
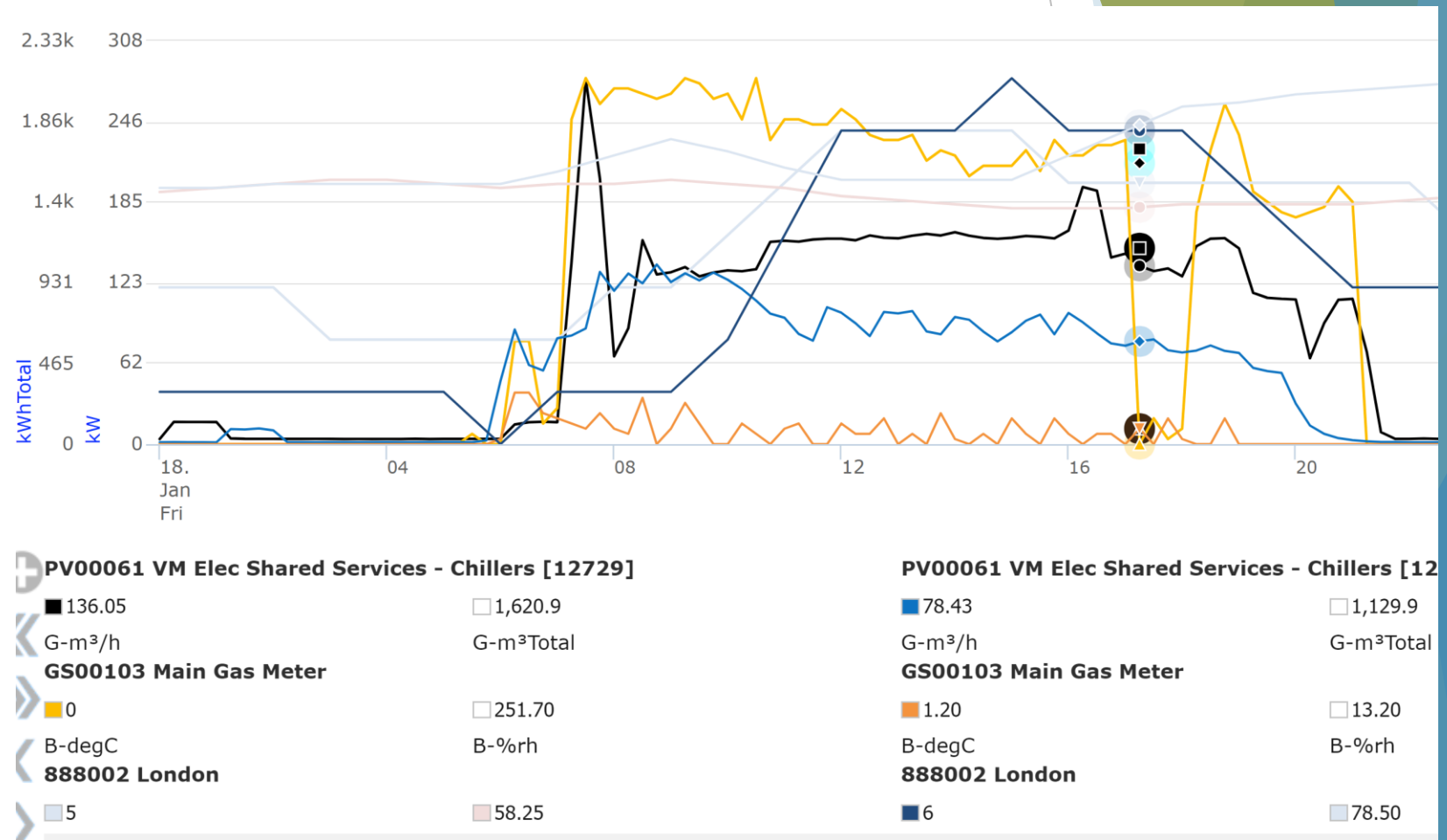


10 Brock St Net Zero

Jan 22

**Twenty  ne
Engineering**

Agenda



► **Systems Overview**

► **Chilled**

6 off 1 MW Water cooled Chillers and shunt pumps

3 off Cooling Towers and Condense Pump

Primary Circulation pumps

3 Connections for 10 Brock St

1 Connection for 30 Brock St

2 Connections for 20 Brock St (2 PHX per connection)

Each Connection has it's own set of pumps to serve end user and suitable metering

