

The behavioural dimension of energy customers: A framework to deal with barriers to customer engagement

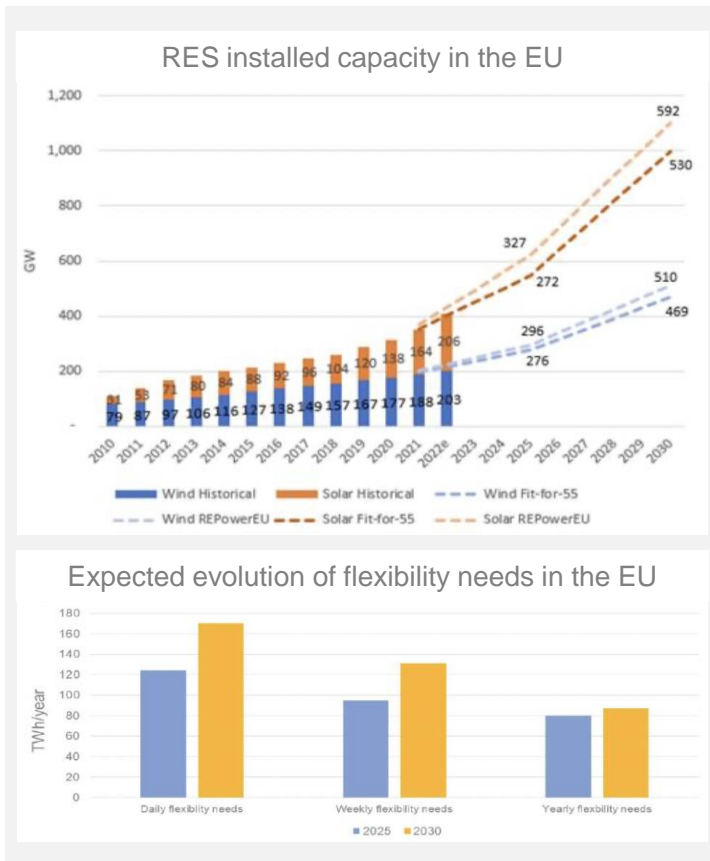
Daniele Stampatori, Nicolò Rossetto



Motivation and background

Why do we need to engage customers?

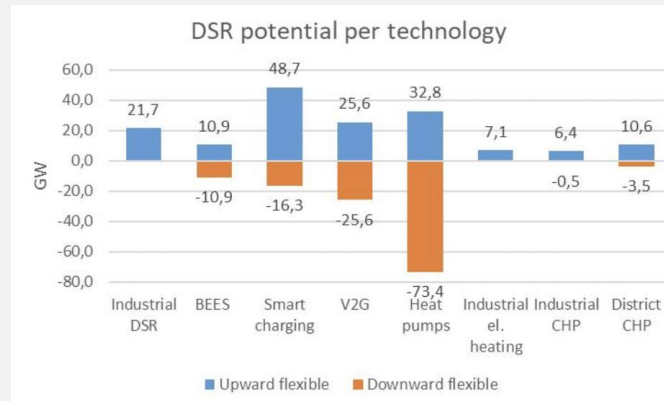
Increasing balancing requirements



High demand-side flexibility potential

Two key technological trends:

- distributed generation
- digitalisation



Customers are highly heterogeneous

Customers are value-seeker, but:

- different needs
- needs change over time

(Socio-economic) classification of customers:

- residential
- SMEs
- commercial
- large firms
- energy-intensive
- ...

Research questions

- Which customer behaviour determinants hinder the engagement in flexibility markets?
 - What do we know about customer behaviour?
 - Why is so complicate to engage customers in flexibility markets?
 - How can we promote customer engagement in flexibility markets?

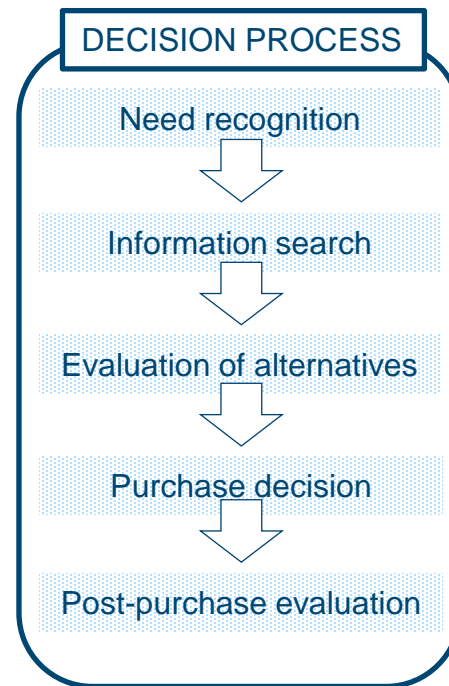
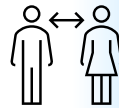
Methodology

- Literature review
- Questionnaires and semi-structured interviews
- Workshops

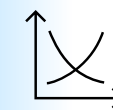
Results Several variables influence the decision-making process

Human **rationality is bounded**, and several factors influence customers' behaviour:

- Sociological factors
- Psychological factors



The ability to participate in flexibility markets depends on:



- Market existence and economic rationales



- Legal framework



Available technologies

Results A framework to classify behavioural barriers to customer engagement

Lack of awareness

- **Energy consumption as a derived demand**
see Hunt et al., 2015
- **Low priority in customer hierarchy**
see Trotta, 2021
- **Limited knowledge of economic impacts**
see Schubert et al., 2015
- **Misunderstandings and acceptance**
see White et al., 2018

Lack of skills to process information

- **Processing information involves costs**
see Stern, 1986 & He et al., 2018
- **Processing information is context-specific**
see He et al., 2018
- **“Technological” exclusion**
see Hall et al., 2021
- **Perceived scarcity affects cognitive process**
see Suri et al., 2007

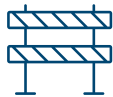
Inertia

- **Changes entail costs**
(e.g., confirmation bias)
see Maréchal, 2009 & Cui et al., 2020
- **Loss aversion**
(e.g., status-quo bias)
see Blasch et al., 2018 & Samuelson, 1988
- **Lack of trust**
see Stenner, 2017 & Ofgem, 2021

Take-home messages



- Customer engagement in providing flexibility services requires a deeper **understanding of their decision-making processes**
- **Customer engagement is a multi-steps process** influenced by various factors that can hinder the process itself
- Identifying clear causal links behind consumer decision-making is crucial for formulating **effective engagement strategies**



- The study introduces a framework categorising behavioural barriers, including 1) **lack of awareness**, 2) **lack of skills to process information**, and 3) **inertia**
 - Many customers view energy consumption as abstract and lack readily accessible information about costs and usage of appliances
 - Customers need tools and skills to process information effectively for meaningful engagement: often, they face challenges in prioritising and accepting information that contradicts their existing beliefs
 - Inertia can slow down the decision-making processes



- The study identifies the **underlying motivations** for consumer reluctance to engage
- The proposed framework aids in the development of **effective engagement strategies** by policymakers and market operators
- Validation of potential recommendations would require **field experimentations**