

Shall I Curtail Thee on a Summer's Day?

Project TraDER

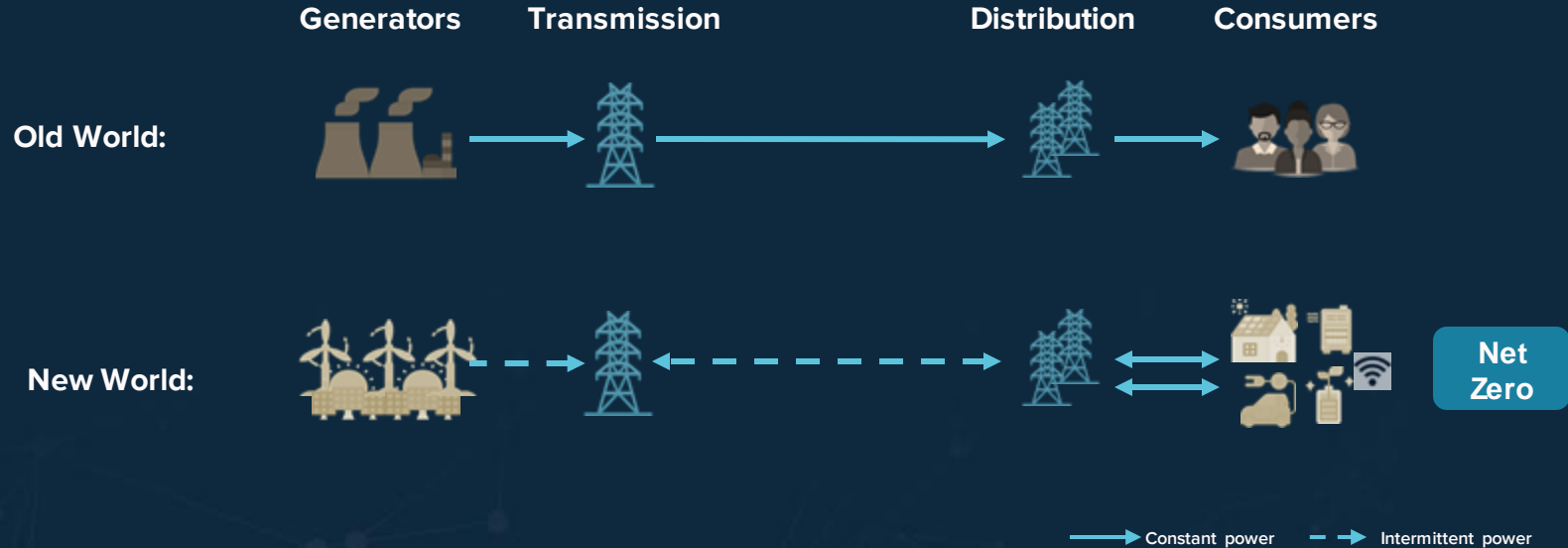
Jon Ferris | Electron

Mark Hull | CES

Conor Maher-McWilliams | Kaluza

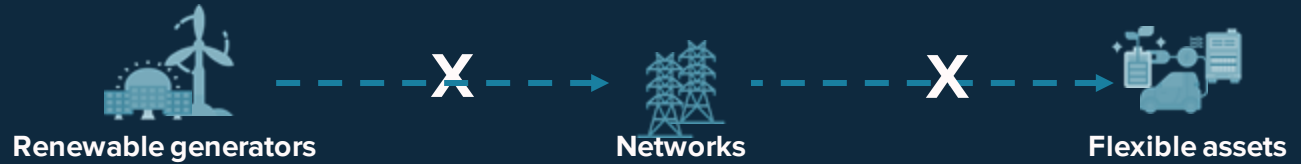
Helene Thill | EDF

Clean technologies are transforming the energy sector

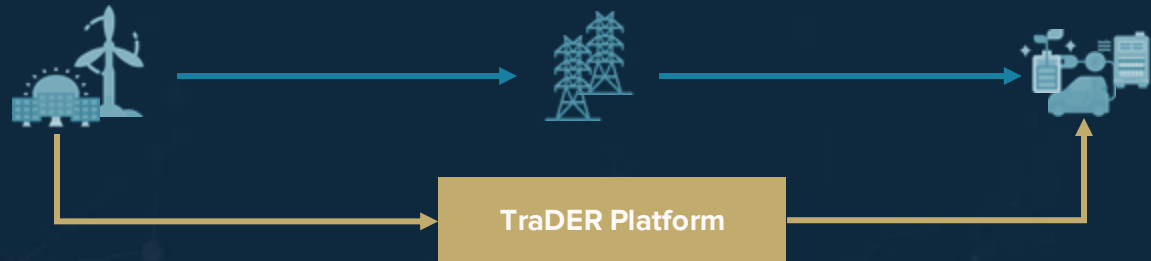


Our real-time flexibility market reduces wasted renewable power

Network congestion means renewable generation is curtailed:



