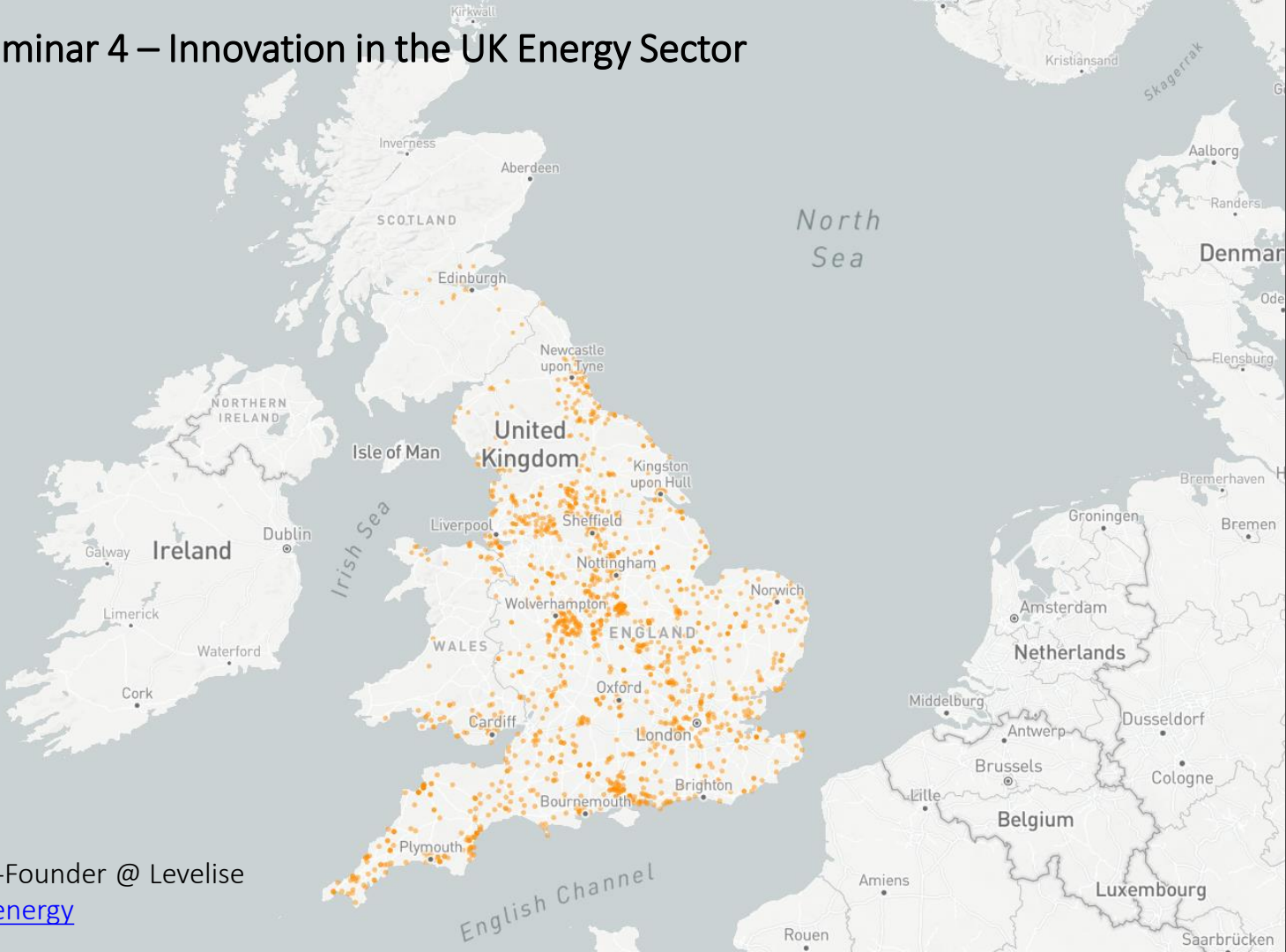


BIEE Energy Seminar 4 – Innovation in the UK Energy Sector



Dr Iván Castro
Chief Scientist & Co-Founder @ Levelise
ivan.castro@social.energy



1

An Energy Supplier



2

An Aggregator



3

An Artificial Intelligence (AI)
Software Platform



4

Grid Trade Meter Manufacturer
(MID Approved Bi-Directional Meter)



