power Networks business units and external stakeholders | |
| 1.5 | Management of Ofgem change controls and communication | |
| 1.6 | Report Reviewing | |
| 1.7 | Knowledge Creation and dissemination (Show and tell webinar) | |

Work Package 2 - ARUP

Detailed design to Royal Institute of British Architects (RIBA) Stage 3 for heat recovery systems

| Ref | Scope | Outcome |
|-----|---|---|
| 2.1 | Develop RIBA Stage 3 design package (drawings, scope of work, requirements, etc.) | All documents delivered to time by the project team. Package was reviewed by UK Power Networks subject matter experts; feedback was incorporated to enhance the design. |
| 2.2 | Prepare tender package and specs, | Site visit to UK Power Networks Wandsworth Substation on 9 th January 2024 informed designs. |
| 2.3 | Technical discussions for heat network interfacing | Fortnightly meetings held between the project partners to coordinate the design of the heat recovery system and its integration into the heat network. |

Work Package 3 - SGN

Detailed design of heat integration, i.e. the integration to the SGN Gasworks Development's heat network

| Ref | Scope | Outcome |
|-----|---|---|
| 3.1 | Heat Exchanger Integration & Performance, Control Spec & Local Operating Procedure , Input into Oil Recovery Design | Proposals for heat exchanger system were submitted by Arup, SGN and Vital Energy. These proposals were reviewed in a collaborative session and a final design was agreed. |
| 3.2 | Pipe & Thermal Storage Design Water heat Pump Integration Energy Centre Control System | Final heat exchanger design fed into the design of the piping route. Possible new plant room located in railway arch. |
| 3.3 | Heat network interfacing meetings | Site visit to Wandsworth substation on 9 th January informed the design of the heat exchanger and piping route. |

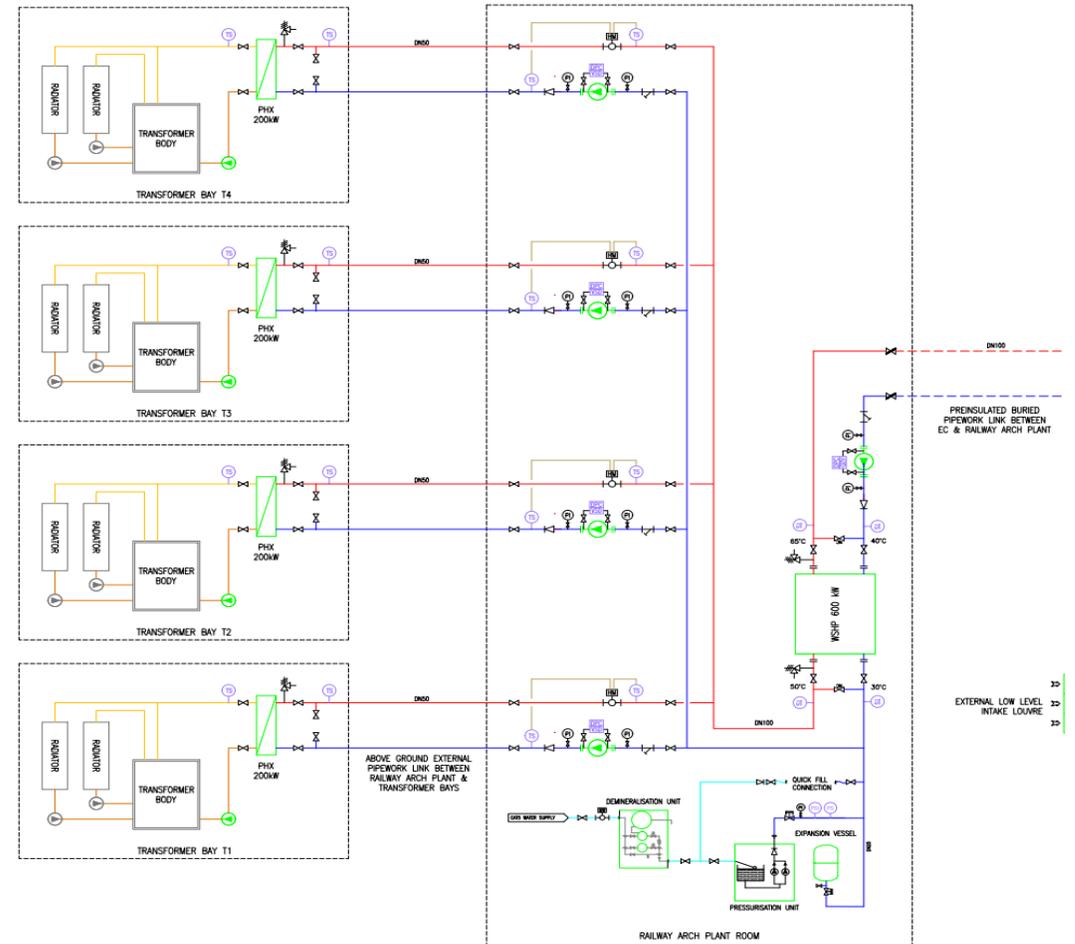
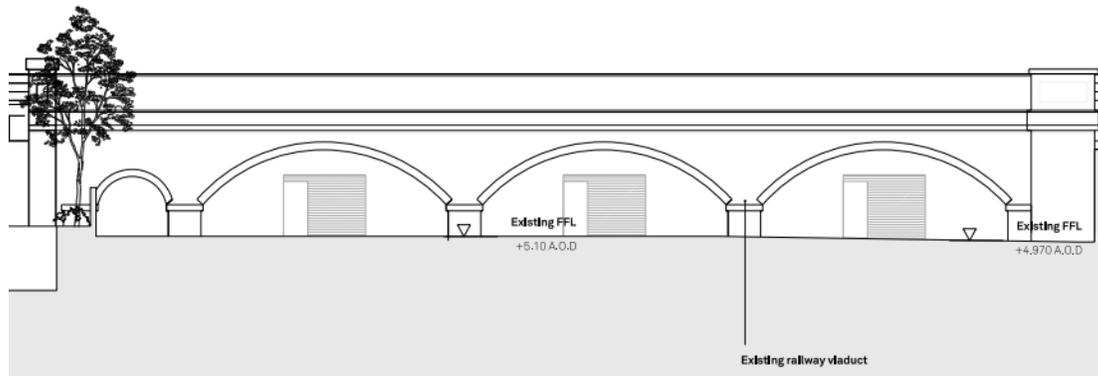
Work Package 3