▶ **Systems Overview**

▶ **Heating**

6 off 1 MW Gas Boiler and shunt pumps

1 CHP unit and pumps

Primary Circulation pumps

3 Connections for 10 Brock St

2 Connection for 30 Brock St

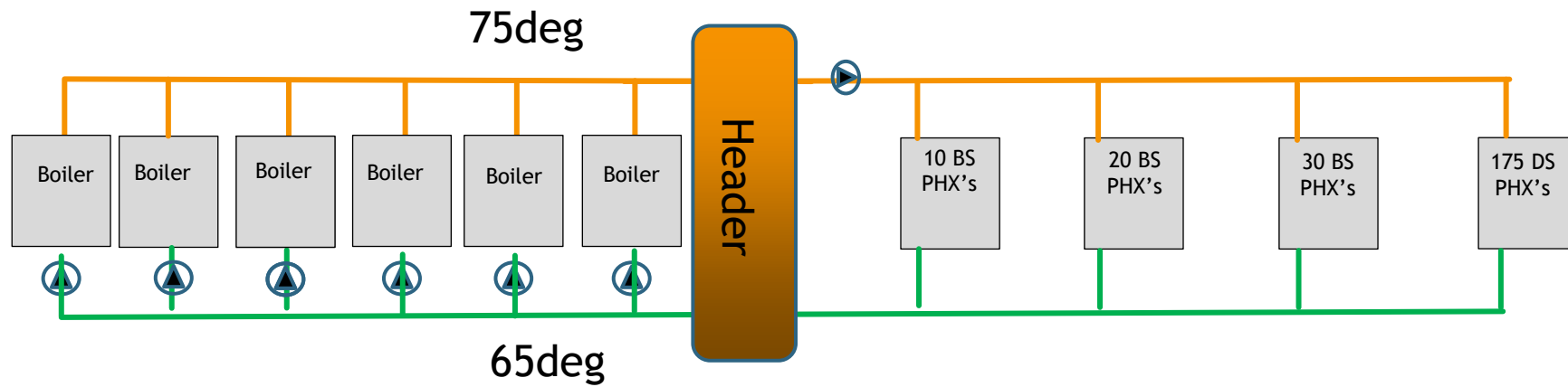
2 Connections for 20 Brock St

2 Connections for 175 Drummond St

Each Connection has it's own set of pumps to serve end user and suitable metering