5

A Virtual Power Plant

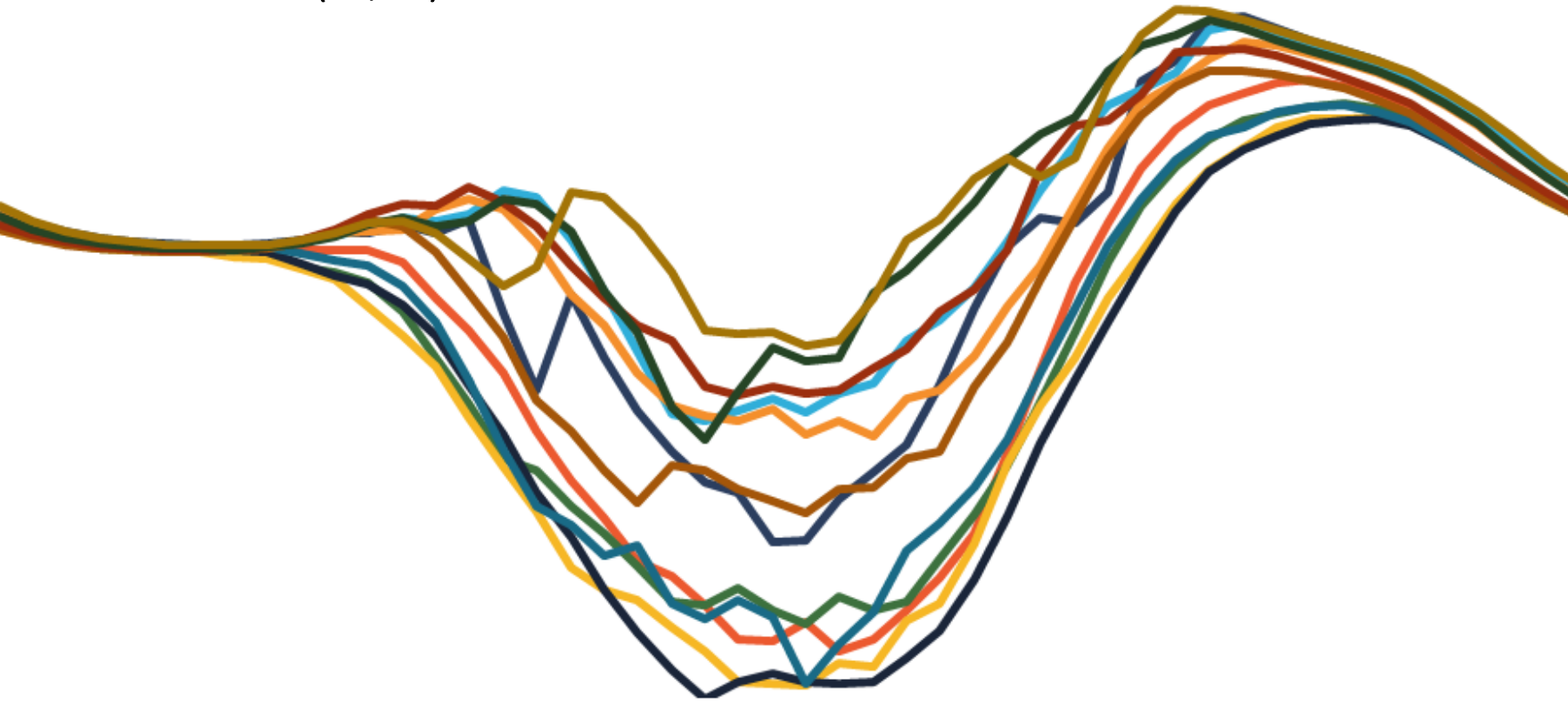


6

Energy Storage Supplier
(through Duracell Licence)

