

# Homes as Energy Systems

Solar PV and Battery Pilot Project



**European Union**  
European Regional  
Development Fund

together  
housing

# Background

- Together Housing approximately 5Mgw of FIT registered domestic solar – 1750 systems
- The issue
  - decline and fall of the Feed in Tariff
  - Pressure to decarbonise
- The task
  - Testing a fundable, sustainable model that could enable the post FIT mass application of solar PV and battery storage on social housing
- The scale
  - Maximising the virtual power plant requires a ‘commercial solution’

# Wider Context

- Net zero carbon targets – National, sub-regional and local
- Future Homes Standard
- Regulatory risk
- Carbon pricing
- Market opportunity for early adopters

# The Project?

- A project co-funded with ERDF Low carbon Economy Stream to install 250 systems on sites in East Lancashire
- Operate the systems as if trading with real market data (dummy accounting)
- Demonstrate proof of concept as an investable model
- Wide dissemination process to the sector of learning and experience
- Access to the data
- Aim to create a transferable model

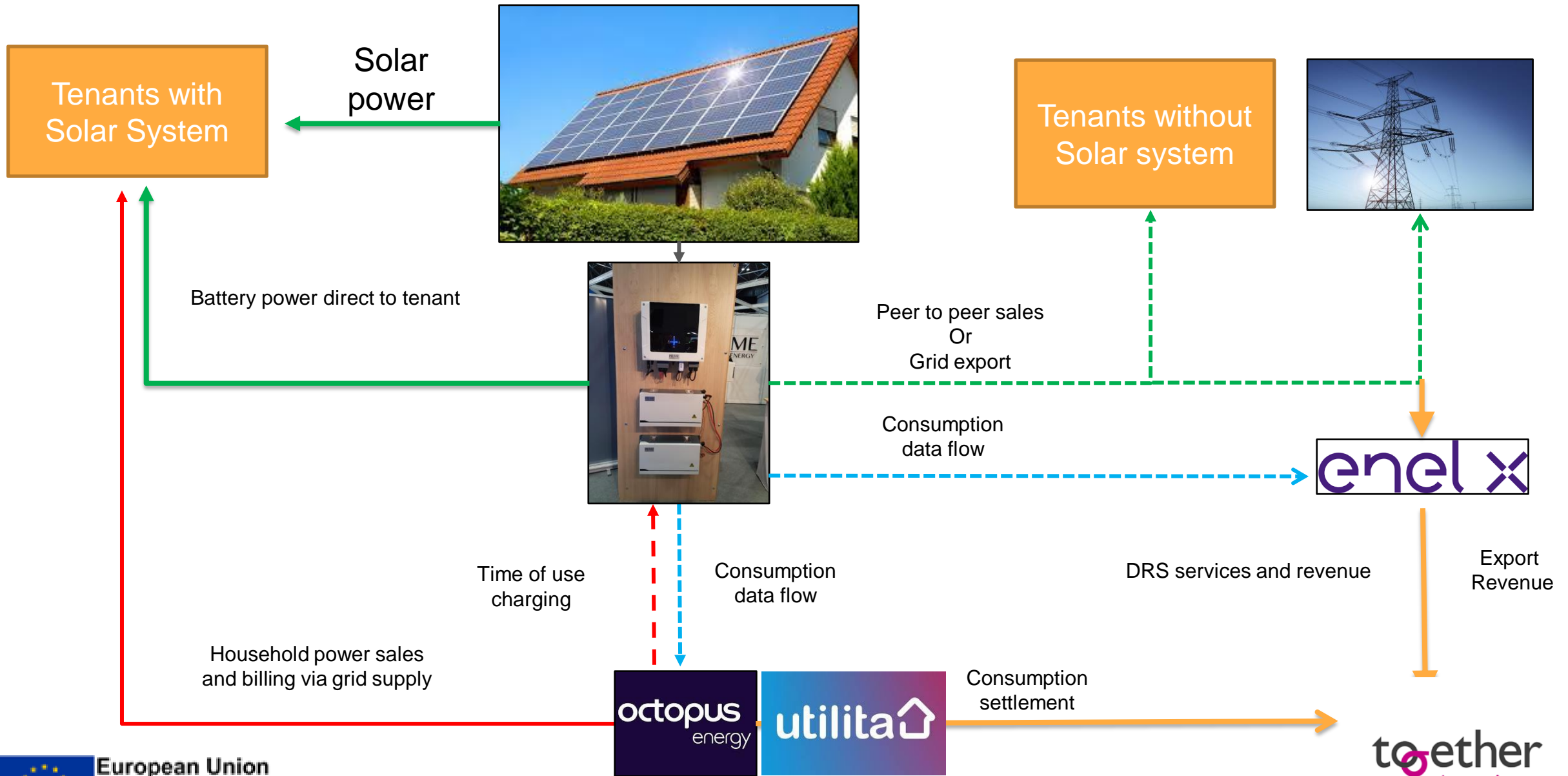
# Approach

- Meeting a triple bottom line objective
  - Long-term affordability of social housing stock
  - Managing the carbon impact of our business by making renewable power the norm
  - An investment opportunity for ROI and sustainable long term revenue
- Tied to core assets and contributing to core business objectives
- The provision of renewable heat and power becoming part of the social housing service norm

# What are we doing?

- Solar PV and battery storage systems
- Aim to harness multiple revenue streams
- Selling the all electricity generated
  - To the tenant
  - To the grid
  - To other tenants
- Sweat the asset through grid flexibility services / demand response
- Scale is critical – aim to create the largest sustainable virtual power plant possible

# Solar PV Generation





**MENU LIST**

- ☆ OVERVIEW
- COMPANY DETAILS
- ENGINEER LIST
- USER LIST
- DATALOG / HYBRIDS
- REMOTE CONTROL
- SMART HOME

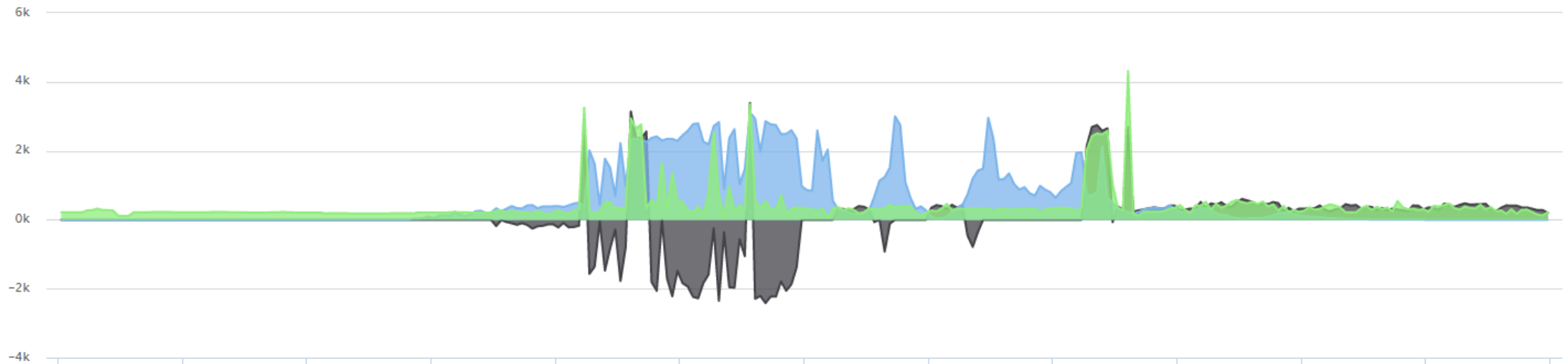
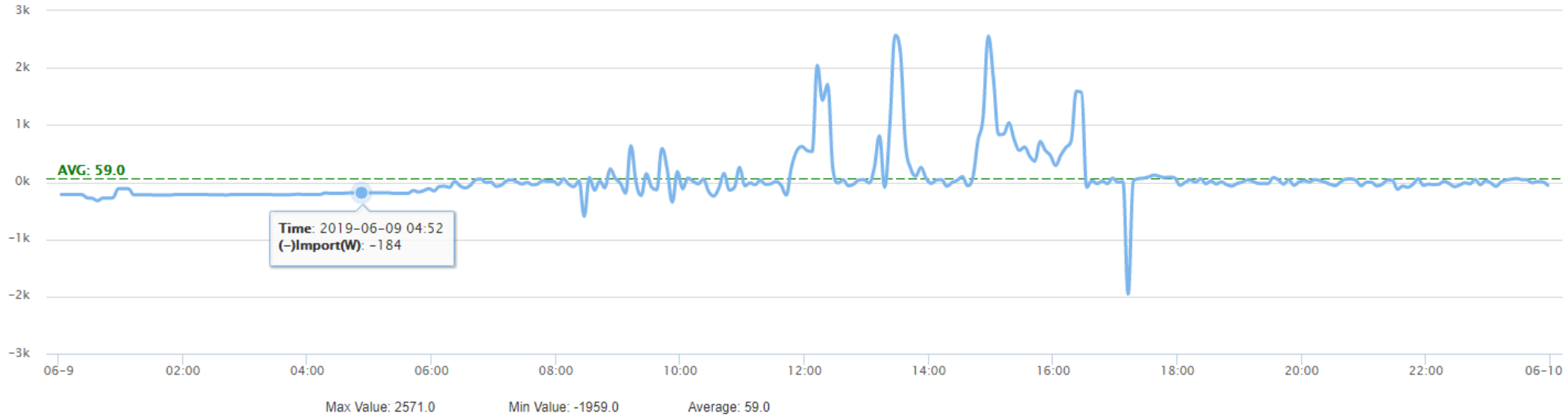
OVERVIEW **GRAPHS** METERING DATA