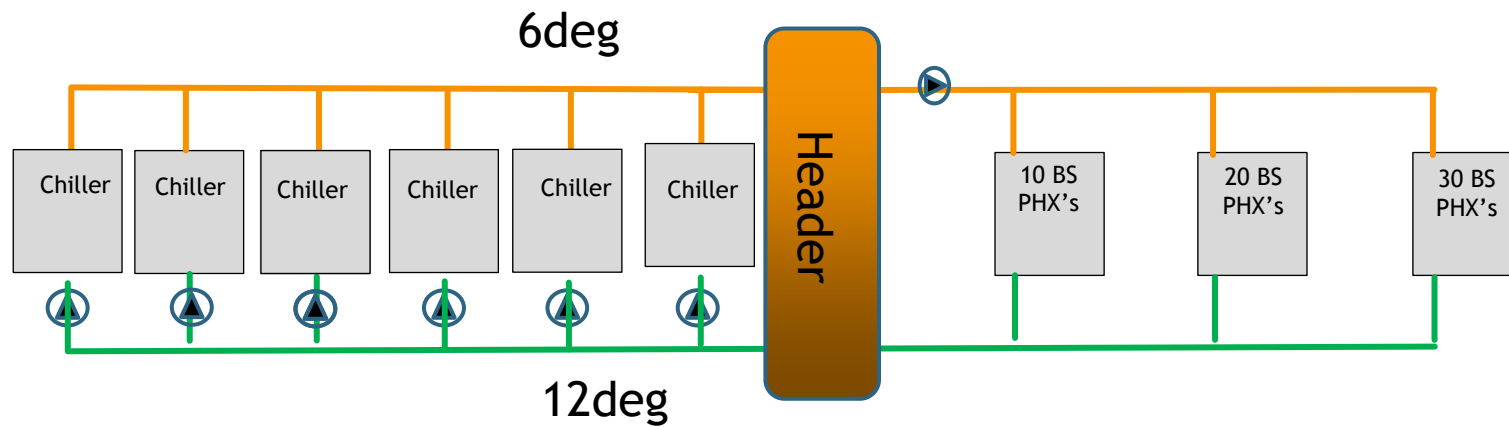
Systems Overview

Heating



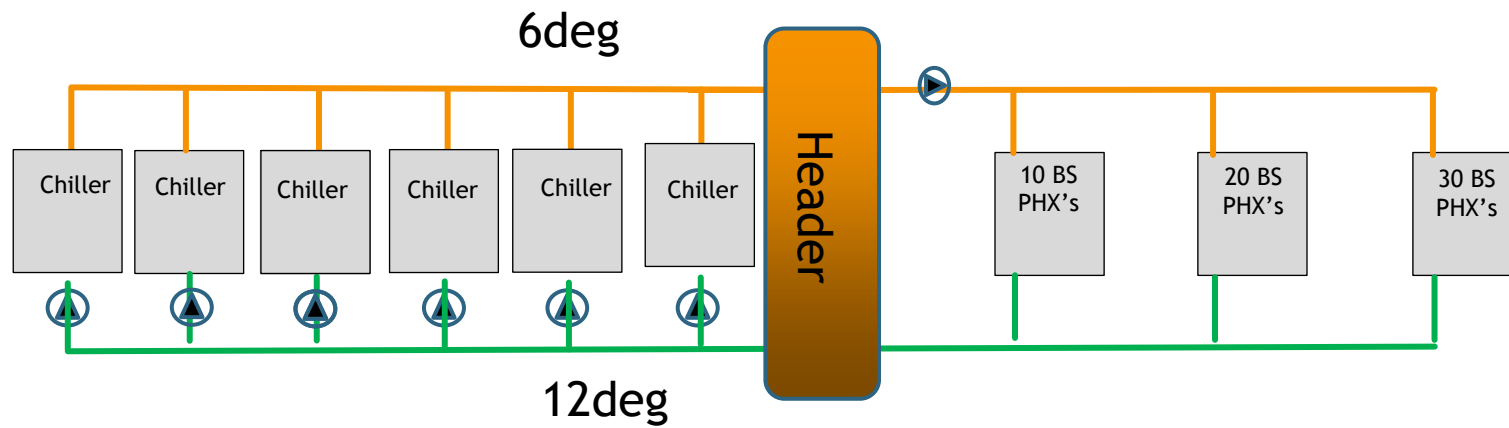
Systems Overview

Cooling

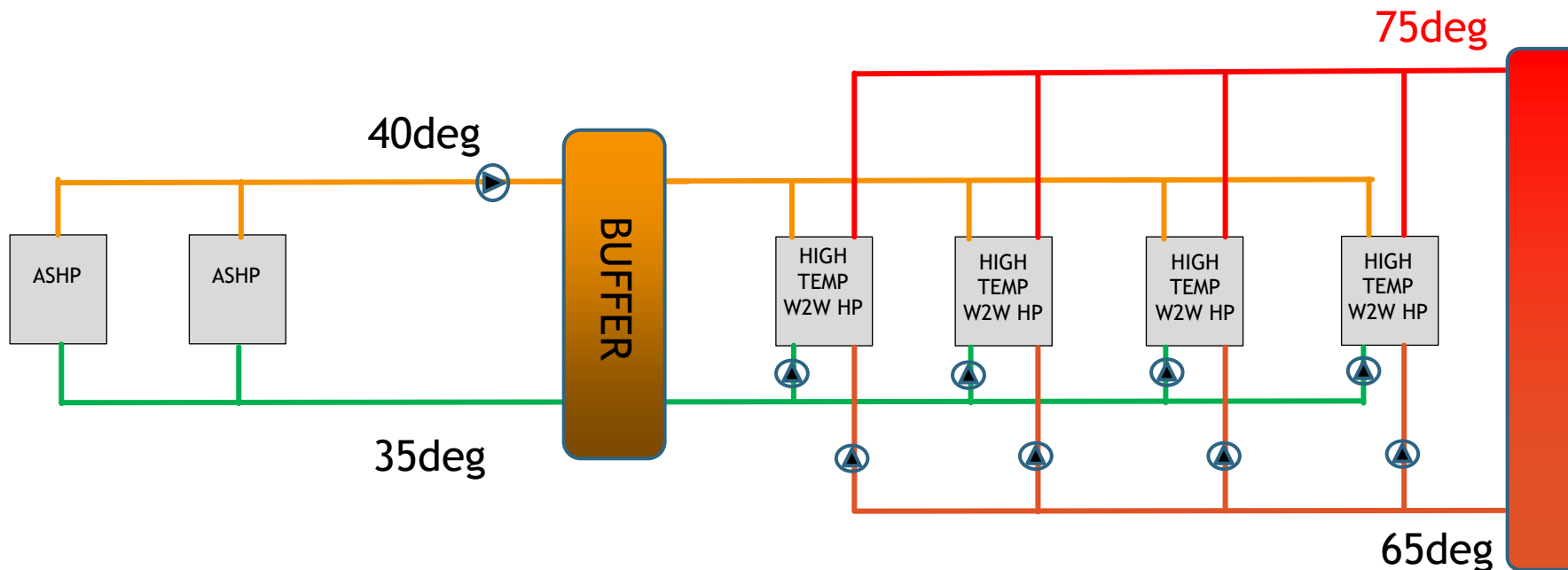


Systems Overview

Cooling

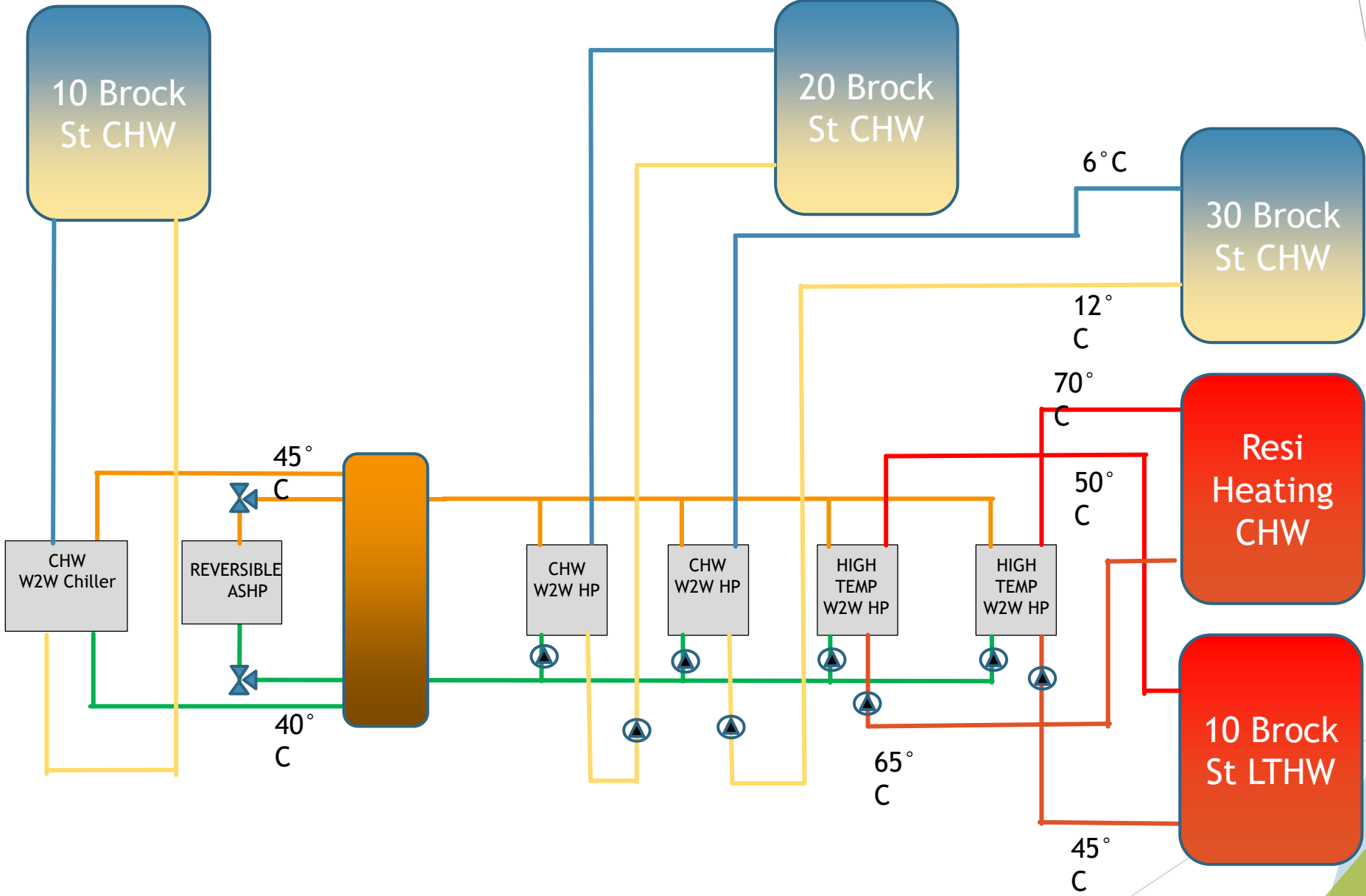


Option 1 – Heat on Ambient loop



- ▶ Delivers a Zero Gas Operation (no Fossil Fuels) but will require large electrical use due to the requirement to heat the loop up
- ▶ Fails to recover any heat from any heat rejection

Option 2 –Ambient loop



Option 2 –Ambient loop

- ▶ **Delivers a Zero Gas Operation (no Fossil Fuels) and lowest electrical energy due to the heat recovery available**
- ▶ **As a result lowest carbon operation**
- ▶ **Reduces pump energy due to the operation of a single primary pump loop**
- ▶ **Occupier DX/ VRF (local cooling) can be connected to improve overall used energy**

Option overview

Technology	kWh reduction	CO2 Reduction (Tonnes)	Cost (estimated)
Hydrogen Boilers	none	TBC	£ 750,000.00
Boiler Swap with ASHP	227,955	41.9	£ 1,100,000.00
Heat Only Ambient Loop	379,926	69.9	£ 2,000,000.00
Full Ambient loop	886,999	177.4	£ 3,000,000.00

- **Next Steps.**

- **Recommendations:**

▶ Thank You

▶ Any Questions

Twenty  ne Engineering