

Meeting the challenge of NET  
ZERO using a new lower cost value  
engineering strategy

# Southway Housing Trust

5 Ridsdale Avenue

CASE STUDY

**JULY 2024**



# BEFORE

## Project Description – Net Zero Retrofit

- End of Terrace 3 Bed
- Constructed 1927

### Energy rating and score

This property's energy rating is D. It has the potential to be B.

[See how to improve this property's energy efficiency.](#)

Score	Energy rating	Current	Potential
92+	A		
81-91	B		86 B
69-80	C		
55-68	D	65 D	
39-54	E		
21-38	F		
1-20	G		

The graph shows this property's current and potential energy rating.

BEFORE



# Simple and Affordable Net Zero Retrofit

- HONE Thermal Electric Renewable System (Dual Renewables - Hot Water & Electricity)
- High Heat Retention Storage Heaters(charge up on cheap rate and/or using own free electricity)
- Heat Recovery Extractor Fans in Bathroom/Kitchen (trickle operation)
- Filled Cavity Wall Insulation with Bonded Polystyrene Bead
- Airex Intelligent Ventilation Bricks
- 400mm Loft Insulation
- Shower Wastewater Heat Recovery Module
- Standard Double Glazing

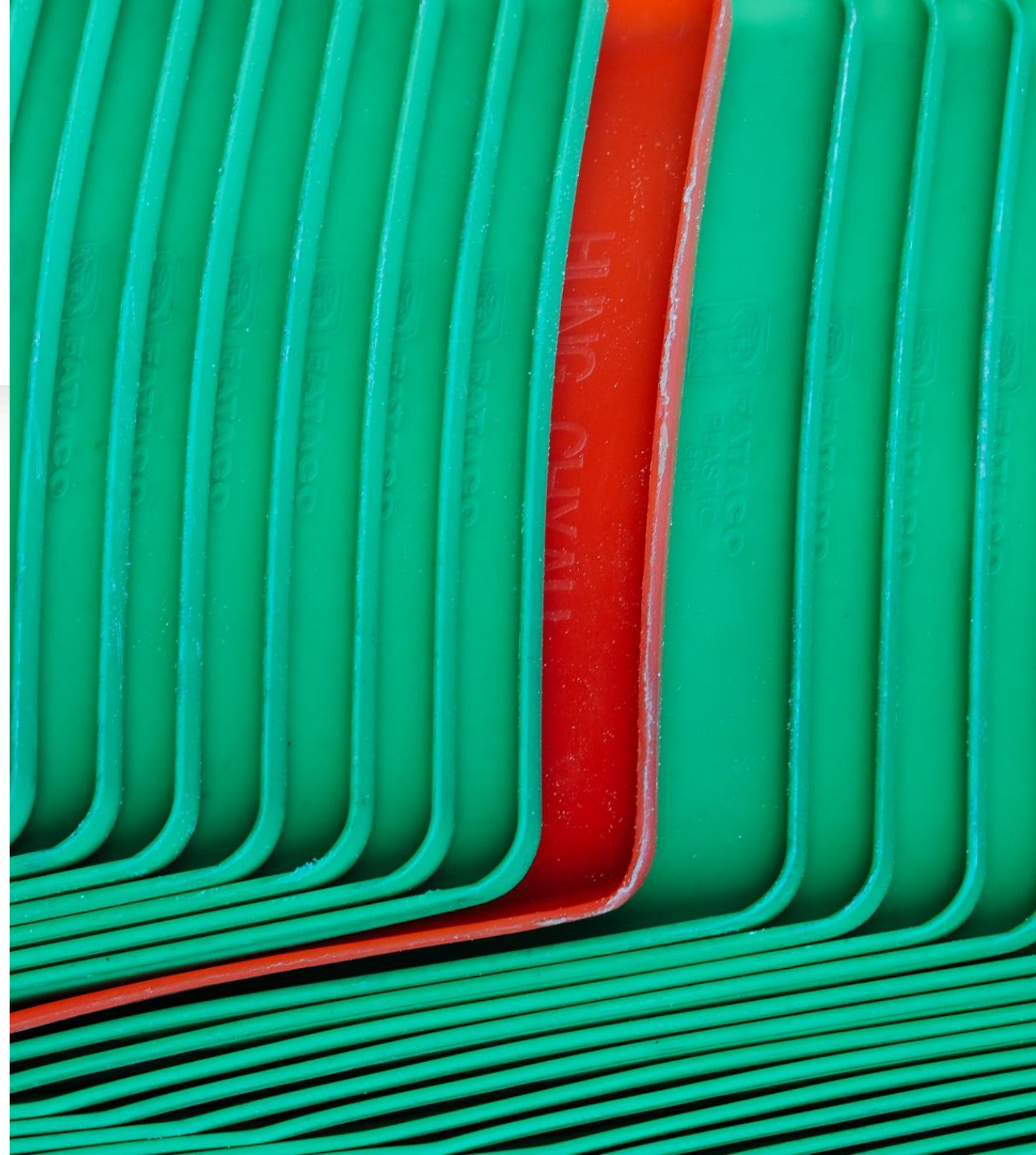