Day Month Year Total

< 2019-06-09 >

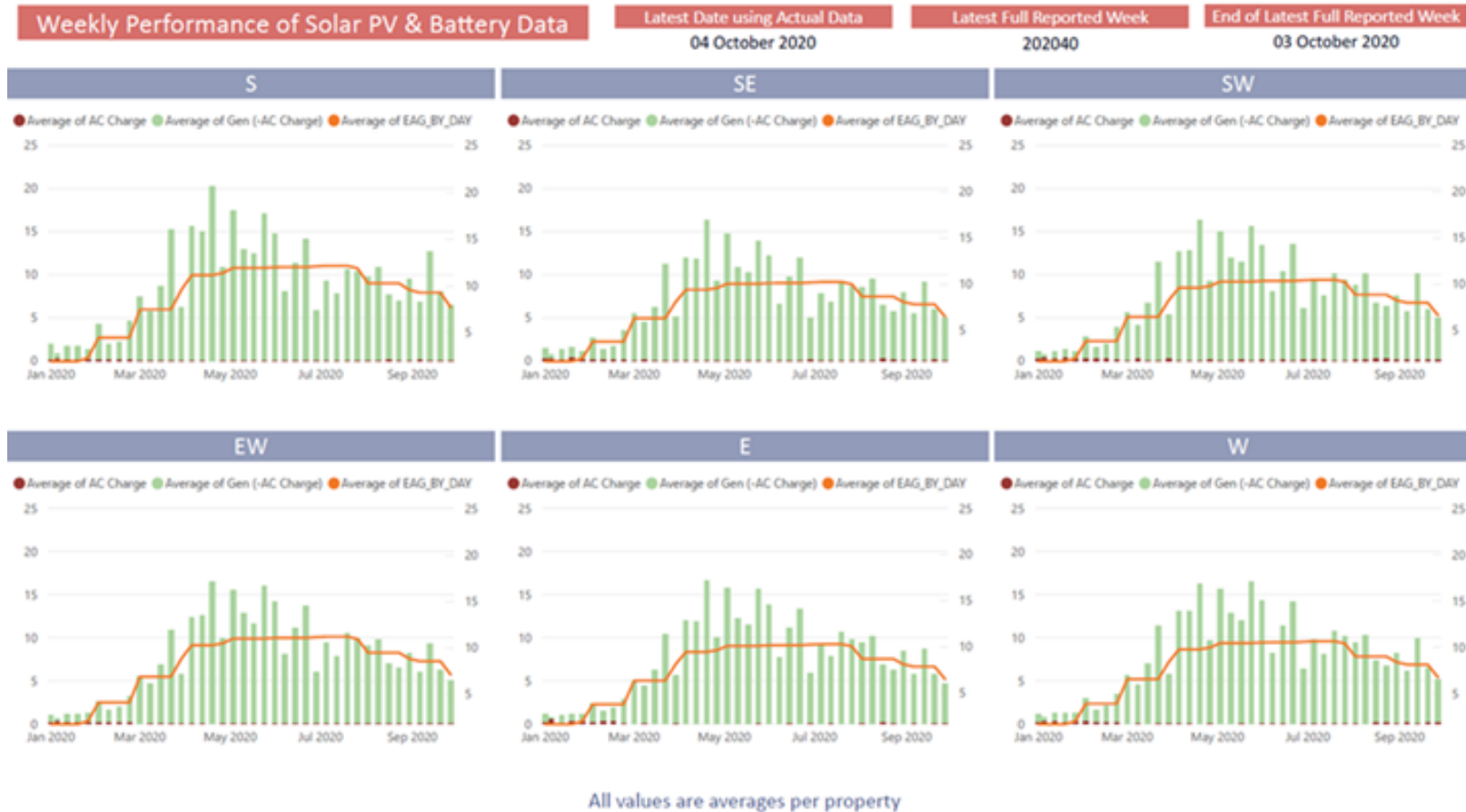