Heat Exchanger performance and control specification

Oil to water heat exchanger would be added in parallel with the radiators and a separate pumped circuit would be created. No real modification to the existing controls would be required but, in this case, the District Heat Network side controls system could draw off heat at any time and would not be dependent on whether the existing oil pumps are running.

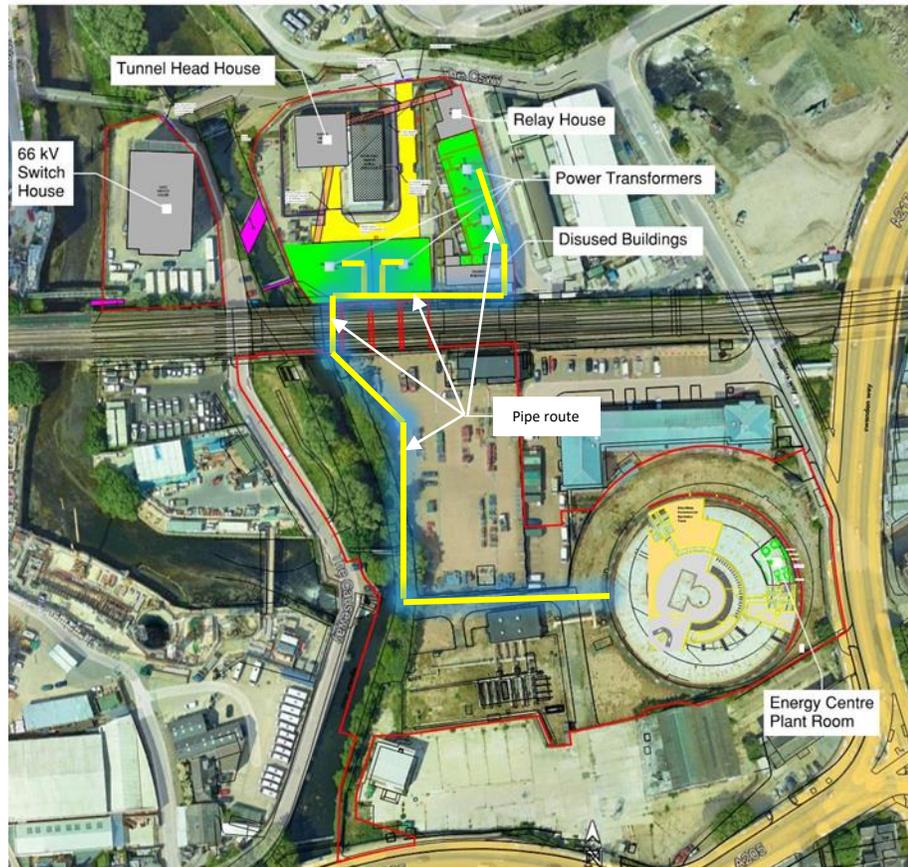
This does introduce some complexity as an additional oil pump is needed – which would need a local power supply and would need more regular maintenance access (than just the heat exchanger) within the UK Power Networks site.

We have considered an option to place the WSHP and controls with the railway arch creating a dedicated plant room.



Work Package 3

Planned Pipe Route



Commentary

- Several heat exchanger designs have been proposed and we have now landed on a preferred option.
- This option has driven the pipe design to transport the waste heat away from the individual oil to water heat exchangers at each transformer.
- Separate heat pipes from each transformer will coalesce at a central manifold ready to take the waste heat to the SGN site.
- The main heat network supply pipe will pass from the UK Power Networks site direct to the SGN development through a small via duct arch under the railway line.
- We plan to install a pump and metering system within the arch along with filtration.

Work Package 4 - ARUP

Develop a complete and detailed Operational & Maintenance framework agreed by both parties.

| Ref | Scope | Outcome |
|-----|---|---|
| 4.1 | Development Operational & Maintenance Framework, functional description specification | As part of the heat recovery design package, the relevant documents were delivered to time by the project team. The materials were reviewed by UK Power Networks subject matter experts; feedback was incorporated to enhance the design. |
| 4.2 | RACI Matrix | |
| 4.3 | Plant replacement strategy | Additionally, the project partners also had discussions with relevant stakeholders, regarding plant ownership and O&M responsibilities, as evidenced in workshop minutes, Constriction Design and Management (CDM) risk assessment, and the project design risk register. |

