

IC - (21028) - USE CASE SCENARIOS AS STARTING POINT FOR THE DEVELOPMENT OF INTELLIGENT ENERGY STORAGE SERVICES WITHIN SMART ENERGY SYSTEMS

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Background and objectives

Successfully transforming our energy systems towards a human-centered and renewable, service-oriented energy supply is crucial for reaching the ambitious CO₂-emission goals in the EU. However, it is still a challenge to integrate the user perspective into strongly technology-oriented research approaches in interdisciplinary projects. In order to support the user-centered development of smart energy systems and storage solutions based on users' and stakeholders' needs, we developed four exemplary use case scenarios with an explicit user focus based on a collection of 13 use cases that were identified within project consortium of the ERA-Net project I-GReta.

Process and methods (for empirical research)

The use case scenarios were generated based on interviews and iterative discussion with the international consortium members from various disciplines. They represent an easy-to-understand textual description of a typical or representative user behavior.

Main results (or main arguments in the case of critical reviews)

The user scenario *Flexible and bidirectional charging of e-cars* (1) creates a vision for an improved use of e-cars from an end-user's perspective. Flexible and bidirectional charging are in the focus. The scenario *Making energy flows visible* (2) shows two different possibilities to assist a facility manager in his/her work, e.g., in an office or a large university building, by visualizing energy flows and providing opportunities to adapt the level of energy consumption. The scenario *End-user interaction with energy management system* (3) is narrated from a classical household perspective, showing the possibilities to reduce and flexibilise the use of energy in a smart home. The scenario *Energy community investment planning* (4) focuses on investment planning in a small energy community, specifically on an investment in PV and a connected storage.

Implications for research and practice/policy | Importance and originality of the contribution

All scenarios are related to a sustainable future use of the technological solutions developed and tested within the field trials of the I-GReta project. Thereby, they contribute to a more human-centered renewable smart energy system and intelligent energy storage services.

Palavras-chave : use case scenario, smart energy systems, user-centered development, stakeholder needs