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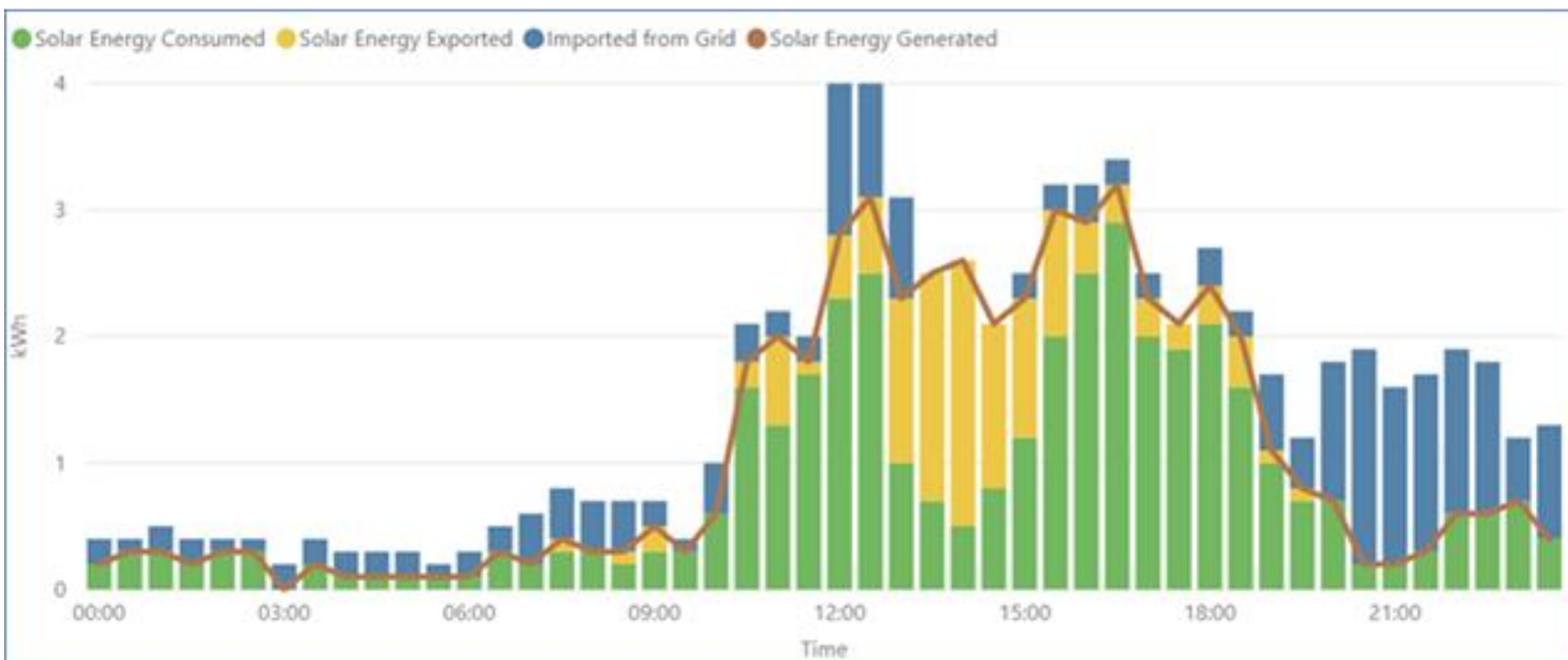
# Orientation & Rollout