Work Package 4

ARUP

UK Power Networks

Full Circle

Alpha Phase Controls & Description of Operation

Reference: 297924-ARP-TS-XX-SP-ME-51-10002

3 | 2 April 2024



© Arup

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number: 297924

Ove Arup & Partners Limited
6th Floor 3 Piccadilly Place
Manchester
M1 3BN
United Kingdom
arup.com

ARUP

UK Power Networks

Full Circle - Alpha Phase

Operational and Plant Replacement Strategy

Reference: 297924-ARP-TS-XX-RP-ME-00-10000

2 | 4 April 2024



© Arup

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number: 297924

Ove Arup & Partners Limited
6th Floor 3 Piccadilly Place
Manchester
M1 3BN
United Kingdom
arup.com

Work Package 4

297924-ARP-TS-XX-SH-PM-90-10001 - Project RASCI Matrix

Version: 2

| |
|--|
| Project Stages: |
| COMMERCIAL AND REGULATORY FRAMEWORK: The legal framework under which the project will be operated. |
| POST PROJECT EVALUATION: Review and publication of the project outcomes, performance and replication opportunities. |

| |
|---|
| Roles: |
| Project Lead: Responsible for leading the overall project |
| Designer: Understand the project vision and develop a design to meet those needs. Advise project lead. |
| Installer: Responsible for overall detail design, installation, testing and commissioning. |
| Owners Engineer: Advises the Project Lead |
| Principal Designer: Appointed by the Client to take control of the pre-construction phase. |
| Site Coordinator: Provide effective and accurate administration support to the project delivery team. |
| Commissioning Engineer: Oversee the installation of equipment, systems, facilities and setting the system to work. |

| |
|--|
| Responsibility Assignments: |
| R = Responsible: Those who do the work to complete the task. There is at least one role with a participation type of R responsible, although others can be delegated to assist in the work required |
| RB1, RB2 - Back up Responsible: Those who are back-ups for time critical tasks in the event of absences |
| A = Accountable (also Approver or final approving authority): The one ultimately answerable for the correct and thorough completion of the deliverable or task |
| S = Support: Resources allocated to responsible. Unlike consulted, who may provide input to the task, support helps complete the task |
| C = Consulted: Those whose opinions are sought, typically subject matter experts; and with whom there is two-way communication |
| I = Informed: Those who are kept up-to-date on progress, often only on completion of the task or deliverable; and with whom there is just one-way communication |

| | | | | | | | | | |
|--------------------------------|--|----------|----------|--------------|------------------------------------|----------------------|------------------|-----------------|---------------|
| Project Name: Full Circle | RESPONSIBILITY ASSIGNMENTS | | | | | | | | |
| Job Number: 297924 | | | | | | | | | |
| Revision Date and Time: Rev 02 | | | | | | | | | |
| Role: | ALPHA & BETA PHASE RESPONSIBILITIES | | | | BETA PHASE RESPONSIBILITIES | | | | |
| | Project Lead | Designer | Designer | Installer | Principal Designer | Principal Contractor | Site Coordinator | Owners Engineer | Commissioning |
| Lead: | UKPN | ARUP | SGN | VITAL ENERGY | TBC | TBC | TBC | Arup | TBC |

| |
|---|
| FULL CIRCLE - ALPHA STAGE RASCI MATRIX |
| Alpha Stage Work Package |

| |
|--|
| FULL CIRCLE - BETA STAGE RASCI MATRIX |
| External Liaison |
| Design |
| Installation |
| Commissioning |
| Handover, Operation and Maintenance |

| |
|---|
| FULL CIRCLE - BETA PHASE COMMERCIAL AND REGULATORY FRAMEWORK |
| Development of Economic Model |
| Regulatory Framework |

| |
|---|
| FULL CIRCLE - BETA PHASE POST PROJECT EVALUATION |
| Due Diligence |
| Performance Monitoring |

Work Package 5 - SGN

Develop detailed Commercial structure and contractual framework agreement in line with both parties regulatory constraints

| Ref | Scope | Outcome |
|-----|--|---|
| 5.1 | Understand and draft detailed commercial structure in collaboration with UK Power Networks and SGNCS | Commercial structure models presented in a workshop with UK Power Networks, barriers and routes to market identified and discussed. |
| 5.2 | Prepare detailed Bulk heat supply agreement | Bulk heat supply agreement drafted based on Department for Energy Security and Net Zero Lux Nova template contracts to be used and expanded during next phase for formal adoption. |
| 5.3 | Discuss Regulatory barriers and discuss path forward with UK Power Networks' Regulation Team | Regulatory information was researched by the project team. A note summarising our findings and assumptions has been produced to inform the next stages of the project and will be investigated further. |