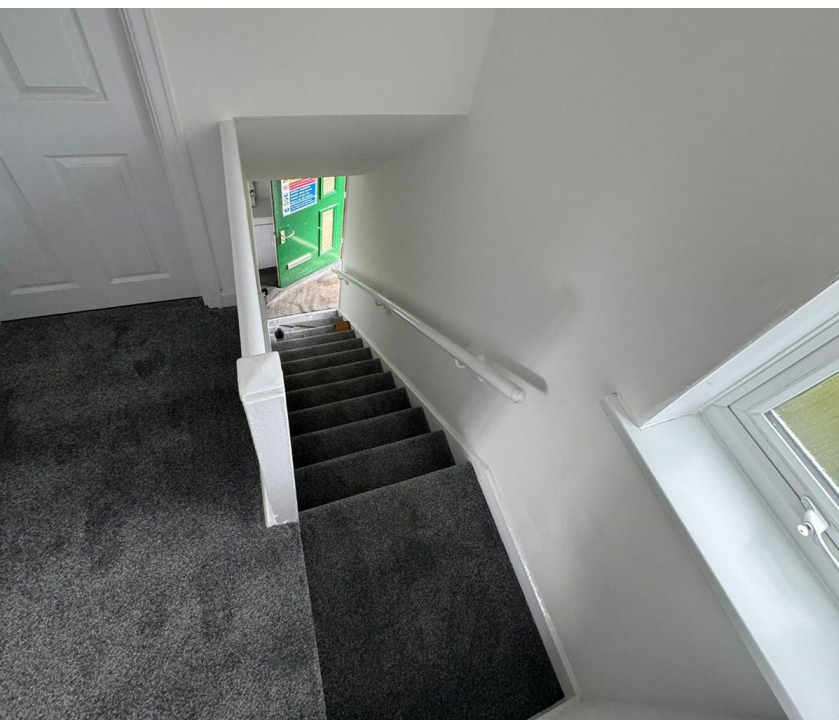
Photo: NHS Musgrave Park Hospital

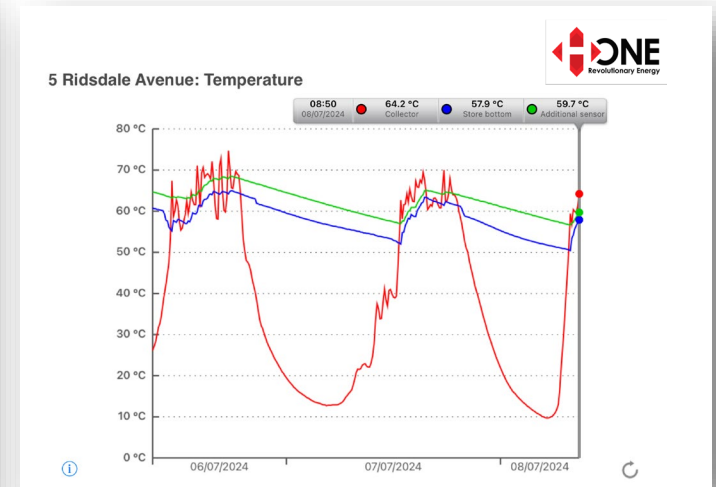
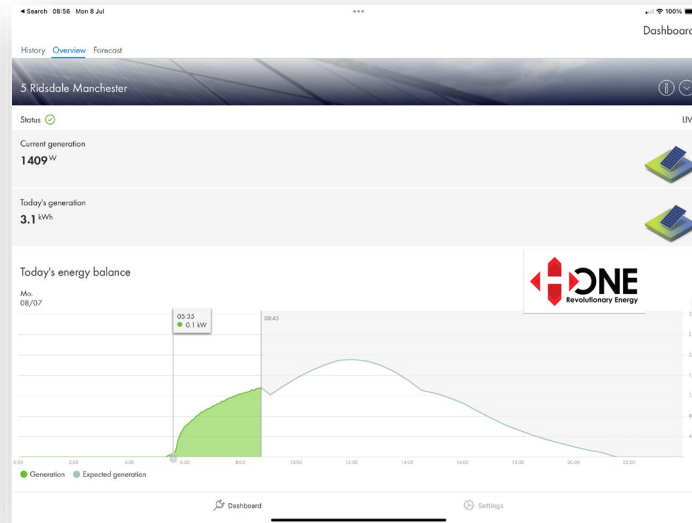
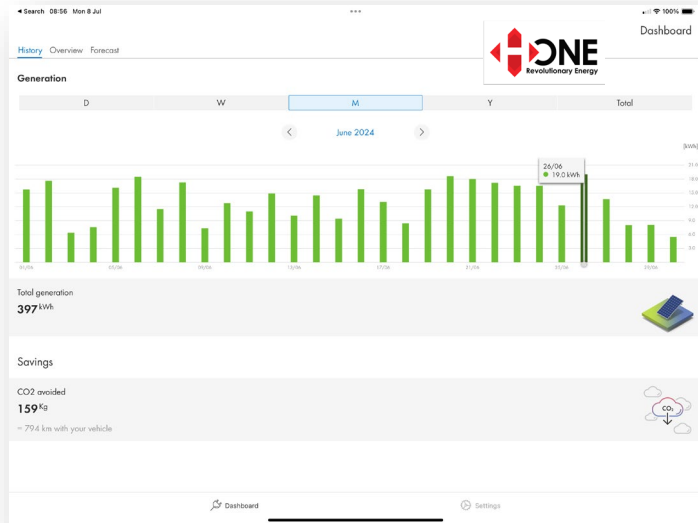


The HONE system is a 3D combined dual fuel high performance Renewable Heat & Electricity System and can be deployed in any residential or commercial application.

HONE Renewable Systems are deployed in over 25 countries.







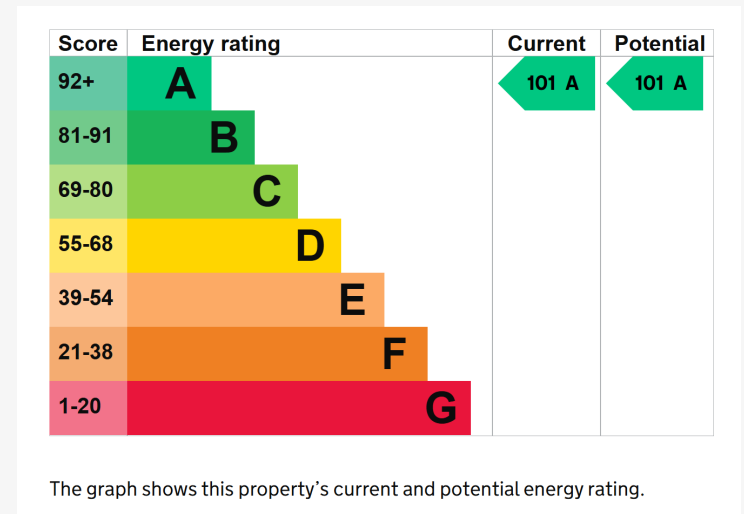
# Systems with Online Monitoring Renewable Electricity & Renewable Hot Water