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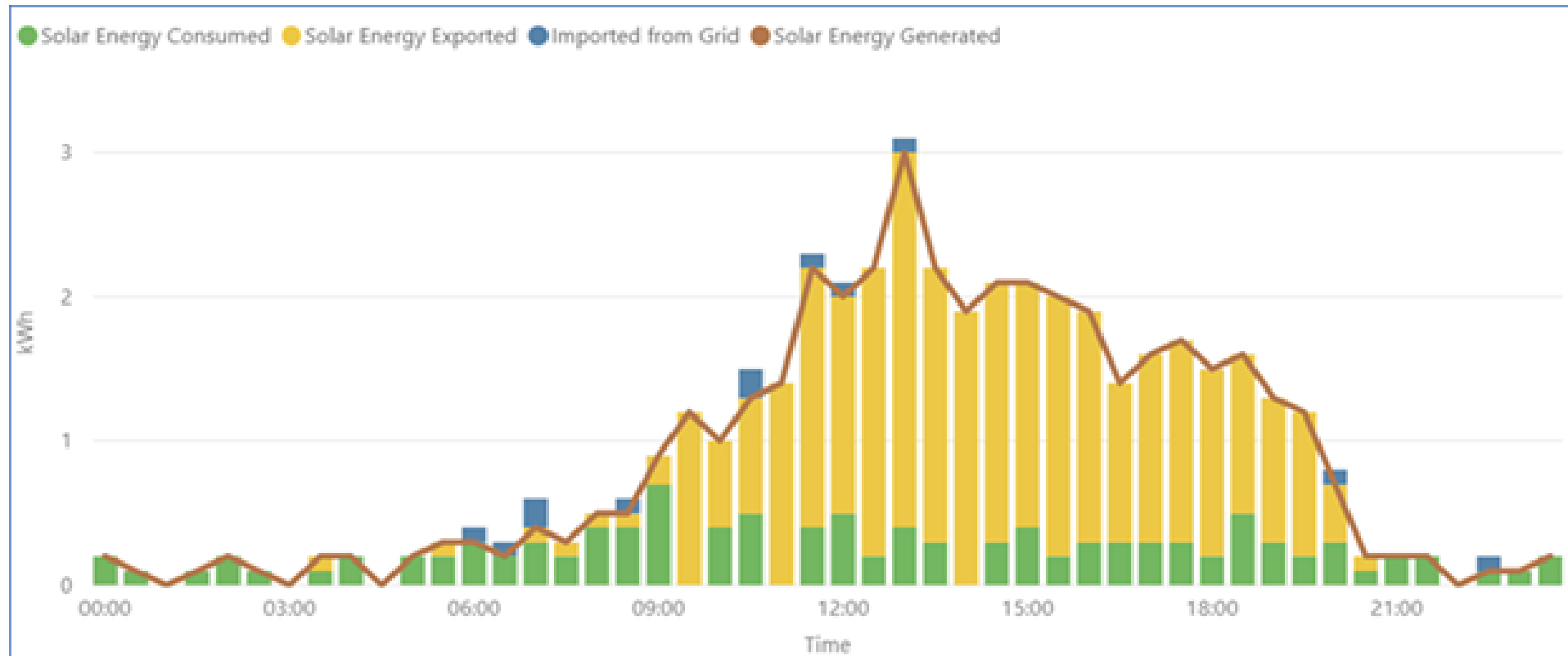
# High consumption properties