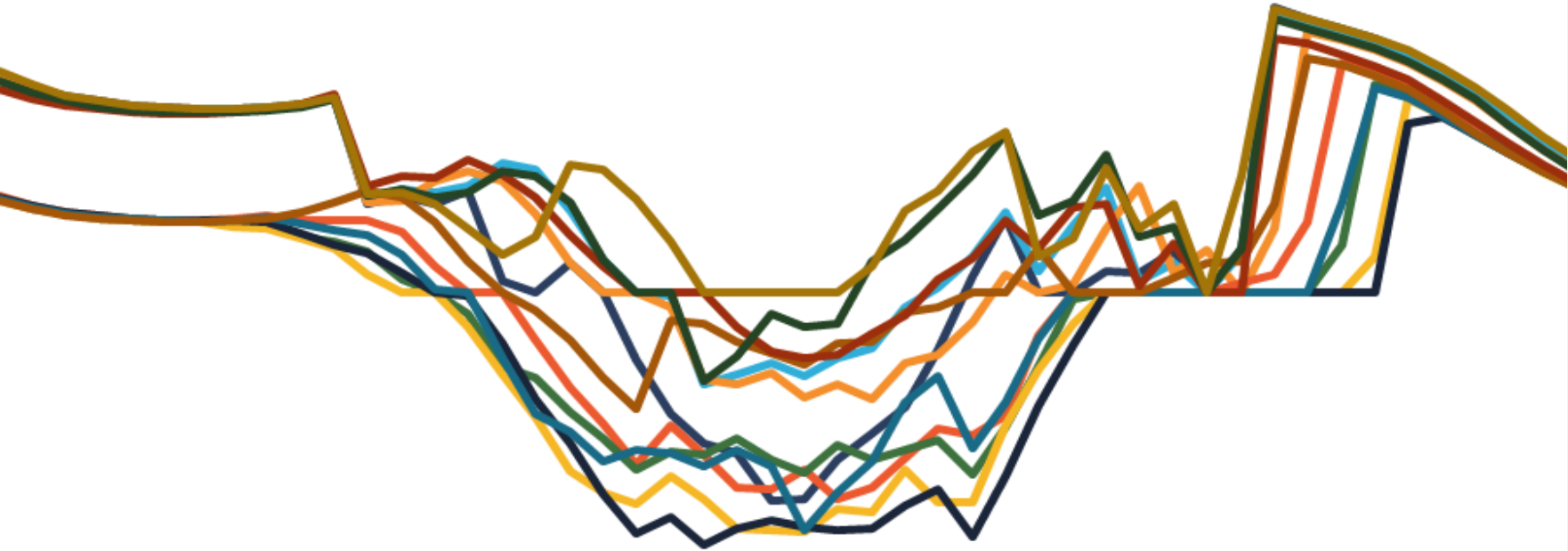


Prosumer Model (70/30)



Self-Sufficiency + Export
£160 + £100 = £260

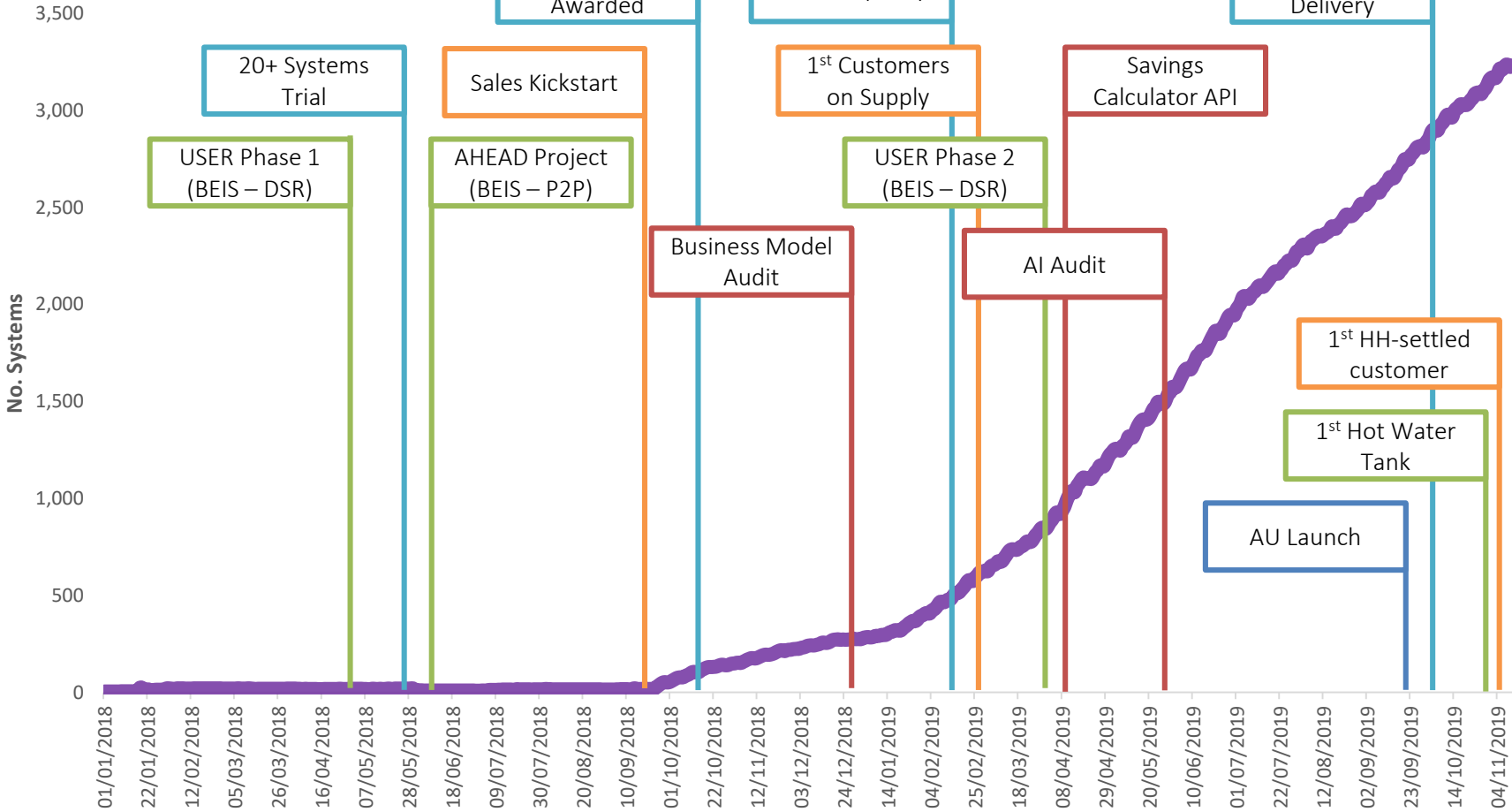
Prosumer Model (70/30)