# New EPC – A101

**AFTER**



5 Ridsdale Avenue MANCHESTER M20 1EQ		Energy rating <b>A</b>
Valid until <b>10 July 2034</b>	Certificate number <b>8600-0302-0222-4292-3343</b>	
<b>Property type</b>	Semi-detached house	
<b>Total floor area</b>	70 square metres	



# New Monthly Bills – SAP 2024 EPC Data



Heating, Hot Water and Electricity



£78 per month (not including payments for electricity export)



Total Annual CO2 Emissions – 1.1 Tonnes (average for this house type 6 Tonnes)



# Cost of Energy Performance Project – 5 Ridsdale Avenue

Score	Energy rating
92+	A
81-91	B
69-80	C
55-68	D
39-54	E
21-38	F
1-20	G

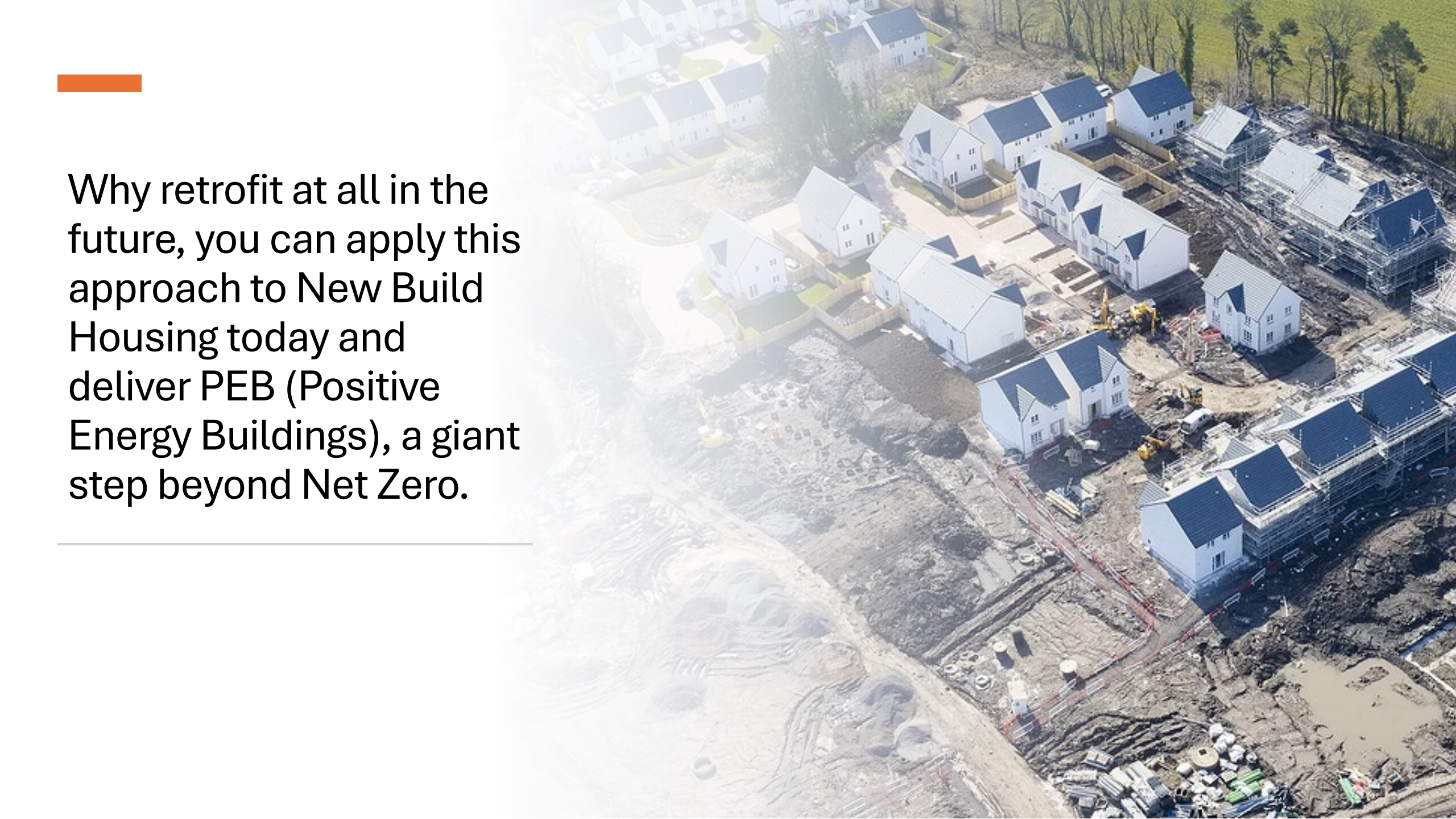
£6,250

£6,250

£6,250

£6,250

£25,000 Total Cost



Why retrofit at all in the future, you can apply this approach to New Build Housing today and deliver PEB (Positive Energy Buildings), a giant step beyond Net Zero.