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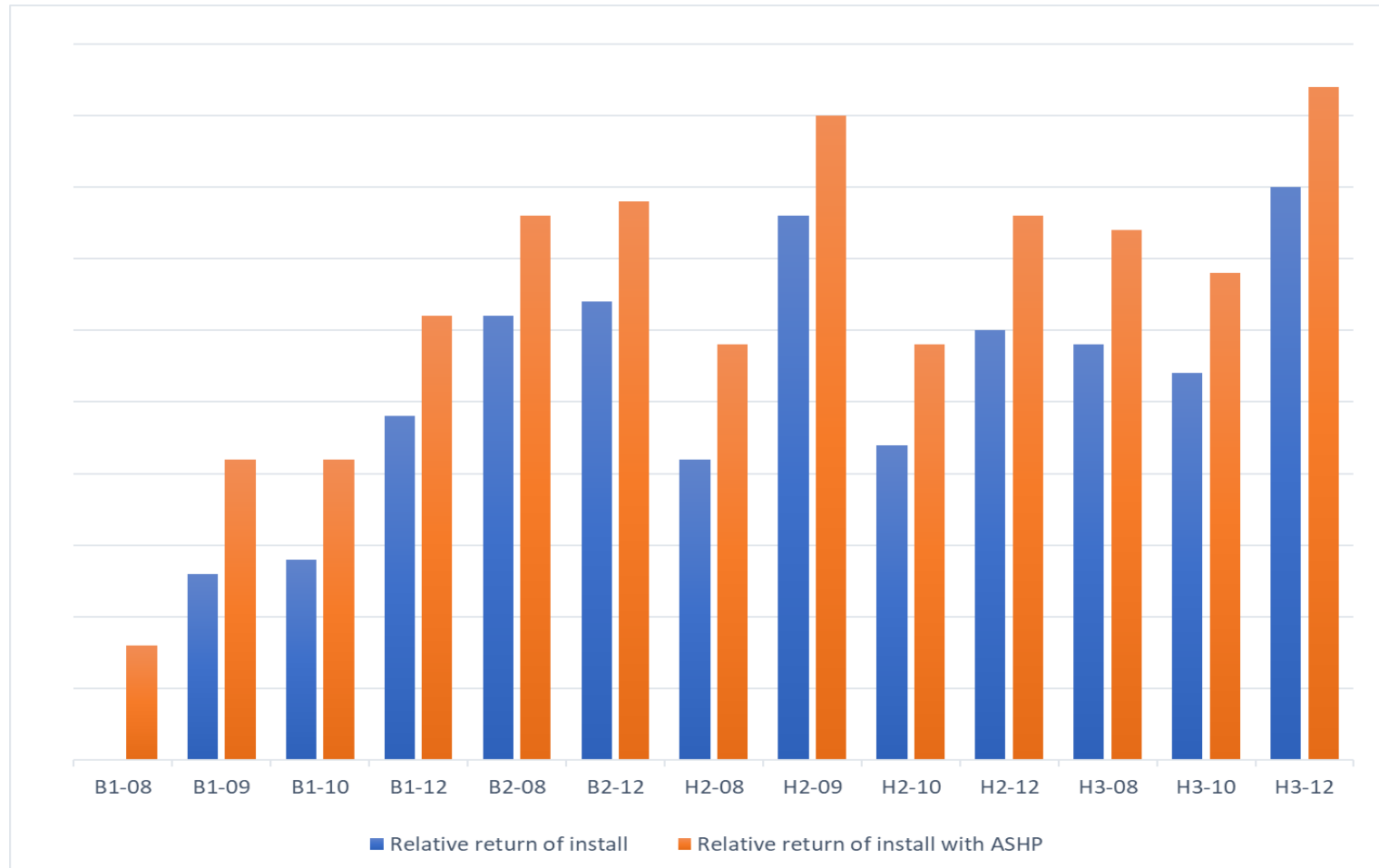
# Low consumption profile



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# Relative return of solar and battery (vs worst performing)



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## Where are we now?