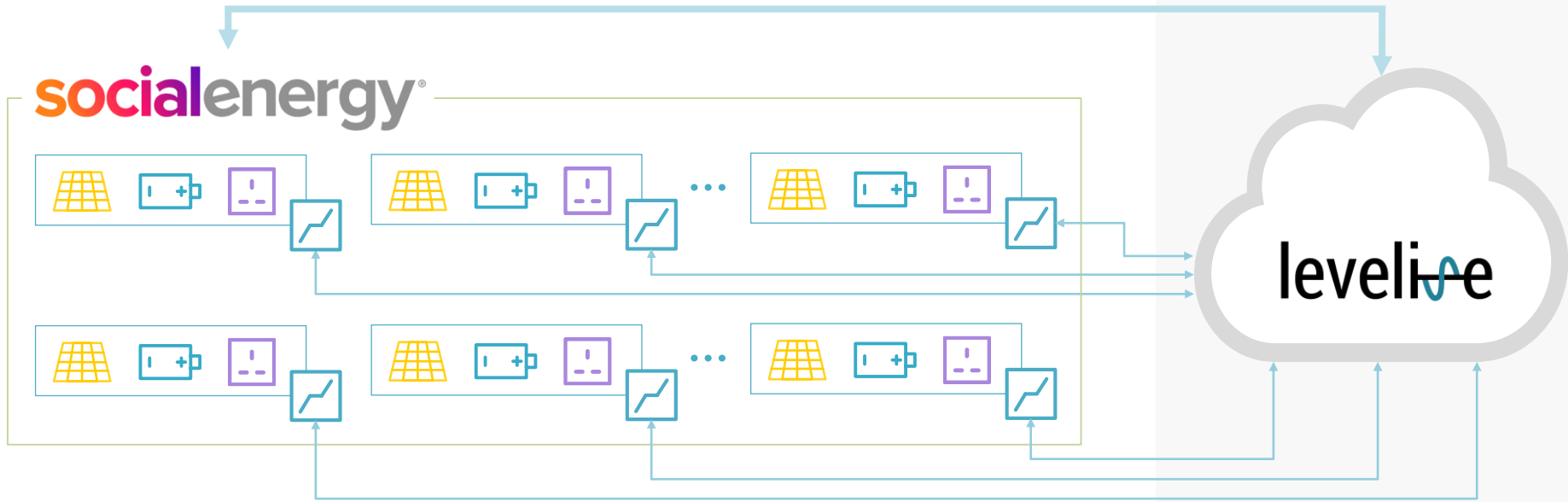
Self-Sufficiency + Export + Demand Shaping + Flexibility Services

