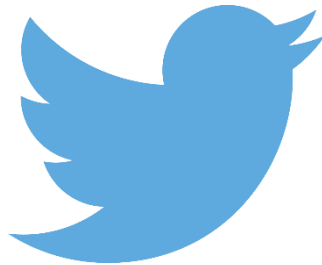


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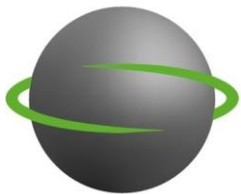


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# Applying for decarbonisation funds and delivering projects

By Alan Barber and Mike Keating

APSE Energy Associates  
& Directors of Salvis



**SALVIS**<sup>®</sup>

# Is your asset data appropriate?

- Create a prioritised asset list
  - Opportunity for greatest savings
  - Age of building and services
  - Available space
  - Pick projects that can be delivered quickly

# The Public Sector Decarbonisation Scheme (PSDS)

- The process
- Filling out the form
- Senior Management Support
- Submitting the form

## Step 4: Support Tool

Fully complete the two tables below to calculate the eligible grant value, and please fill out the previous Steps before completing Step 4, as this table is reliant on data from them.

| Despote Carbon Factor (kg/kWh) | Remaining Site Life (yr) | Design Status                | Procurement Status | Carbon Cost Threshold (ttn CO <sub>2</sub> e LT) | Minimum Client Contribution as a Proportion of Total Project Costs | Maximum Eligible Proportion of Grant Value for Energy Efficiency Measures |
|--------------------------------|--------------------------|------------------------------|--------------------|--|--|---|
|                                | 50                       | Concept Design (PBA Stage 2) | Pre-Tender         | £329   | 12%  | 58%   |

| Technology Type    | Project Value | Like-for-Like Replacement Costs | Marginal Project Value | Marginal Project Value | Like for Like Replacement Costs as a Proportion of Total Project Cost | 12% Compliant Marginal Project Value |
|--------------------|---------------|---------------------------------|------------------------|------------------------|---|--------------------------------------|
| Energy Efficiency  | £1,272,200    |                                 |                        | £3,829,200             | 1%  | £3,410,076                           |
| Low Carbon Heating | £2,602,900    | £48,600                         | £2,556,300             |                        |   |                                      |

| Total Grant Requested | Eligible Grant Value | Carbon Cost Threshold Compliant Grant Value | Total Net Financial Impact | Total Project Cost | Payback in Years | Total Annual Direct Carbon Savings (tonnes) | Carbon Cost Threshold (ttnCO <sub>2</sub> e LT) | Compliance |
|-----------------------|----------------------|---|----------------------------|--------------------|------------------|---|---|------------|
| £1,105,536.00         | £3,128,536           | £3,128,536                                  | £76,022                    | £3,075,200         | 40               | 395.94                                      | £329.00   | Compliant  |

| Technology Type    | Current Grant Value Split | Grant Value Split (%) | Adjusted Grant Value Split if Energy Efficiency > 58% | Final Grant Split (%) | Total Applicant Contribution | Applicant Contribution (%) |
|--------------------|---------------------------|-----------------------|---|-----------------------|------------------------------|----------------------------|
| Energy Efficiency  | £563,636                  | 18%                   | £563,636  | 18%                   |                              |                            |
| Low Carbon Heating | £2,556,900                | 82%                   | £2,556,900  | 82%                   | £749,664                     | 19%                        |

### Building Fabric Improvements and Energy Efficiency Measures

Please place all building fabric improvements, energy efficiency and enabling measures on separate rows.