- Building and testing versions of a financial model
- Testing data and operational models with energy suppliers including the impact of TOU and optimisation
- Testing data with aggregators and block chain intermediaries
- Pilot alongside ASHP and smart thermostat
- Quarterly reports and webinar series

# Following the project

Anyone interested in the project can take part in the information sharing and debate by registering their interest with:

Patrick Berry

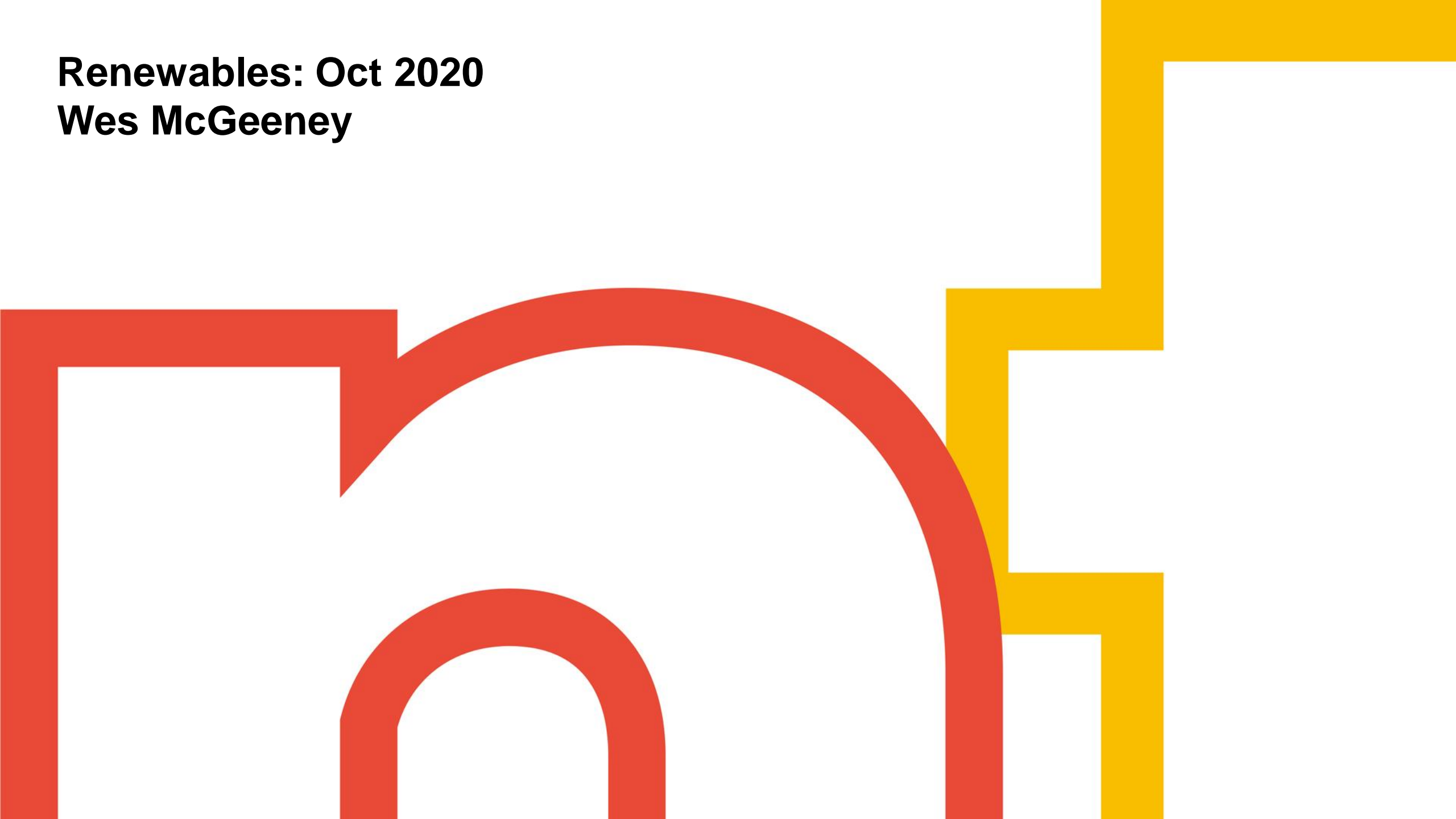
[patrick.berry@togetherhousing.co.uk](mailto:patrick.berry@togetherhousing.co.uk)



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**Renewables: Oct 2020**  
**Wes McGeeney**





# Thirteens Renewable Technologies

## Renewable technologies within Thirteen's portfolio:

- Photo Voltaic (PV) 900 Properties
  - Air Source Heat Pumps 400 Properties
  - Solar Thermal 350 Properties
  - Ground Source Heat Pumps 10 Properties
- 



