

# Common European Energy Data Space as a tool for better access to metering and device data

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## Motivation

The general European strategy on data and the correlating German data strategy both specify the objective to establish data spaces for the energy sector. Being subject to a twin transition in digitalization and towards renewable energy resources, the future energy system requires additional digitally enabled flexibility options in the electricity system to coordinate resource-dependent generation and demand. The management and control of this flexibility needs an advanced digital ecosystem for the communication between organizations and devices. The EU action plan on digitalizing the energy system aims for a Common European Energy Data Space (CEEDS) which will facilitate the participation by flexible energy resources.

The report, written by Fraunhofer institutes IEE, ISI, FIT in cooperation with TNO under the framework of the Energy Transition Expertise Centre (EnTEC) under the auspices of the EU, develops an implementation plan for the realization of this CEEDS.

## Method

The study was conducted with a focus on three high level use cases with high relevance for the provision of digitally enabled flexibility:

- Virtual power plants and aggregation
- Price responsive charging and balancing services from EVs
- Smart residential flexibilities

Through a literature review and a hybrid stakeholder workshop with participants pain points regarding the status quo of flexibility provision in each use case were addressed and prioritized. Based on these pain points policy recommendations were drafted and again consulted in a hybrid workshop setting.

The findings and feedback were integrated into an implementation plan that outlines necessary steps for the development of the CEEDS and key applications that would address the identified pain points.

## Access to smart metering data from European AMI concepts

One main pain point identified within the study was the access to metering data in the diverse landscape of advanced metering structures (AMI) in the EU. Access to metering data is obligatory for many flexibility services and is currently a barrier for cross-country service offerings and uptake in several Member States. The CEEDS can enable access to this data regardless of the underlying systems as a unique feature (see Figure 2). Thus, developing and providing a data space-based process while complying with European and national regulations on access to smart meter data could attract industry actors and provide researchers with empirical data sources subject to customer's consent.

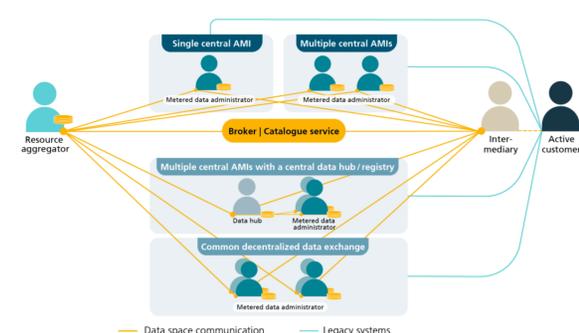


Figure 2: Improved access to smart metering data

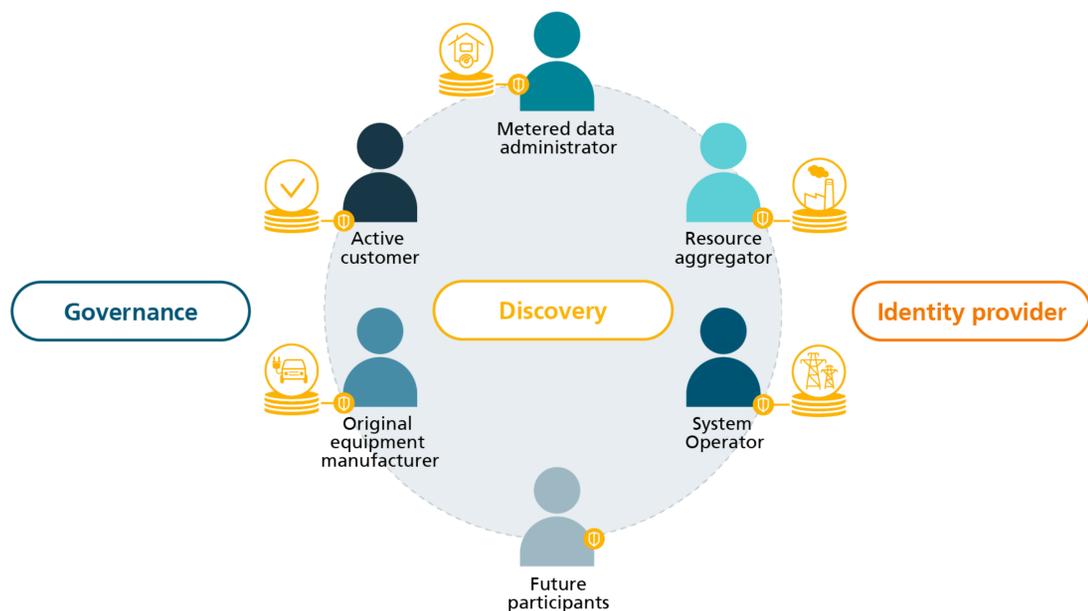


Figure 1: Actors and key aspects of the Common European Energy Data Space for flexibility provision

## Implementation Plan

Starting with the identification of the key actors for flexibility provision and core functionalities of a data space an implementation plan for the CEEDS has been drafted (see Figure 1). In addition to electricity market actors also original equipment manufacturers (OEM) as owner of static and dynamic data from their devices would be relevant contributors. Governance structures would be of early concern as the legal and organizational framework will affect the confidence of companies to join the CEEDS. Identity management and a discoverability service as core services are key to the early development. Data space technology can then offer technical solutions for a streamlined access to metering data across various AMI concepts and to device data from OEM backends.

## Access to device data from OEM backends

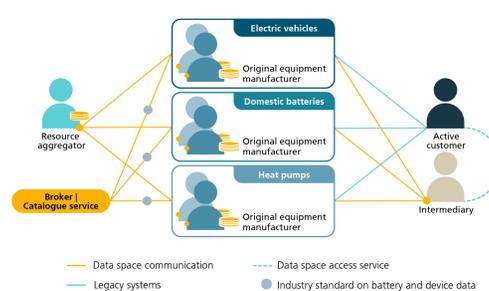


Figure 3: OEM clouds and standardisation

For the provision of flexibility from Electric Vehicles and home energy devices, the access to data and standardization thereof is crucial. Standardization refers to both, a communication standard for vehicle to grid and for EV battery data.

With the Data Act and the Renewable Energy Directive III granting customers and their service partners the right to access operational data, access provision could also be facilitated through the data space. Accelerated consensus on data provision from electric vehicles and domestic batteries as well as from further devices such as heatpumps is therefore a key part in building the CEEDS (see Figure 3). OEMs then need to provide data assets through the data space and would benefit from the options for access control and usage policies for their data sets.

The implementation plan aims to solve the existing issues by developing the CEEDS in five steps in an agile development process:

1. Define initial user stories and understand the business cases of key participants
2. Define and establish the Data Space framework and governance
3. Make data assets discoverable
4. Develop and provide processes to solve pain points in selected use cases
5. Extend data space features in an iterative process

## Conclusion and Outlook

The CEEDS may enable the implementation of flexibility services for the energy system and at the same time increase the availability of data for empirical research under FAIR principles. A standardized access to data from smart meters and flexible devices from the mobility and heat sector through a data space could form a valuable contribution to future energy research. Unified access to AMI data from across Europe, as well as standardized data enriched with metadata are of high priority both for industry and energy research. Further work may address the requirements from academia on empirical data. Findings from projects like FAIR Data Spaces may link the national research data infrastructure with its focus on academia with ongoing activities to develop the data infrastructure for commercial processes in the energy sector.

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