A marketplace platform empowers flexible assets to eliminate this waste:



Project TraDER

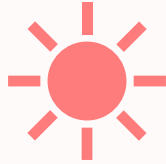
BEIS Funded | July 2019 - March 2021

Objective: Increased low-carbon generation to the grid by creating new revenue opportunities for clean technology operators through the coordination of local and national energy markets .



Local Markets

Why Orkney?



Leading renewable deployment

- 120% renewable generation
- Ambitious 2030 targets

Leading technology adoption

- First ANM system in UK
- Scotland's highest penetration per capita of Evs + electric heating

High community engagement



Curtailment & economic losses

- >£600k annual wasted output

Limited utilisation of cheaper power

- Fuel poverty @60% and has increased

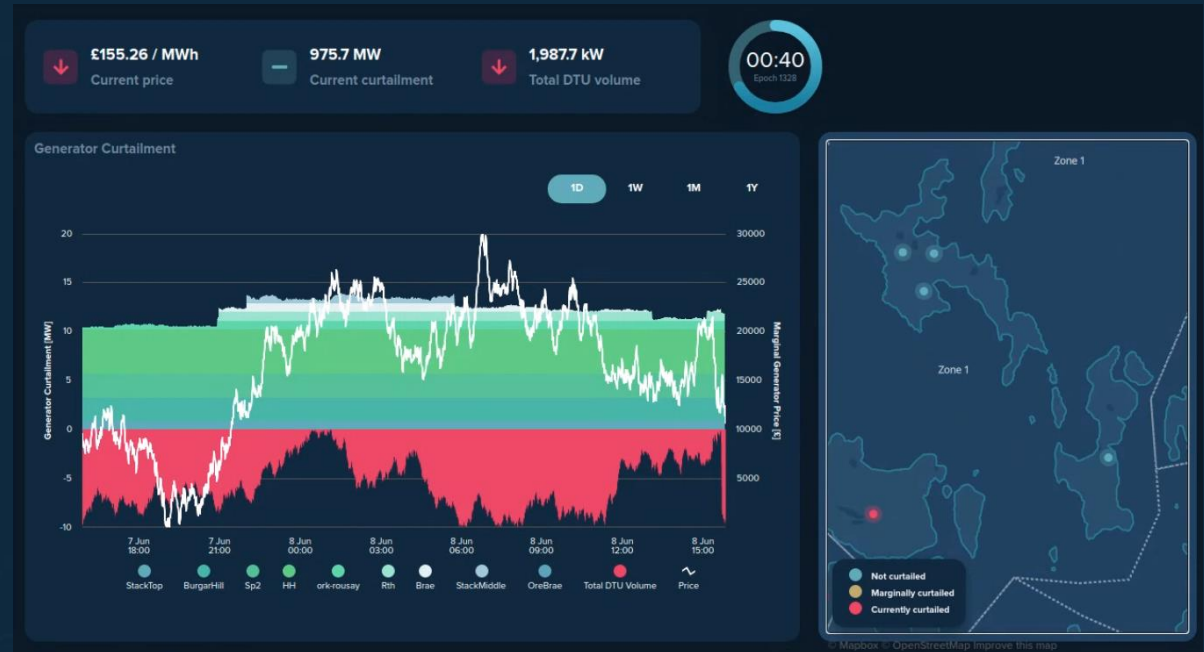
Test bed syndrome

- Coordination between projects

The Market

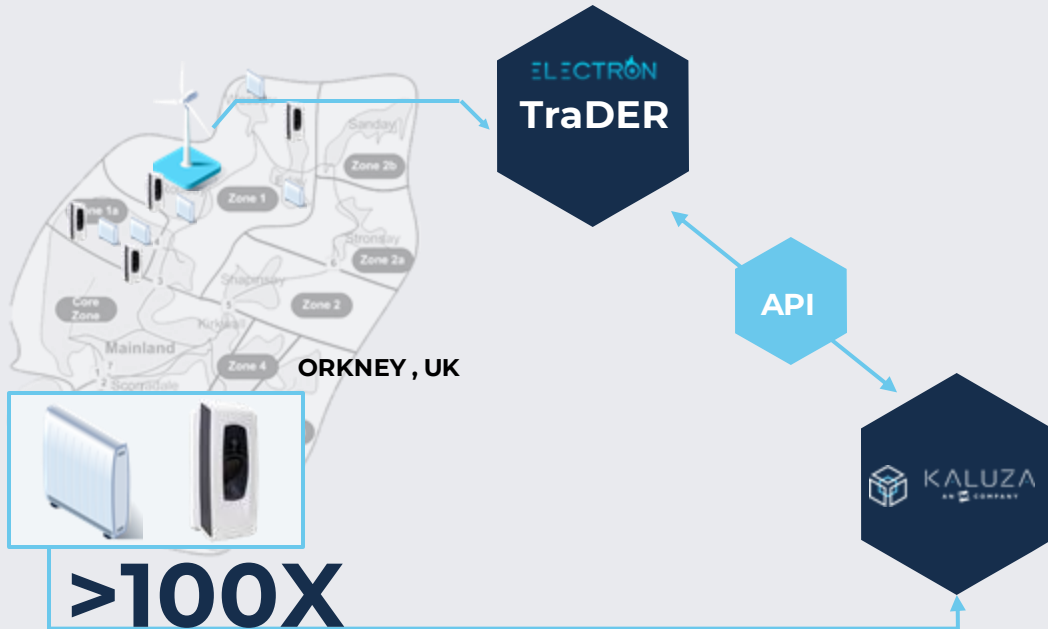
How it Works

- Non-firm generators enter the price they would pay to avoid curtailment
- Price + volume go live in real time as generators receive turn down signal
- Flexible demand or generation can price take



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FLEXIBILITY AS A SERVICE



KALUZA

Connects to and optimises charging flexibility for in-home electric heating systems, EV charging and storage batteries

AI & ML algorithms deliver end customer needs while optimising charging around the needs of the grid