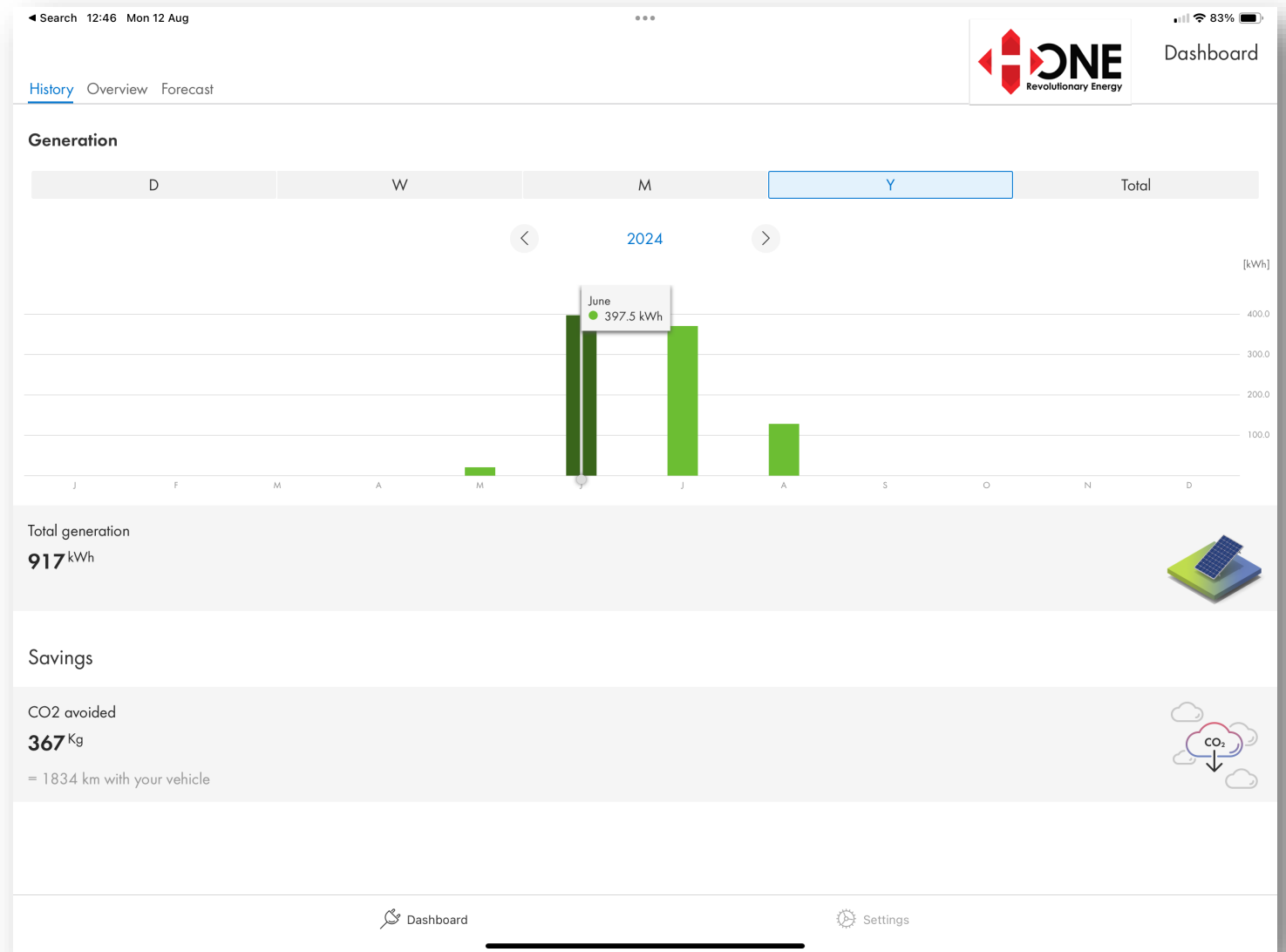
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