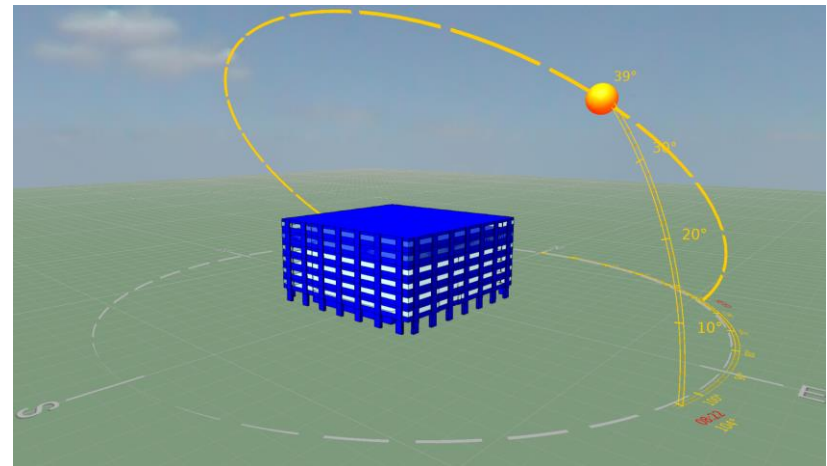
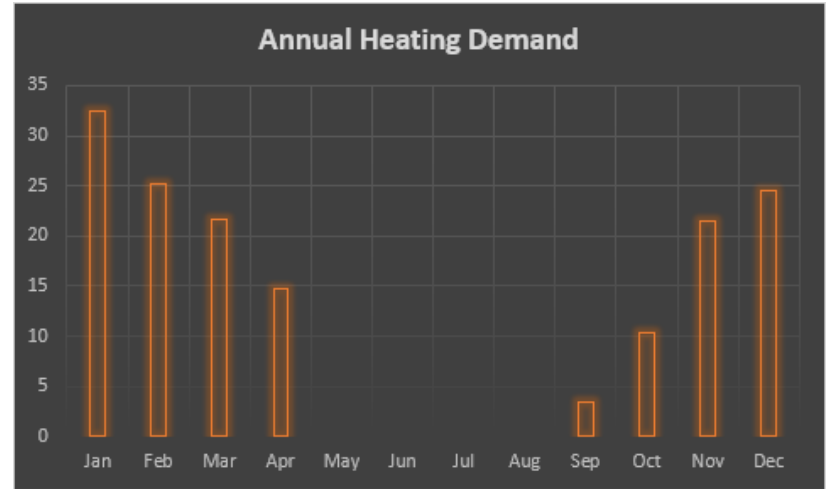
| Description of Work                 | Start Date | Completion Date | Building       | Project Type                 | Technology - Work Type                       | Energy Type | Fuel Cost (p/kWh) | Annual kWh Pre-Project | Annual kWh Post-Project | Annual kWh Savings | % kWh Savings | Project Cost | Annual Financial Impact (£) | Payback in Years | Annual Direct Carbon Savings (tonnes) | Annual Indirect Carbon Savings (tonnes) | Data Entry Check |
|-------------------------------------|------------|-----------------|----------------|------------------------------|--|-------------|-------------------|------------------------|-------------------------|--------------------|---------------|--------------|-----------------------------|------------------|---------------------------------------|---|------------------|
| Wall insulation                     | 01/04/2024 | 31/03/2025      | Malstone House | Insulation - building fabric | External wall insulation                     | Gas         | 9.29              | 2,968,808              | 1,825,726               | 343,082            | 11%           | £58,600      | £31,985                     | 16.21            | 62.63                                 |   | OK               |
| Undercroft insulation               | 01/04/2024 | 31/03/2025      | Malstone House | Insulation - building fabric | Floor insulation - solid floor or other type | Gas         | 9.29              | 1,925,726              | 1,396,941               | 426,785            | 22%           | £205,200     | £39,249                     | 5.18             | 77.91                                 |   | OK               |
| New Glazing                         | 01/04/2024 | 31/03/2025      | Malstone House | Insulation - building fabric | Double glazing with metal or plastic frames  | Gas         | 9.29              | 1,396,941              | 1,196,200               | 202,638            | 14%           | £435,000     | £16,825                     | 23.11            | 36.89                                 |   | OK               |
| Cooling element from 4-pipe outdoor | 01/04/2024 | 31/03/2025      | Malstone House | Cooling                      | Cooling plant replacement/upgrade            | Electricity | 35.00             | 1,396,941              | 1,296,439               | 100,373            | 7%            |              | £20,031                     |                  |                                       | 9.08                                    | OK               |
| LED Lighting                        | 01/04/2024 | 31/03/2025      | Malstone House | LED lighting                 | LED - new fitting                            | Electricity | 35.00             | 1,296,439              | 1,237,209               | 49,120             | 4%            | £90,900      | £7,196                      | 5.29             | 2.21                                  |   | OK               |
| 33kVp PV                            | 01/04/2024 | 31/03/2025      | Malstone House | Renewable energy             | Solar PV                                     | Electricity | 35.00             | 1,237,209              | 1,220,507               | 16,702             | 1%            | £24,500      | £5,001                      | 4.97             | 0.01                                  |   | OK               |