# Recent Renewables Programme

## 2019/20 Delivery

- 100 ASHP Installations £725,000
- Funding-Warm Homes fund £170,000
- Funding Renewables Heat Incentive (AoR) £300,000



- Project-Frobisher Road Thornaby

16 ASHP Installation

Removal of storage heaters and Economy 7

Benefits

No Emissions

Available funding streams



- Aesthetics

Visual Impact

Acoustics

Uniformity



# Opportunities – Funding Streams

- The Renewable Heat Incentive is a fund from Ofgem paid over 7 years to assist in the installation of Solar thermal and Air Source Heat Pumps;
- We are currently recognised as the first organisation in England to sell RHI under the HeatRHight scheme, which is administrated by Travis Perkins on our behalf;
- Warm Homes Fund is a private fund ran by the National Powergrid, since 2017 we have won over £500,000 through the fund;
- Upgrades to both Gas and Electricity frameworks is available at no cost to Thirteen depending on eligibility;
- Green Homes Grant – Government funding between £5000 to £10000
- Eco Funding Fabrick First with loft top ups and Cavity wall fully funded for properties sap rated E and below



## Barriers Faced

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Permitted development

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Planning

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DNO Requirements

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Secondary Measures required

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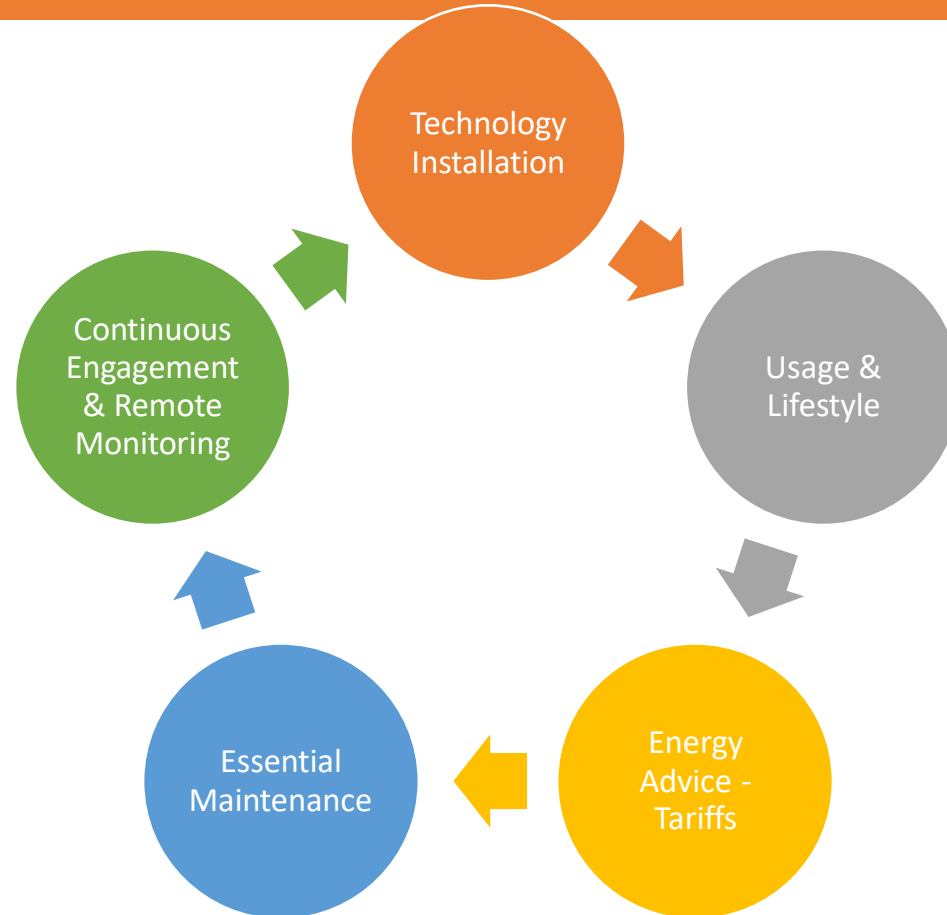
Utility Metering

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Environmental Impact

# Customer Behaviours

\*All possible Thirteen Intervention Points!





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