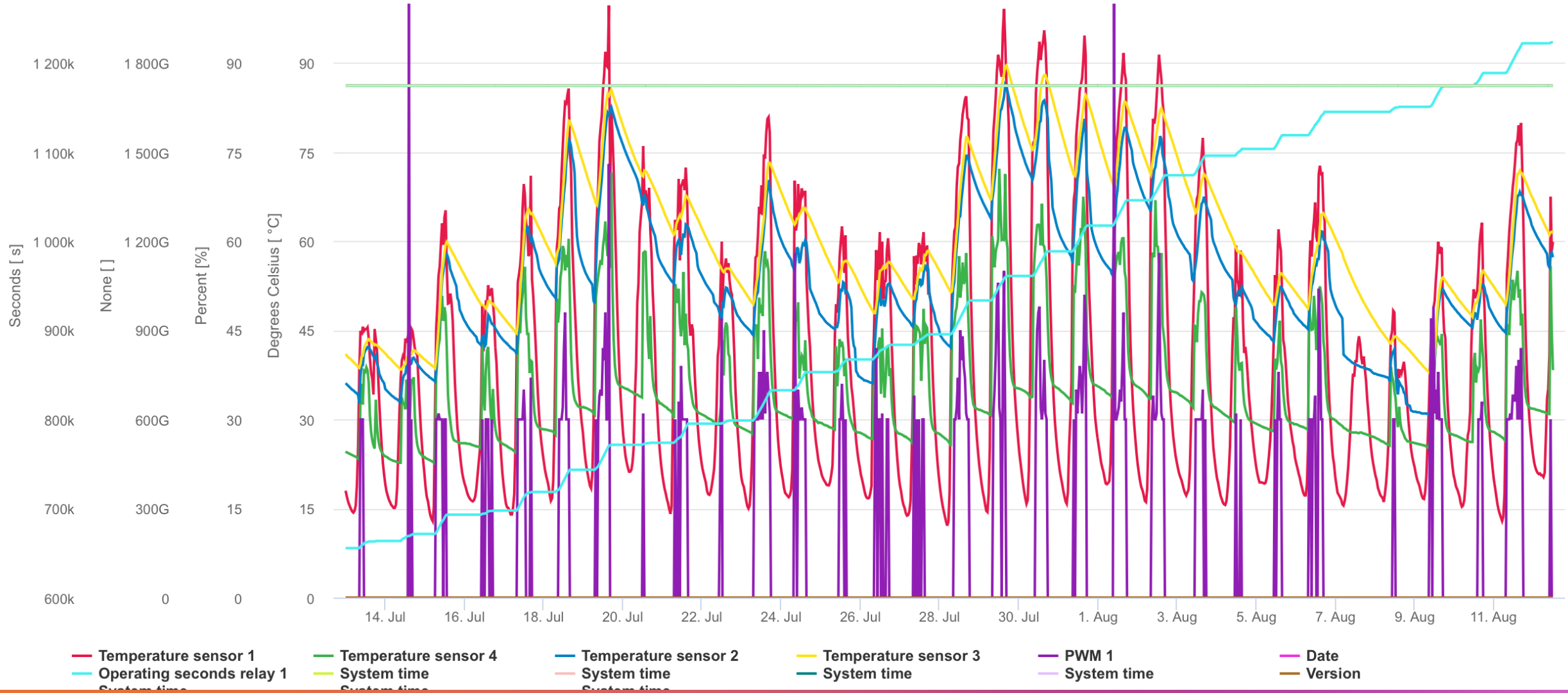


Energy Analysis  
for the first 9  
weeks.