# Public Sector Decarbonisation Scheme

- Technical application
- Existing and proposed energy usage (whole building and services)
- Pre and post peak heat loss and system sizing
- Age of plant (end of useful life)
- Detailed cost breakdown
- Electrical capacity
- Like for like boiler costs
- 12% Compliant Marginal Project Value
- £325 tCO<sub>2</sub>eLT

# Calculating Building Heat Demand

- Automatic Meter Reading (AMR)
- Capacity of existing plant
- Rule of Thumb
- Calculation
- Building Modelling

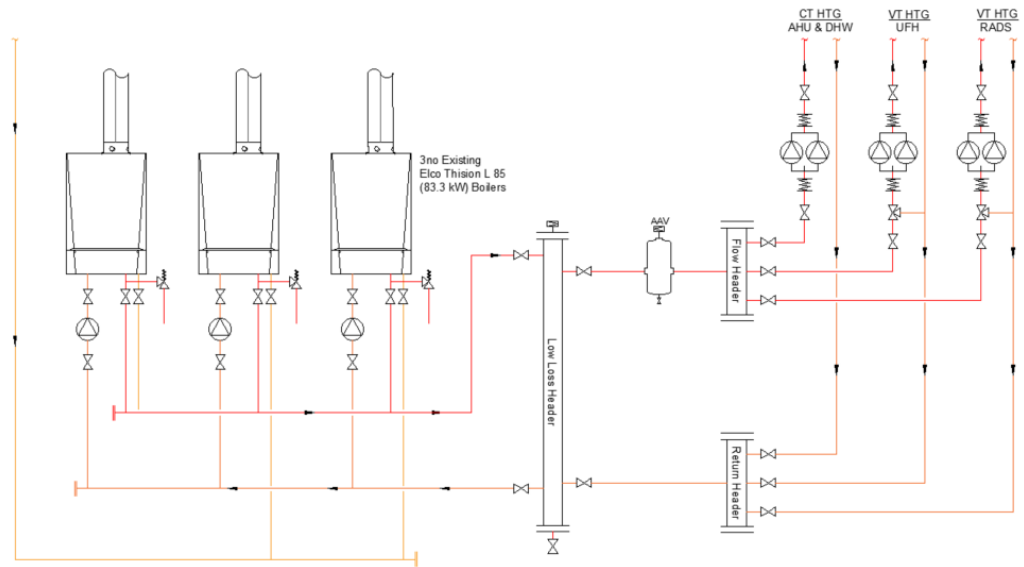


# Survey of Existing Services



# Existing Heating Plant

- Heat Sources
- Heating Distribution
- Heating Control





# Existing Hot Water Plant

- Domestic Hot Water Generation
- Cold Water Supply
- Hot Water Distribution
- Hot Water Plant Control