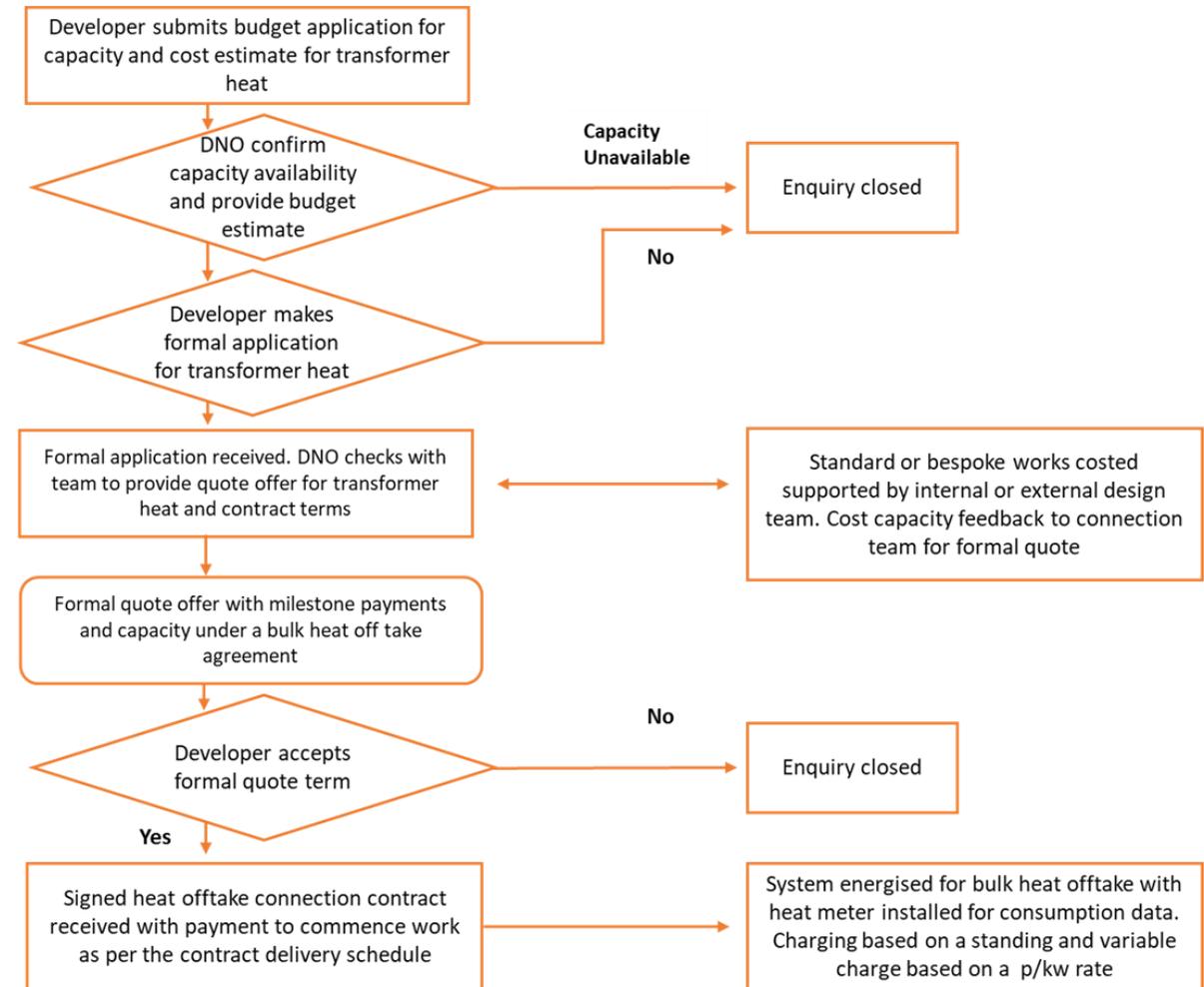
Work Package 5

Heat Offtake Application

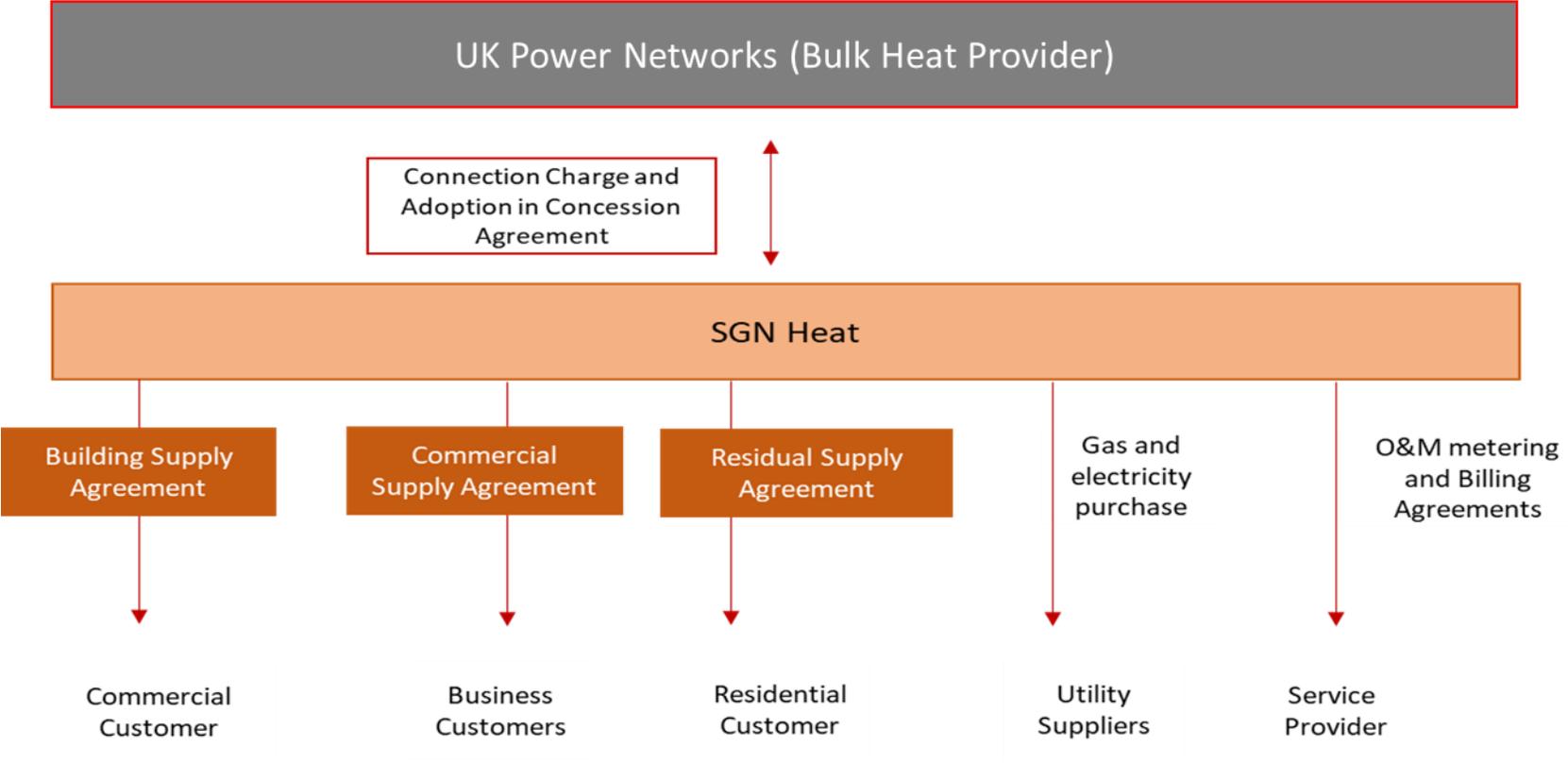
We have proposed a heat offtake application procedure based on the current electrical connection process.