# Renewable Electricity to Date – 9 weeks since commissioning

- Total Renewable Electricity 917 kWh
- Scenario one – 100% of all electricity was exported, bill credit of £137.55
- More likely scenario – 30% of all electricity exported and 70% consumed, saving of £206.32





Historical Data – July 2024 – 100% of all hot water came from the HONE Renewable Hot Water System



# FAQ

**Q: What does it mean by “lower cost value engineering strategy”? What is being value engineered?**

A: This means the EPC benefit versus cost is being value engineered when designing all the elements to get the final outcome. (in advance of the project)

**Q: Is the annual energy bill £78 x 12 = £936? Which is half of the average UK energy bill. Have you got any real data on energy bills for this property yet?**

A: The SAP data determines this as the annual energy bill. A significant portion of this will be heating due to the age of the property, cold bridging, etc. There is also initial data available of approx. 9 weeks (as of July 12<sup>th</sup>/24)

**Q: Is the total cost of the installation at this property £25,000? Can you provide a breakdown by item? For example, solar panels, hot water cylinder, controls, storage heaters, HR extractor fans, CWI, AirEx bricks, loft insulation, shower WWHR module, double glazing. What are the annual maintenance requirements and costs?**

A: As each project requires different specifications and solutions, individual costs will vary from project to project.

**Q: What warranty is provided?**

A: Warranties vary across different elements. The HONE warranties vary on the parts of the equipment but do go up to 25 years as a maximum.

**Q: What is the maintenance requirements?**

A: The upgrades are virtually maintenance free and the HONE systems have full second by second monitoring which is free. (needs internet connection) There is a fluid change required every 5 years on the thermal systems, it is a simpler task than servicing a standard boiler and takes approx. 10 mins.

**Q: The retrofit example has energy bills of £78 per month. What more has to be done for new build to deliver PEB? Is it higher spec of fabric? If so, what is the extra capital cost?**

PEB is a function of normal fabric “but” with air tightness and MVHR. If this 1927 retrofit house was a new build home to normal fabric, it would be approx. EPC of A130.

# Contact Details



- Cara EPS Energy Performance Solutions.
- [www.cara-eps.co.uk](http://www.cara-eps.co.uk)
  
- HONE Energy Solutions.
- [www.honeworld.com](http://www.honeworld.com)

The background of the slide is a faded ECG (heart rate) tracing on a grid. The grid consists of small orange dots forming a fine grid and larger orange lines forming a standard ECG grid. A black line representing the ECG trace is visible, showing several sharp upward spikes (QRS complexes) and a wavy baseline (P waves and T waves).