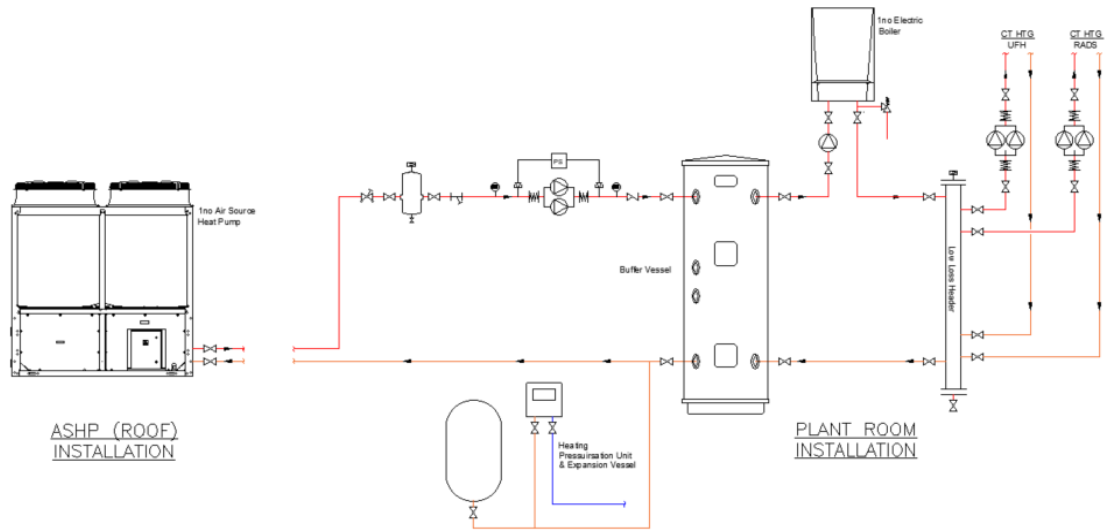
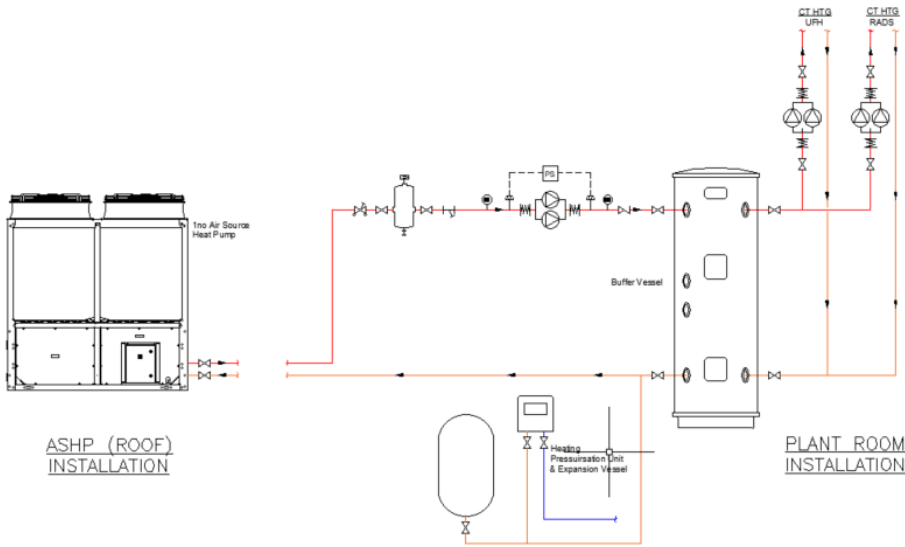
# Technical Options Appraisal