$$£320 + £80 + £40 + 120 = £510 + £50 = £560$$

Milestones & Growth



AI-led energy systems



Interval between setpoints
in seconds

0.25

From zero to full power
in seconds

0.8

Data points collected
per system per year

600m

Variables processed
per system per year for
probabilistic forecasting

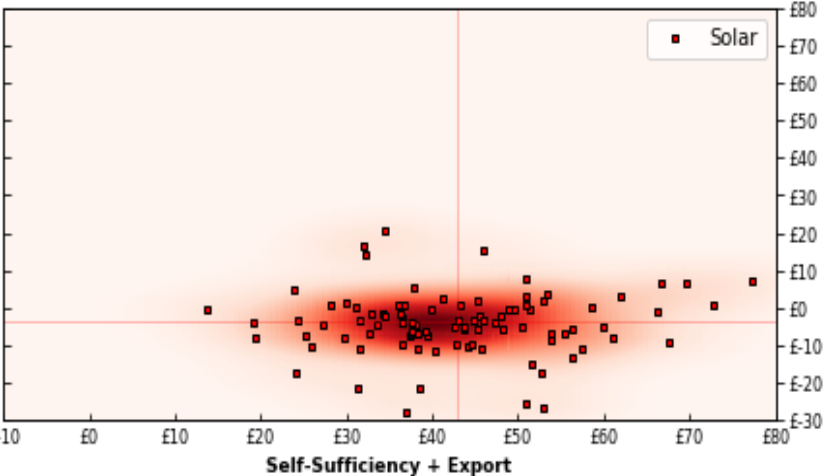
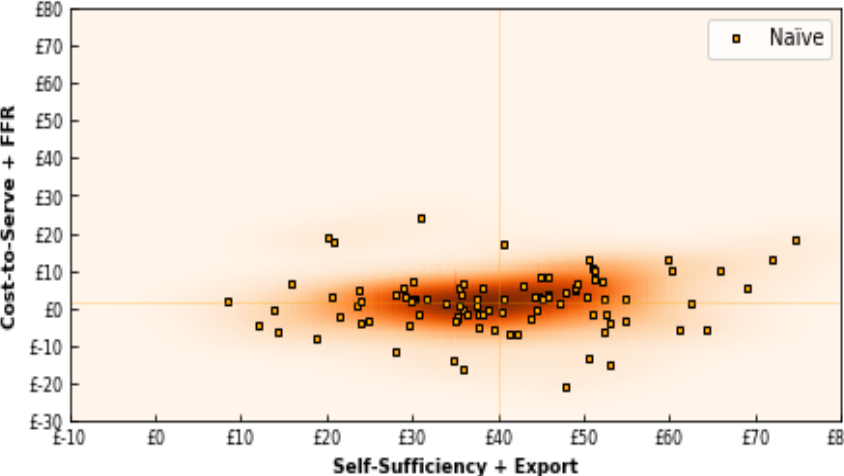
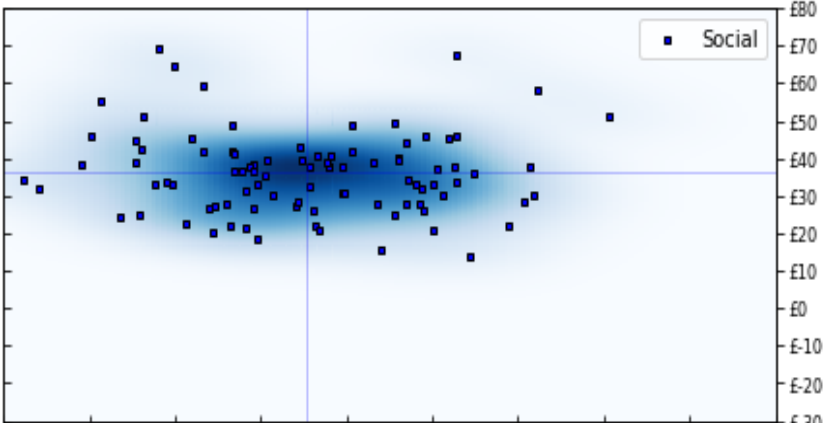
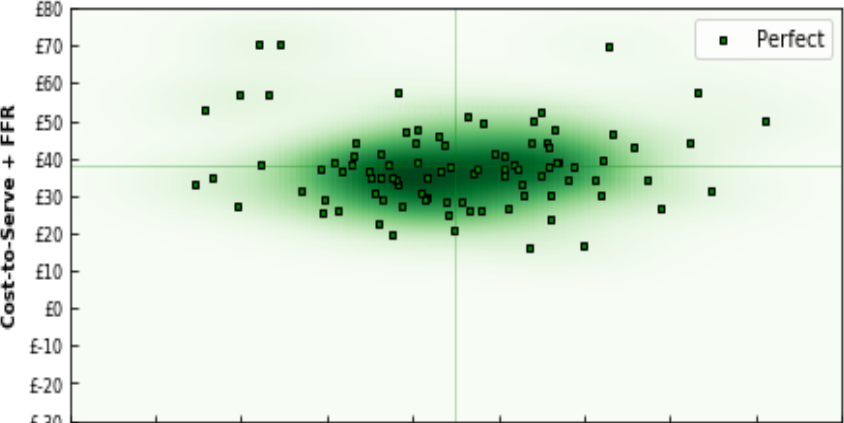
27.9m