# Appendix – Full Size Energy Data Slides



# Renewable Electricity Production – June 2024

◀ Search 08:56 Mon 8 Jul



📶 100% 🔋

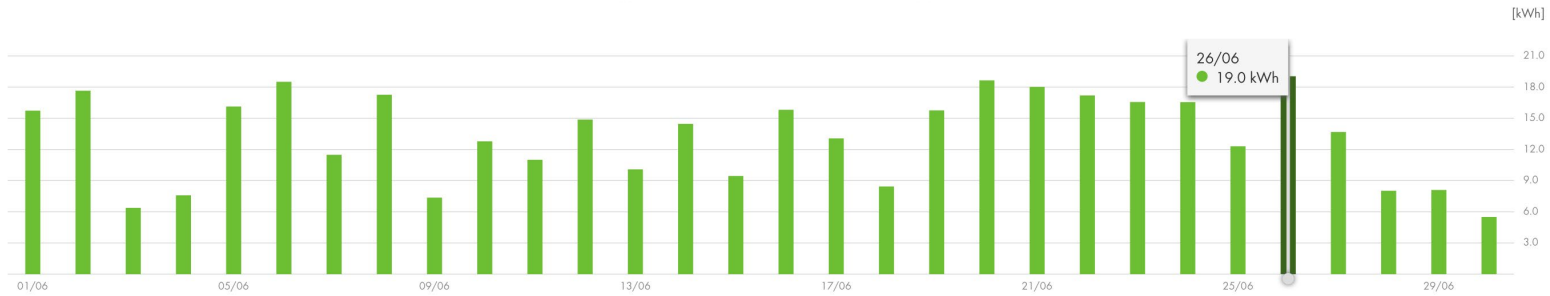
Dashboard

[History](#) Overview Forecast

## Generation

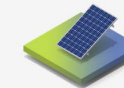
D W **M** Y Total

< June 2024 >



Total generation

**397 kWh**

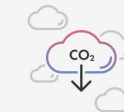


## Savings

CO2 avoided

**159 Kg**

= 794 km with your vehicle



Dashboard

Settings

# Renewable Electricity Production – Monday 8<sup>th</sup> July 2024

◀ Search 08:56 Mon 8 Jul

📶 100% 🔋

Dashboard

History [Overview](#) Forecast

5 Ridsdale Manchester

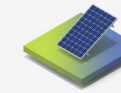


Status ✔

LIVE

Current generation

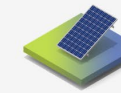
**1409** W



Today's generation

**3.1** kWh

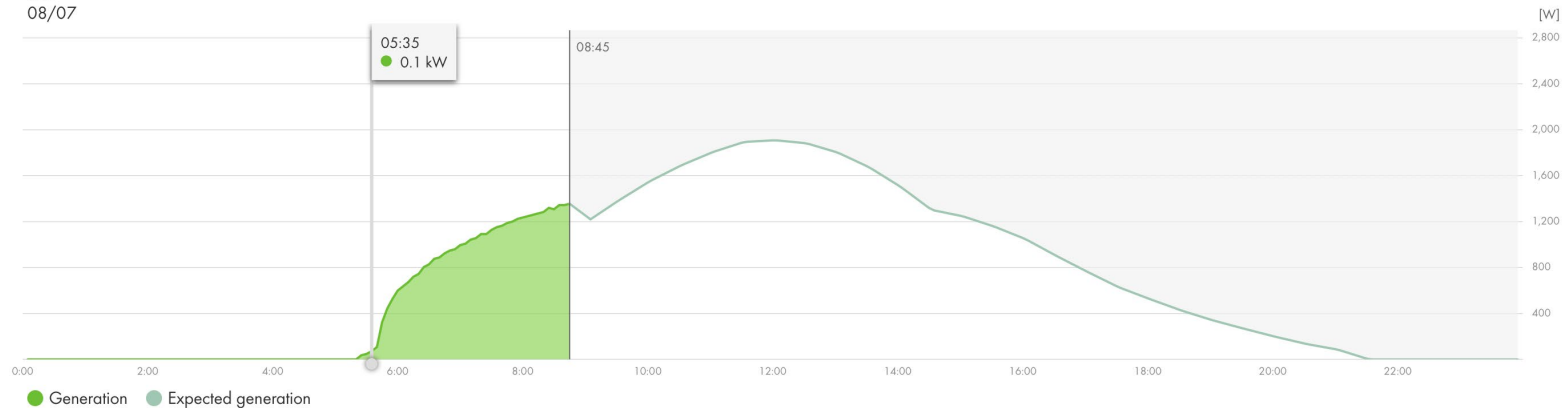
Renewable Electricity Production started at 5:35am



Today's energy balance



Mo.  
08/07



Dashboard

Settings

# Renewable Hot Water Production – Monday 6<sup>th</sup>, 7<sup>th</sup> & 8<sup>th</sup> July 2024

Green = hot water temperature in the cylinder.

## 5 Ridsdale Avenue: Temperature