It is envisaged the GIS mapping tool will give all parties access to site locations and developers can then apply for capacity availability.

This will follow a budgetary and formal application process for cost estimates, capacities and formal connection quotes.



Work Package 5



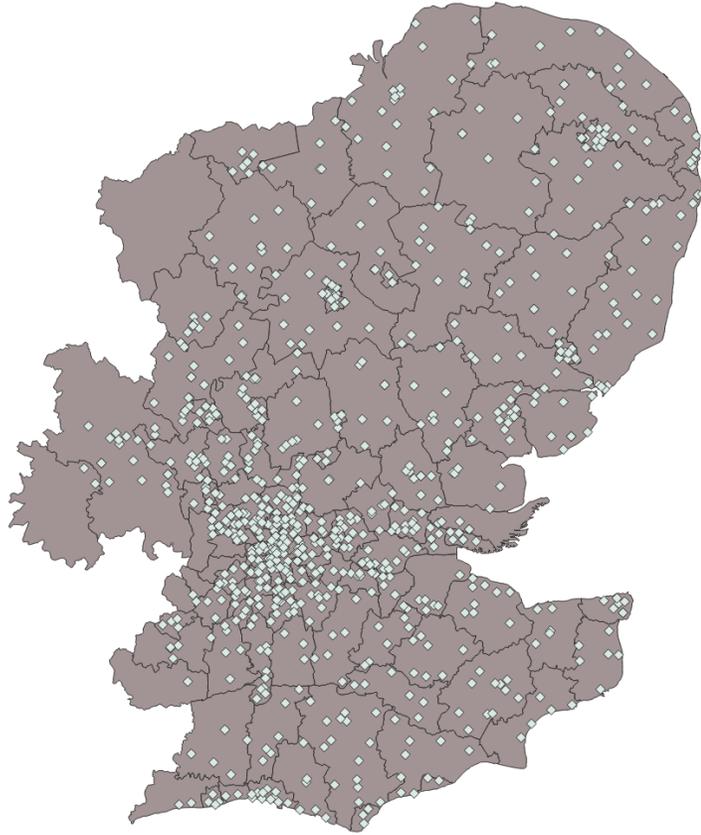
These contracts will need include lease and easement arrangements based on Lux Nova contract templates

Work Package 6 - ARUP

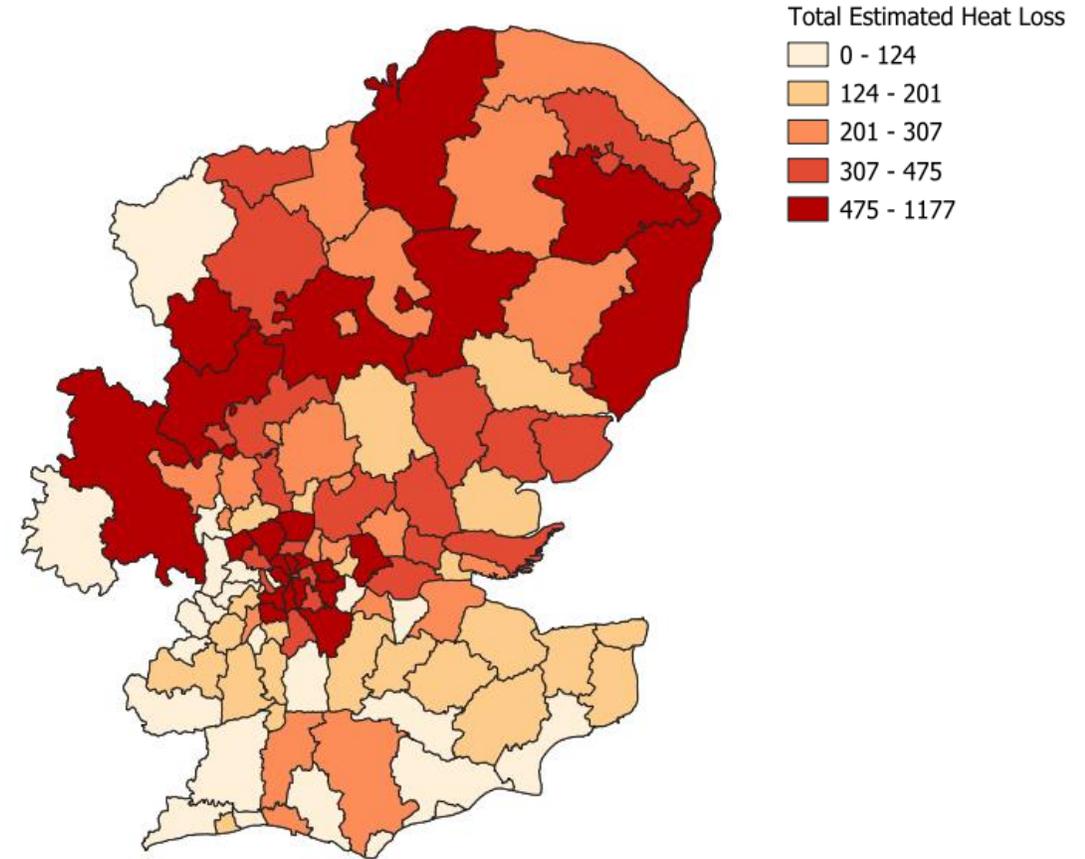
Understand with detail the replication opportunities for solution in UKPN areas.