- Low Carbon Heating Solutions

ASHP vs GSHP vs WSHP

LOW TEMP vs HIGH TEMP

HEAT PUMP vs HYBRID



# Technical Options Appraisal

- Low Carbon Hot Water Solutions

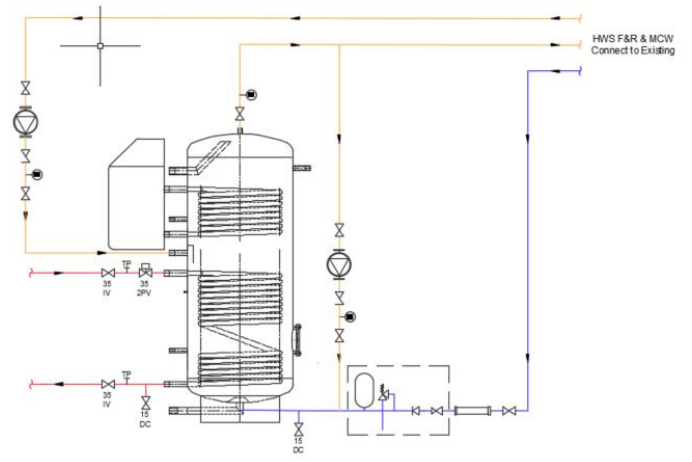
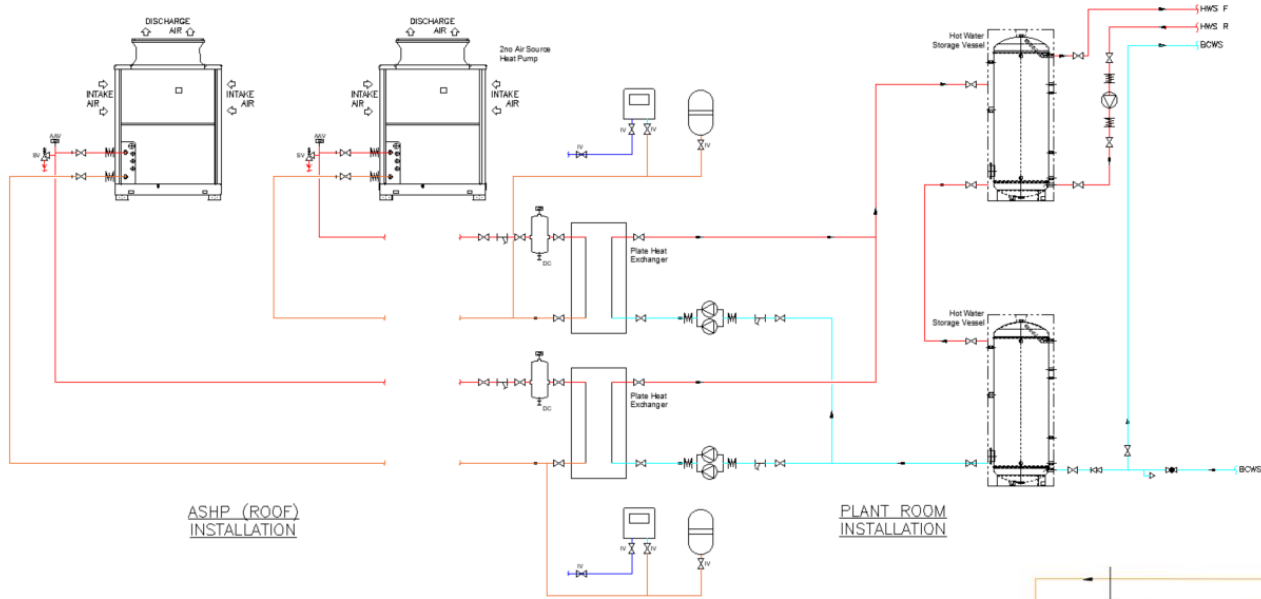
DIRECT ELECTRIC

VS

HEAT PUMP

VS

HYBRID



# Building Fabric Review

- Windows
- External Walls
- Roof
- Post 1995 Buildings



# Technical Options Appraisal

- Lighting & Controls
- Renewable Technologies
- Building Management System
- Heat Recovery

# Energy Savings

- Must provide detailed calculations of energy savings
- Existing and proposed energy usage

