



Data-driven Residential Energy
Carrier-agnostic Demand Response
Tools and Multi-value Service



Dedalus is a 3-year project to design, develop, and demonstrate a demand-response ecosystem for residential buildings. This ecosystem will optimize and manage automated demand response and cater to all energy carriers. Dedalus is funded by the EU and began in 2023.

The project integrates the latest ICT technologies with social and behavioural dimensions, as well as with sharing economy and value-stacking governance and business models.



Main Objectives

DEDALUS aims to reach technological, business, and societal goals:

- Use social sciences and humanities-based tools and methodologies to **design an innovative concept for participatory, multi-value, and energy carrier-agnostic residential demand response**.
- Build on and improve current data-driven models, algorithms, and flexible assets. Adapt **end-user multi-value energy consumption models**, beyond consumption user profiling.
- Deliver **new demand-response algorithms, models, and ICT-based services for residential buildings**, covering different commodities, stakeholders and the whole value chain.
- Demonstrate, validate, and replicate DEDALUS solutions through pilots located in **seven countries across Europe** and operated by different stakeholders.
- Explore and validate new business models for the **sharing economy and social innovation**. These will combine the cost socialization of demand-response infrastructure and the cost reduction of unit demand response among many B2B and B2C stakeholders.

Expected Impacts

Business level

15%

increase in the energy-efficient of the pilot buildings, and cheaper energy bills for residents thanks to DR

15%

Cost reduction of the overall energy system

>25%

Reduction of demand response transaction costs after 5 years

Technological level

12

Smart residential asset types ready for demand response after 3 years

≥ 7

New aggregation models and data-driven services

≥ 2

Digital twins to facilitate consumer activation and market participation

Social level

45%

Increased share of energy consumption data by active consumers after 5 years

15-20%

Increased share of aggregated flexibility achieved by piloted assets

>18-20%

Carbon emission reduction in the areas of the 7 pilots

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