Kaluza bidding engine places market bids for household devices and the platform manages dispatch on trade confirmation

Revenue from trading shared back with end customer

Performance at 31st May

Demand Turn Up

Integration with CES and Kaluza | Projects SMILE and HSO

31

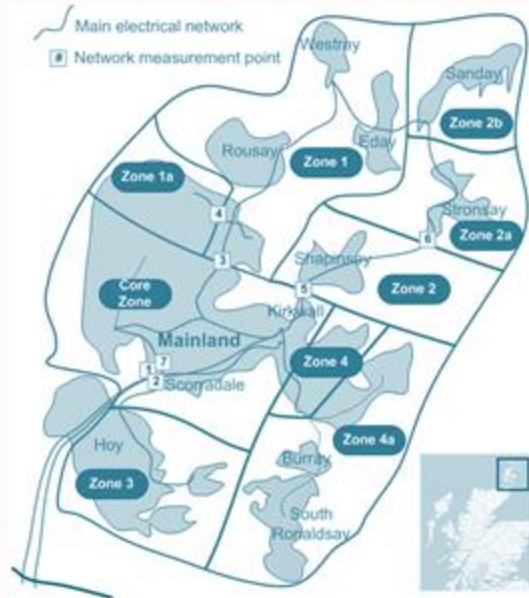
Assets Trading

205

Trading Events*

2960

Total Trades Completed



Trading Overview



2 Generators are connected to the platform – Rousay and Eday



Generators have requested 2368 min (39.5 hours) of turn up



1.67 total MWh of asset dispatch (£502 total)



Assets provide avg. of 12 minutes of DTU per event

Platform does not record total volume requested by Generators

What's Next

Integration of local & national markets, key challenges on settlement



Clean Energy Generators

- ANM generators can avoid curtailment by trading their curtailment and production opportunity with another generator, or trade with demand (turn-up) or generation (turn-down) to offset curtailed output.



Demand Side Units

- Demand-side assets (Flexible demand, storage, generation) can be paid to consume energy when generators would otherwise be curtailed.



Other Generators

- Other generators can be paid to voluntarily curtail their scheduled output instead of an ANM connected generator.

These markets will be integrated with ESO markets for whole system coordination.

Would you like to get involved?

Email info@electron.org.uk for more information on TraDER or joining the platform.