Variables processed
per system per year for
scheduling operations

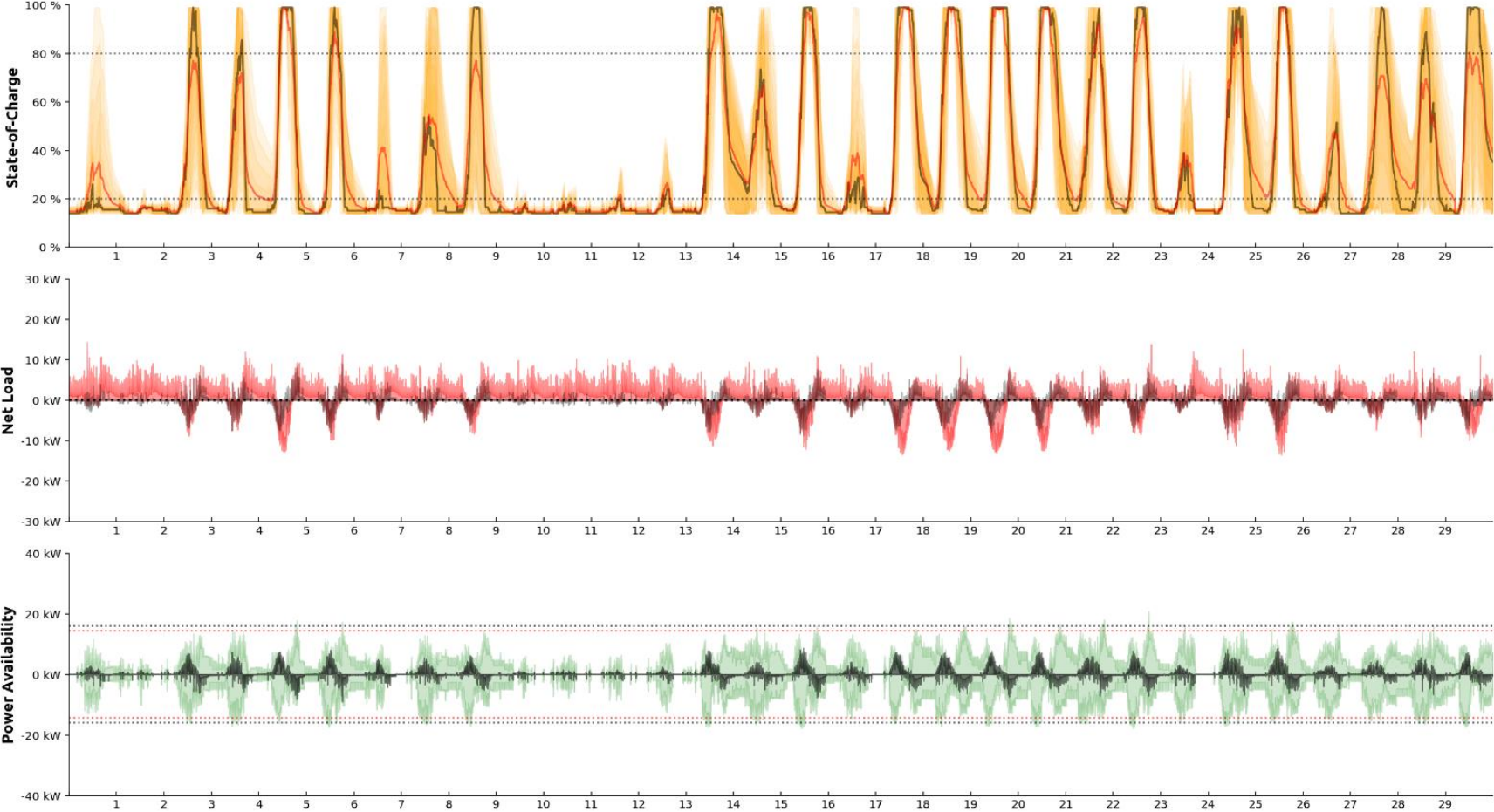
63.3m

Performance – AI Audit (Jan – Mar 2019)

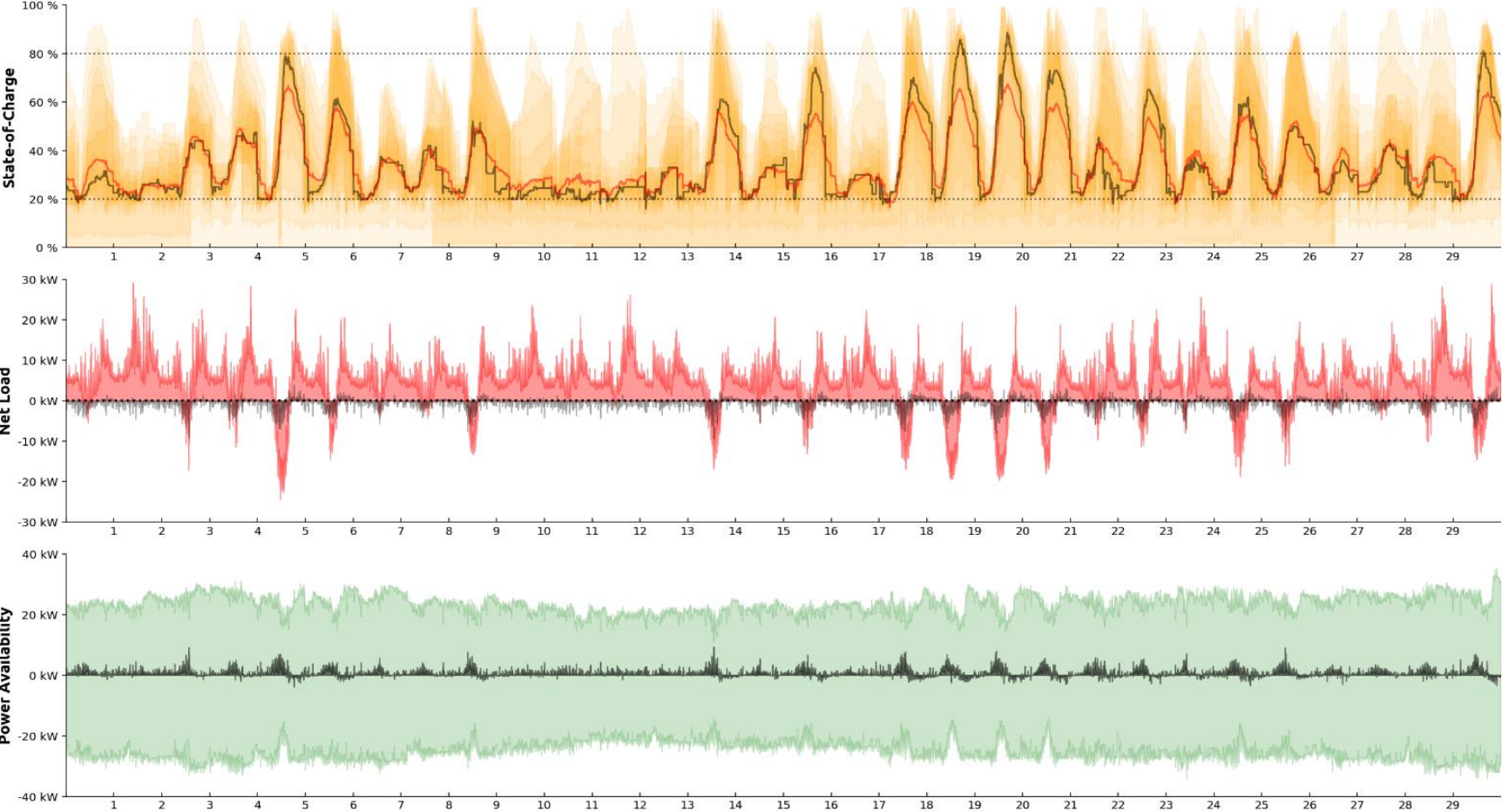
Scenario B - Duracell Energy Bank 3.0 kW / 3.3 kWh - 50% FFR