| Ref | Scope | Outcome |
|-----|---|--|
| 6.1 | Mapping opportunities for replicating solution in UKPN areas | GIS based mapping tool developed which can be used by UK Power Networks to investigate replication potential of this project at other substations. |
| 6.2 | Engagement with transformer manufacturers (limited to 3); | Transformer manufacturers engaged; discussion held over the potential for retrofitting heat recovery tools on to new transformers. Heat recovery on new transformers is expected to be evaluated on a case-by-case basis, new transformers are much more efficient leading to much less heat generation. |
| 6.3 | Provide technical notes to assist communication with wider local authorities; | UK Power Networks DSO team connected project with local authorities to discuss the replication potential of this project. These meetings enhanced the usability of the tool. |
| 6.4 | Discussion with UKPN transformers team and network planning; | Tool and summary report were presented to key stakeholders, feedback was positive about the tool. Project team were encouraged to test theory with real data in subsequent project phases. |

Work Package 6



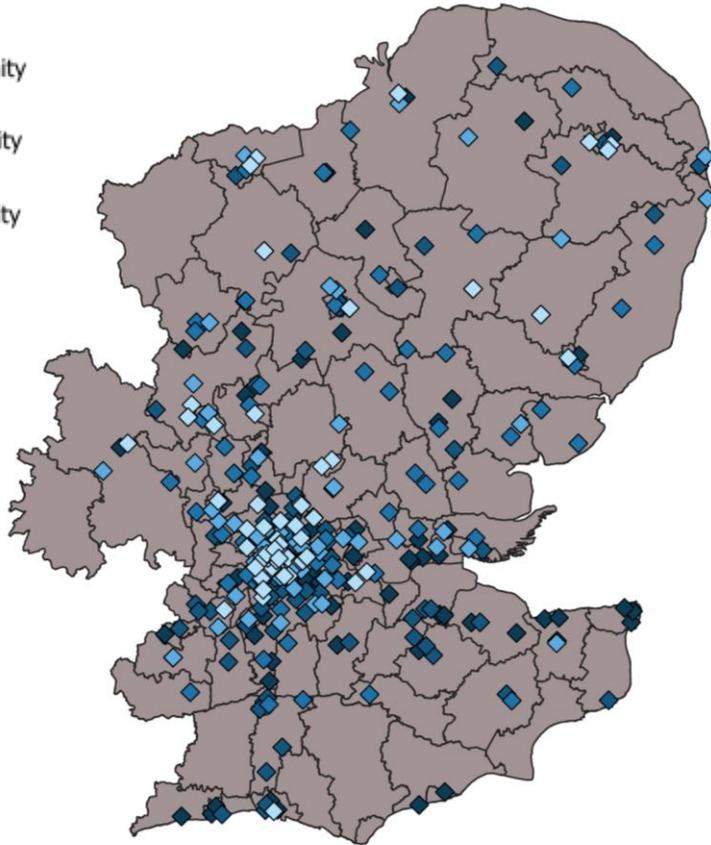
Total of 884 UK Power Networks sites for analysis



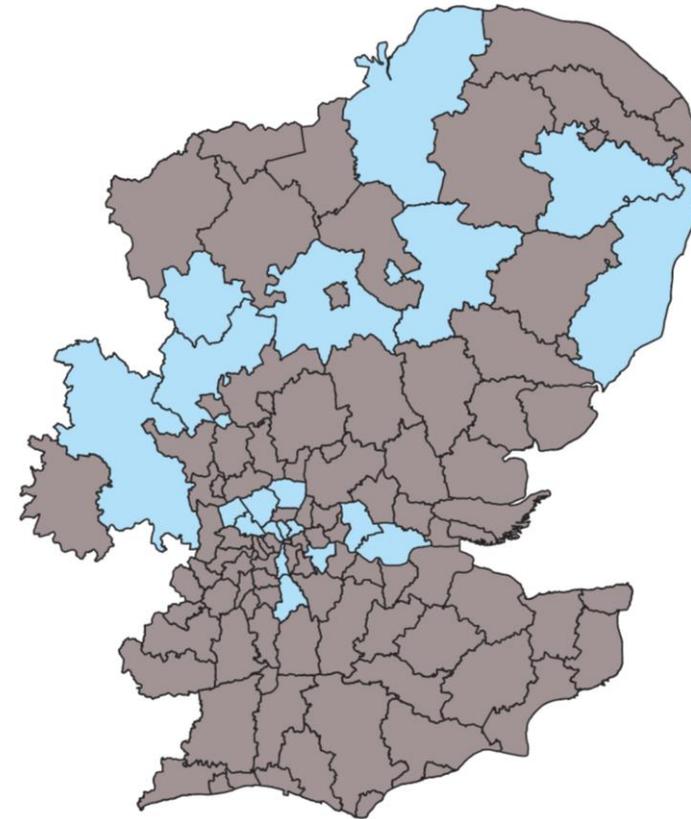
Estimated Total Heat Loss from All Sites in Local Authority

