

SEAI National Energy Research, Development & Demonstration Funding Programme

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Demonstration of a smart domestic energy flexibility platform

Project Overview/ Background

The project set out to demonstrate how residential energy assets, such as solar PV, batteries, hot water systems and electric vehicles, can be centrally controlled and scheduled based on dynamic electricity prices.

Problem statement

- Dynamic electricity prices present an opportunity to consume energy when the price is cheap
- On the Irish grid, there is significant curtailment of wind and solar (shutting them down) when there is more generation than demand
- This project aimed to increase demand when the price was cheap, reducing curtailment of renewables

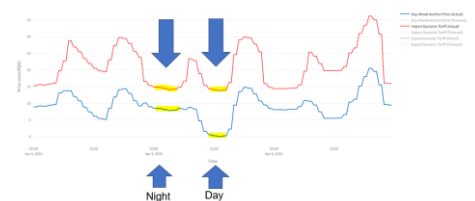
Research Methodologies

Cenergise developed a break-even dynamic import and export electricity tariff linked to day-ahead auction prices. This tariff fed into an optimisation engine that determined the most cost-effective times to charge household assets.

Research Outcomes

- House powered entirely by battery off-grid
- Using the optimiser reduced EV charging costs by 50% compared to the dynamic import price at the time of plugging in.

Policy Recommendations



The charging methodology for Non-energy charges needs to be changed, as they are significantly higher during the day than at night. This meant that irrespective of the day-ahead auction prices, the signal to charge was always at night, regardless of curtailment.