Performance – A/B Testing (Non-Optimised)

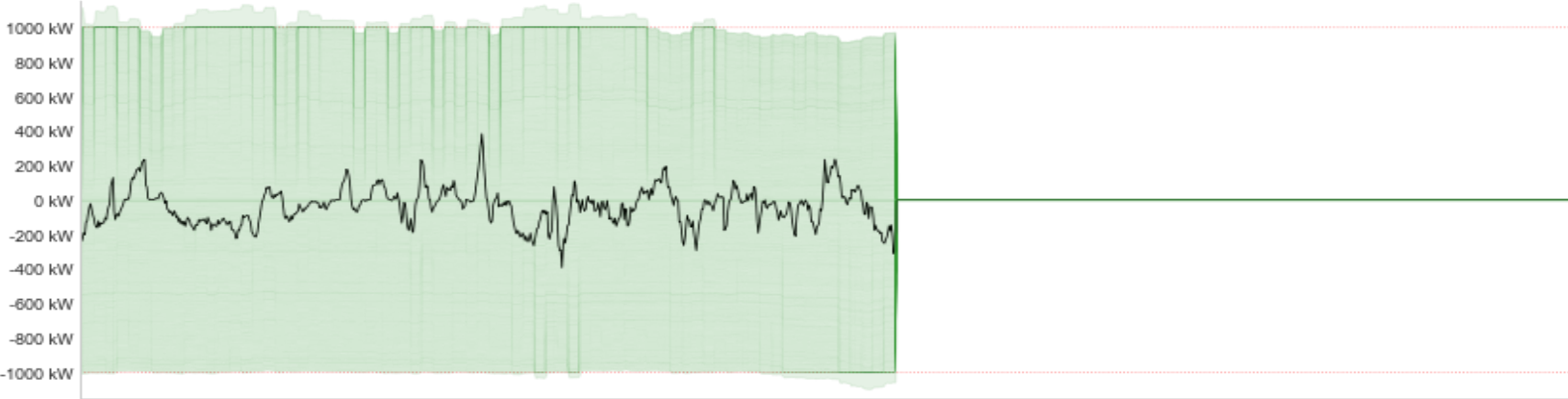


Performance – A/B Testing (Optimised)

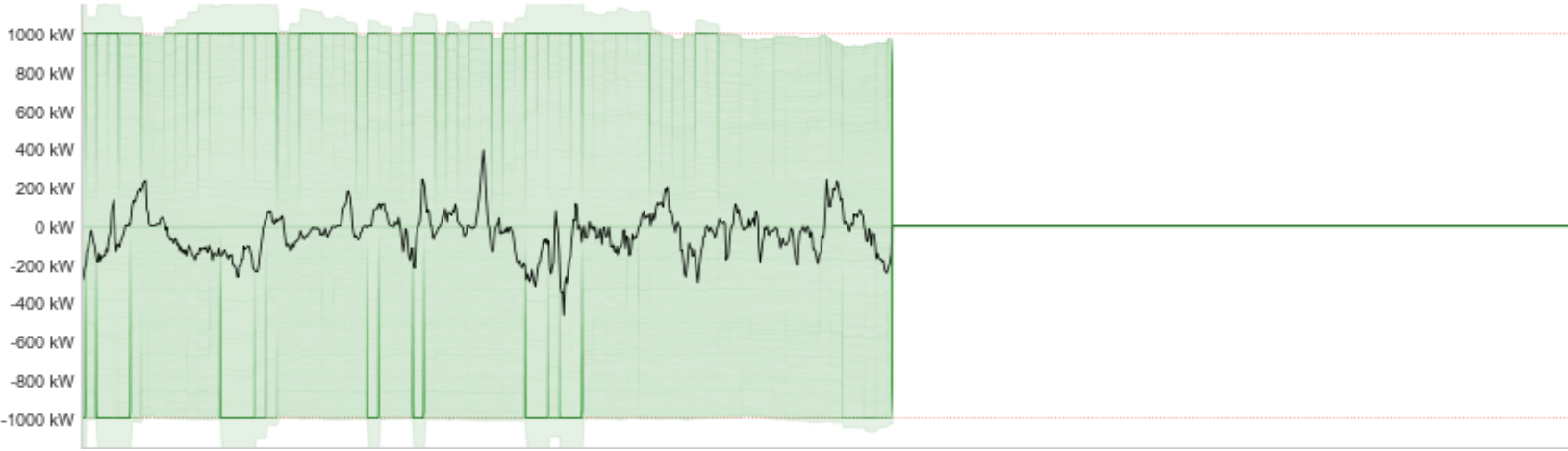


Performance – FFR Delivery (13/11/2019)