Work Package 6

- ◇ Very High Opportunity
- ◆ High Opportunity
- ◆ Moderate Opportunity
- ◆ Low Opportunity
- ◆ Very Low Opportunity



Filtered site based on level of opportunity



Highest Opportunity Local Authorities

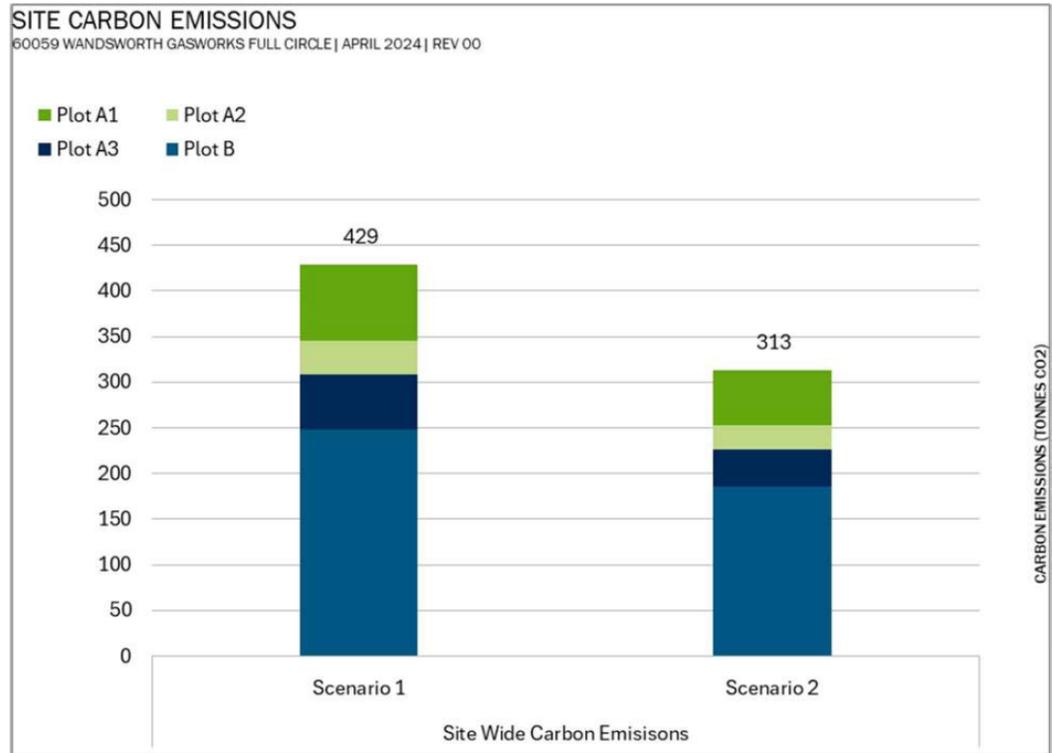
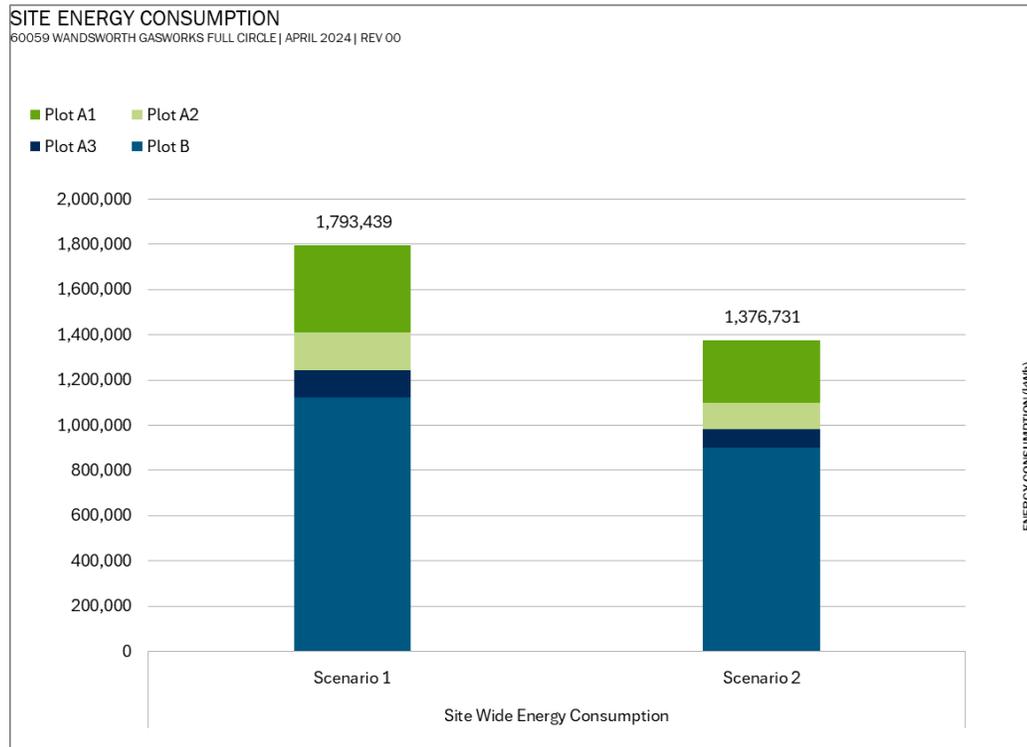
Work Package 7 – Atelier 10