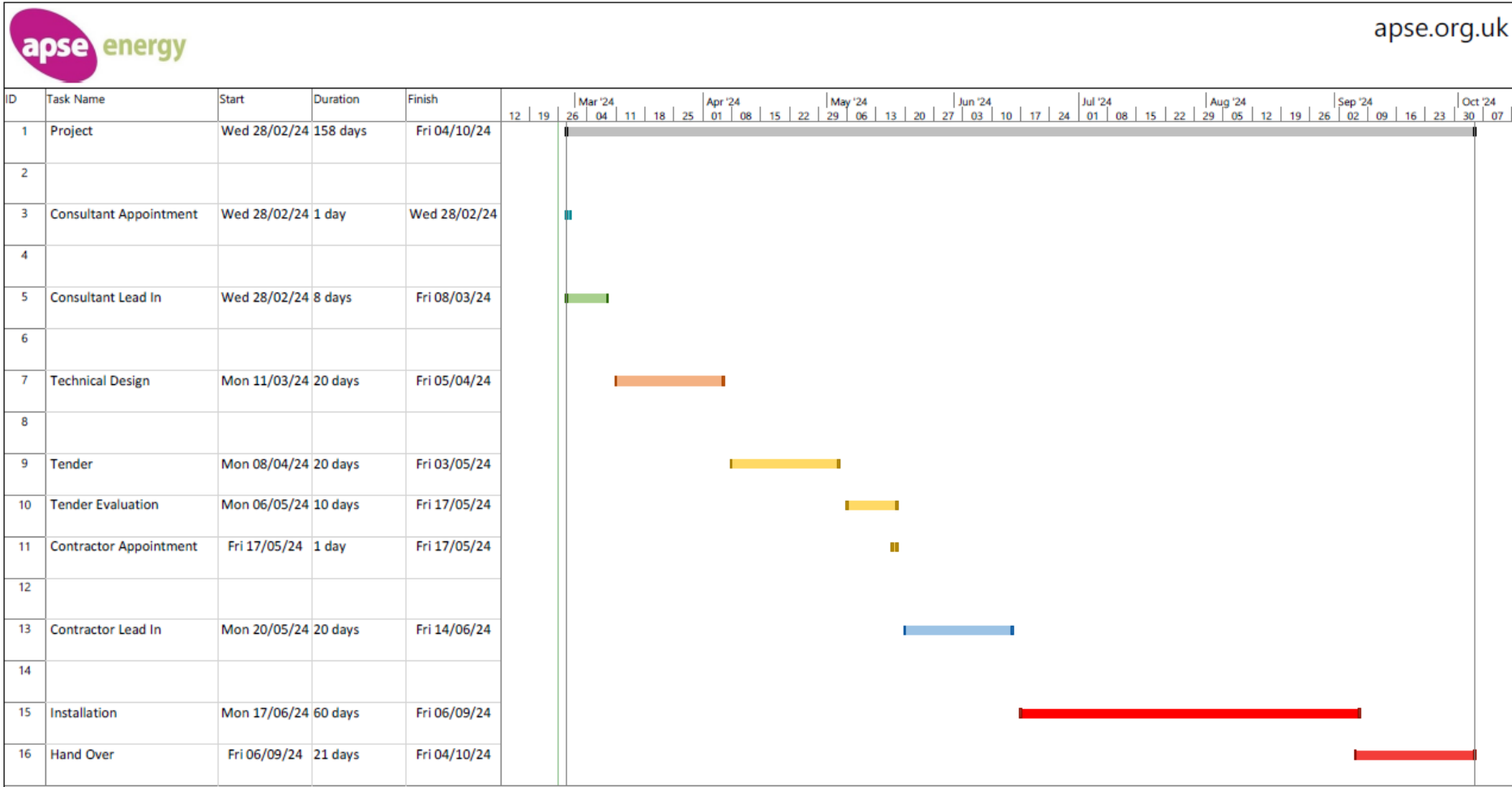


# Budget Costings

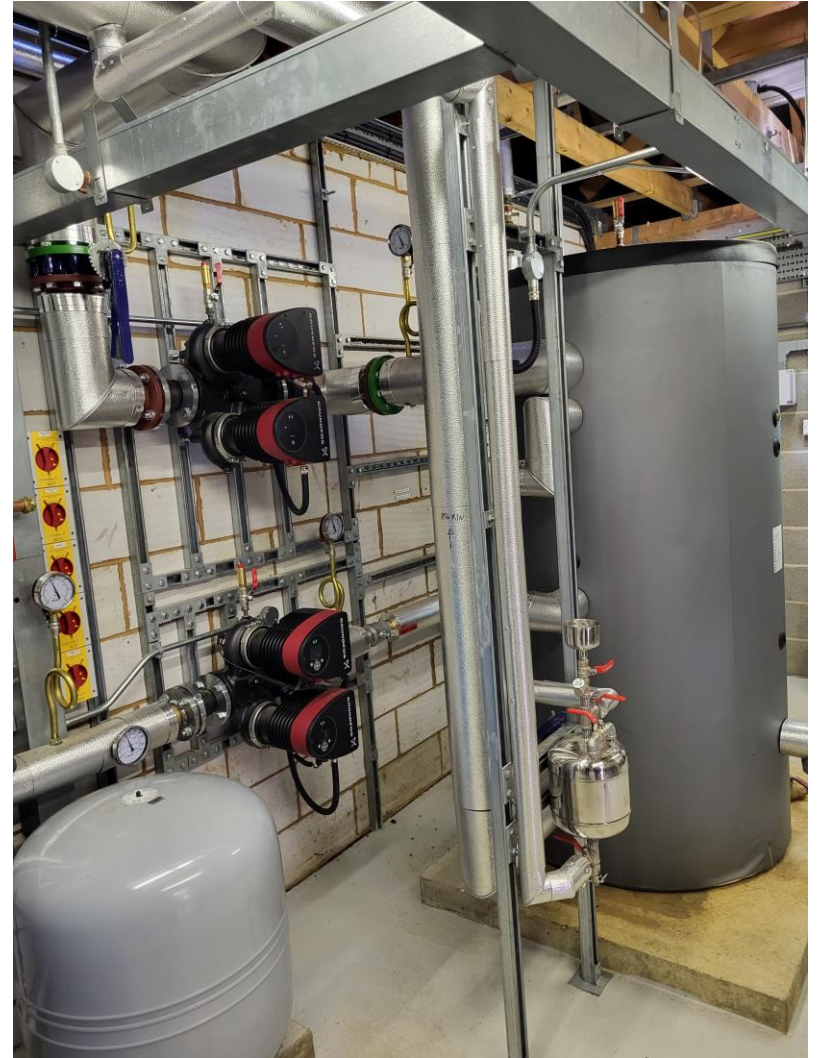
| <u>Item</u> | <u>Description</u>                            | <u>Cost</u>            |
|-------------|---|------------------------|
| 1           | Preliminaries                                 | £7,000                 |
| 2           | Removal of Existing                           | £9,000                 |
| 3a          | Heating Air Source Heat Pumps                 | £95,000                |
| 3b          | ASHP Acoustic Attenuation                     | £10,000                |
| 3c          | Buffer Vessel                                 | £4,500                 |
| 3d          | Primary & Secondary Pumps                     | £22,000                |
| 3e          | Plant Room Pipework, Valves, & Ancillaries    | £10,000                |
| 4           | Distribution Pipework & Radiators             | £80,000                |
| 5           | Automatic Controls & Electrical               | £52,000                |
| 6a          | External Pipework                             | £10,000                |
| 6b          | Builderswork (incl trenching, fencing, bases) | £35,000                |
| 6c          | Glycol Anti-Freeze                            | £4,000                 |
| 7a          | Testing & Commissioning                       | £2,500                 |
| 7b          | Record Information                            | £1,500                 |
| 8           | Contingency Sum                               | £35,000                |
| <b>9</b>    | <b><u>Works Budget Total</u></b>              | <b><u>£377,500</u></b> |
| 10          | Professional Fees                             | £31,000                |
| <b>11</b>   | <b><u>Project Budget Total</u></b>            | <b><u>£408,500</u></b> |

# Project Delivery Programme

- Brief/ Scope Preparation
- Design Procurement
- Design
- Works Procurement
- Installation
- Post Completion









# Post Completion

- Performance guarantees
- Soft landings
- Performance monitoring
- Lessons learnt – what next?

# Project Risks

1. DNO
2. Procurement
3. Resources
4. Market / Pricing Volatility
5. Internal Projects Approvals



# The Net Zero Journey Summary

- Get your data and estate in order
- Calculate emissions
- Do a Net Zero trajectory
- Carry out on-site energy audits
- Engineering design
- Procurement
- Installation
- Measurement and verification

# Contact details

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