FFR-SOC1



FFR-SOC2



Performance – Blackout

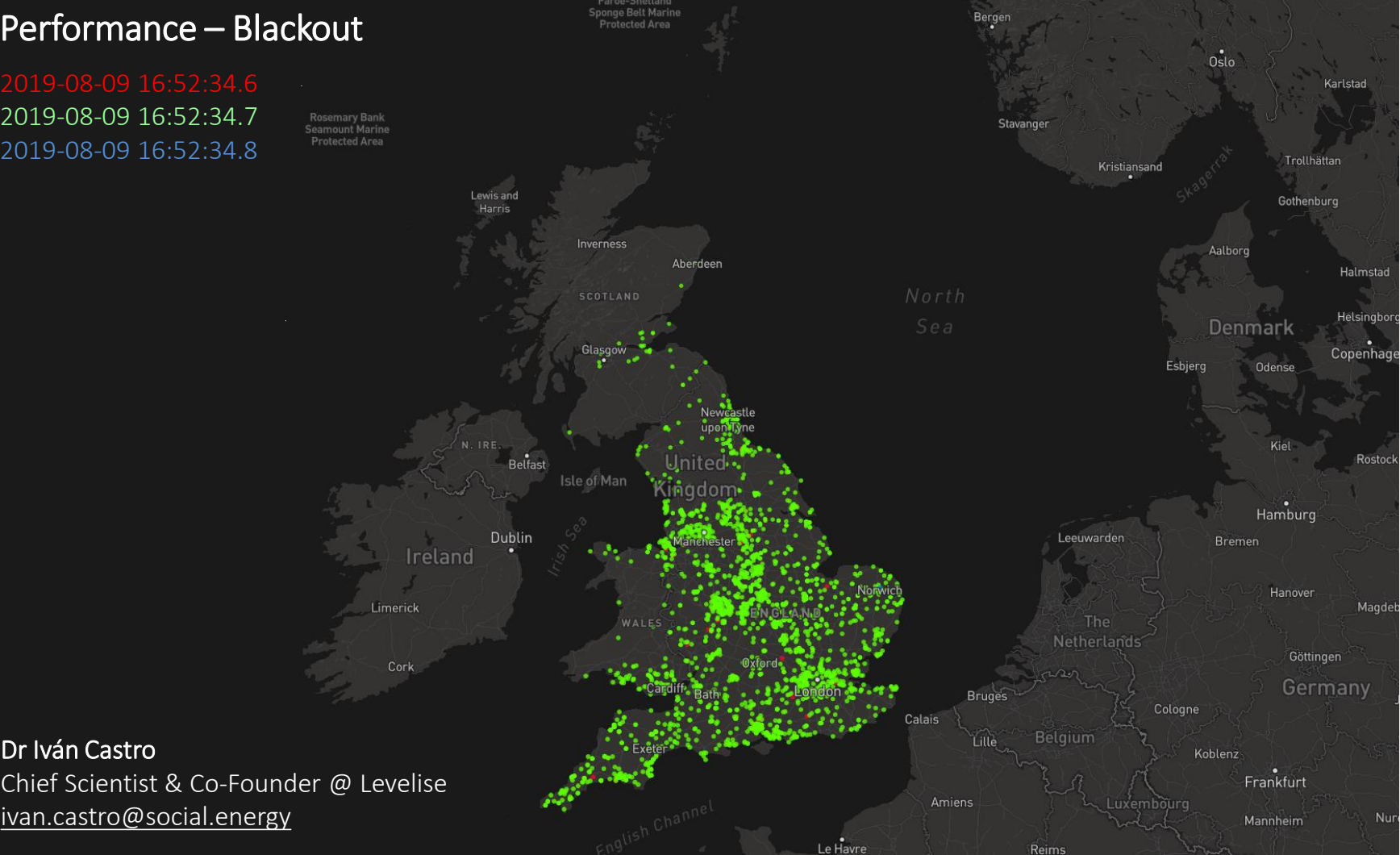
2019-08-09 16:52:34.6

2019-08-09 16:52:34.7

2019-08-09 16:52:34.8

Rosemary Bank
Seamount Marine
Protected Area

Faroe-Shetland
Sponge Belt Marine
Protected Area



Dr Iván Castro
Chief Scientist & Co-Founder @ Levelise
ivan.castro@social.energy