Energy Strategy Impact Assessment and Planning Variation

| Ref | Scope | Outcome |
|-----|--|--|
| 7.1 | Review energy consumption data and assess Standard Assessment Procedure (SAP) impact | Modelled network energy consumption data reviewed and contribution from waste heat, ASHP and gas boilers calculated. |
| 7.2 | Review Dwelling Emission Rate (DER) and Target Emission Rate (TER) for carbon impact | SAP calculation updated based on proposed network performances and new DER and TER calculated. |
| 7.3 | Review impact on energy strategy | Development energy and carbon emissions quantified from updated SAP calculations |
| 7.4 | Adjust energy strategy plan | Planning energy statement updated |

Work Package 7

The proposed integration of the heat recovery system into the heat network will result in savings of **23%** and **27%** in terms of energy consumption and carbon emissions respectively compared to the baseline scenario which includes air source heat pumps and gas boilers.



Risks

| Risk Description | Likelihood | Impact | Mitigation | Post-mitigation Likelihood | Post-mitigation Impact | Endpoint Risk Rating |
|---|------------|--------|--|----------------------------|------------------------|--|
| SGN Wandsworth Development showing slow or no progress | Medium | Medium | Wandsworth Council were part of discovery phase and shared results of Full Circle to facilitate planning. Permission expected in July 2023 but may extend to September due to conditions (engagement, connection to boundary site to export heat to 3rd parties). Construction expected to be taking place Q3 2024 or move to 2025. Other heat offtake customers within a suitable distance have been explored. This does not impact the scope of the project. Only the piping route would change which will impact heat loss calculations | Medium | Medium | Closed for Alpha Phase Medium (Beta Phase) - still no news on planning permission for the site. |
| Regulatory barriers for DNO selling heat and Approval for modification to transformers | Medium | High | Workshop with UK Power Networks Regulation experts planned for WP4; Possibility of including discussions with Regulator in the workshop. | Closed | Closed | Closed– result of workshops with Regulation and Asset Management were positive. Letter of regulatory assumptions agreed. |
| Delay to contract signing impacts project timelines | High | High | Contracts shared with project partners as early as possible and early engagement with legal reps from all organisations | Closed | Closed | Closed – Contract signed by all parties and payments issued upon completion of works |
| Risk that our proposed use of Network Rail archways between UK Power Networks and SGN site leads to issues regarding Network Rail safety policies (basic asset protection agreement - BAPA) | Medium | High | Identifying a route that avoids the application of a BAPA. Engagement with Mitheridge consultant, specialist in this area. | Closed | Closed | Closed – Pipe route identified that will not lead to the application of a new BAPA |

Meeting project specific conditions

Condition 1

Party must not spend any SIF Funding until contracts are signed

MET – No money spent prior to signing contract

Condition 2

Party must report on the financial contributions

MET – Contractually fixed the costs as per the Alpha phase application

Condition 3

Party must participate in all Ofgem, UKRI and DESNZ meetings

MET – All relevant meetings attended

Meeting project specific conditions

Condition 4

Party must provide summary of similar projects in Europe and Scandinavia

MET – Detailed as part of WP5 report

- *Research project: Power transformers as excess heat sources, a case study for Denmark*
- *Heat recovery from power substation: Stockholm, Sweden*
- *Demonstrator site for REWARDheat: Milan, Italy*
- *National Grid and SSE: Waste heat recovery from transformers trial, Deeside, UK*

Condition 5

Party must provide plans to broaden its focus beyond the Wandsworth substation

MET – Detailed as part of WP5 mapping tool

The analysis conducted represents an initial high-level assessment of the potential for waste heat recovery from transformers. This serves as a starting point to identify potential opportunities which could be refined further with the inclusion of more detailed attributes and additional datasets.

Comms and engagement plan going forward

- Customer journey workshop held with UK Power Networks Regulatory workshop held with relevant UK Power Networks stakeholders
- Presented at UK Power Networks innovation event
- Engaged with multiple local authorities on opportunities of heat recovery
- LinkedIn post at project commencement
- Weekly project meetings, biweekly design meetings and monthly in person all hands
- LinkedIn post for Alpha Phase completion
- Engage Ofgem on heat recovery regulation
- Work with local authorities using GIS mapping tool

Next steps

We do not intend to submit for Beta due to uncertainty around housing development, will explore other funding options

High Level Plan

- Design to RIBA Stage 4+
- Construction design and asset procurement
- Design and build contractor appointed
- Construction
- Installation of the heat recovery systems and the integration infrastructure
- Testing and commissioning
- Commencement of the integrated heat network
- Continued performance monitoring
- Shortlist of specific scale-up / roll-out opportunities



THANK YOU

ARUP



atelier ten