Proposal for a Use Case 5

Data exchange for flexibility management in tertiary buildings

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a collective initiative of

1. Introduction

The overall objective of the D4E-DER Flexibility sub-working group is to assist the Commission in developing a comprehensive and coherent framework for data exchange in the energy sector, and in advancing the development and the rolling out of the common European energy data space. Furthermore, the objective of the D4E -DER Flexibility sub-working group is also for the Member States to exchange best practices, learn from each other and seek technical assistance in implementing national standards for data exchange.

Four main Use Case are already identified:

- Use case 1- UC1: Flexibility information system (registration, prequalification, verification) and flexible connection agreements
- Use case 2 - UC2: Flexibility market operation (e.g. offers, bids, activation) and flexibility settlement
- Use case 3 – UC3: Activation (explicit and implicit) of distributed energy resources (DER)
- Use case 4 – UC4: Data exchange from smart meters, dedicated measurement devices and energy management systems

In complement to these use cases, this document proposes a 5th Use Case

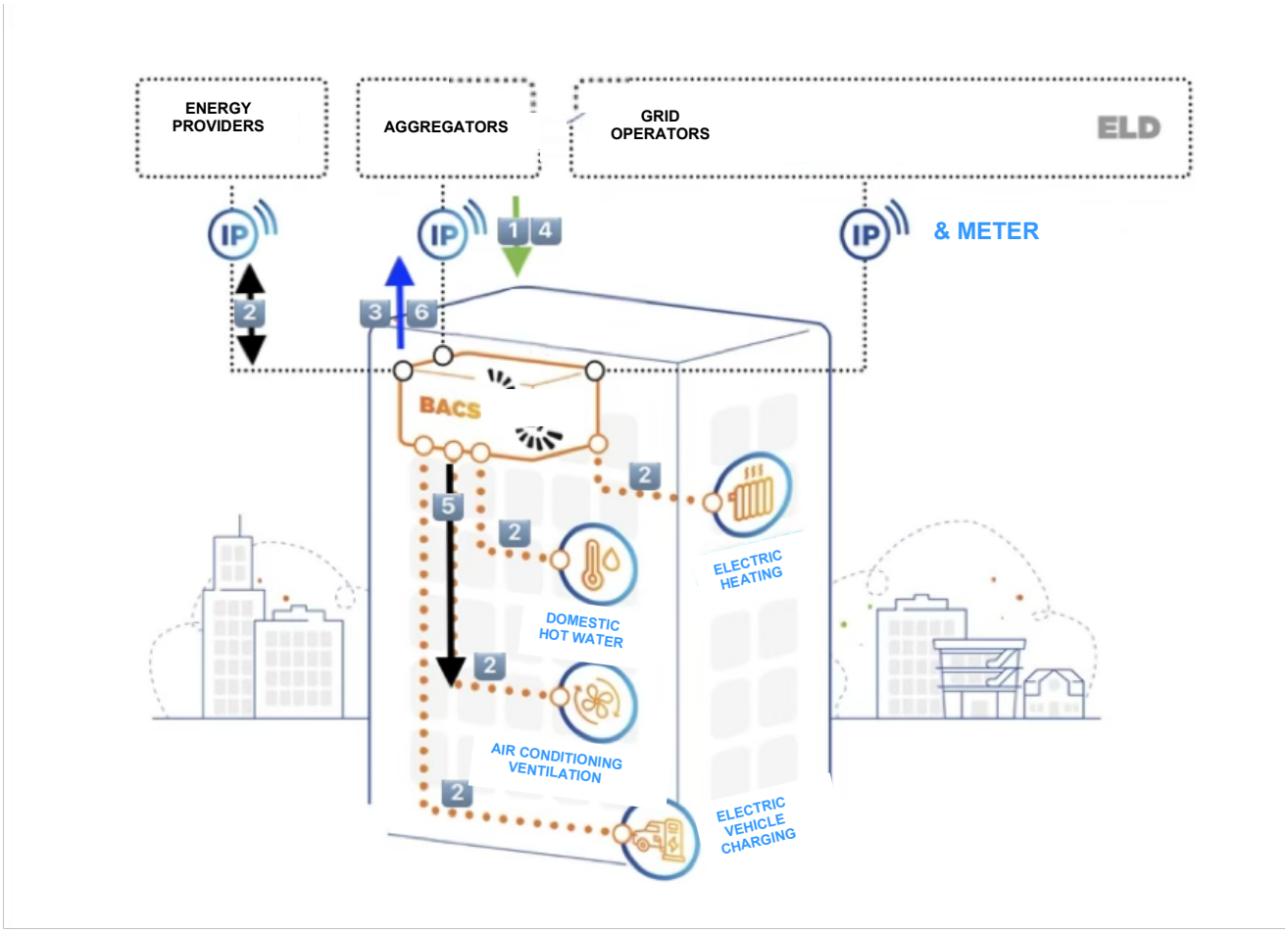
- Use case 5 – UC5: Data exchange for flexibility management in tertiary buildings

to analyse the specific use case of buildings with a BACS (Building Automation and Control System) as CEMS. This is specially important as EPBD Directive mandates the installation of BACS in buildings with over 70 kW of power.

2. Tertiary building specific constraints

Tertiary buildings have specific operational constraints as the flexibility operations of all subsystems must be coordinated for flawless execution and to guarantee comfort, processes performance and building data security. The BACS hence plays a « proxy » role between service providers and buildings systems, notably EV Stations.

In a tertiary building, where many subsystems may contribute to flexibility, a proper coordination is needed to avoid conflicting orders, flexibility requests must be converted from Power values to regulation values “understandable” by devices. The “proxy” role of CEMS in the BACS, is illustrated below in the FlexReady implementation:



Mass deployment of flexibility will take place in existing buildings. A critical need is thus to work with existing regulation subsystems (e.g., Heating, AC, EV charging, …)

A specific focus is identification, authentication and cyber security which is a critical point for many building managers : Some building managers do not accept inbound connections. How to guarantee cyber security whilst opening rich outside connections to service providers ?

As for the specific needs of Electric Vehicles charging (including V2G), some new roles will be analyzed:

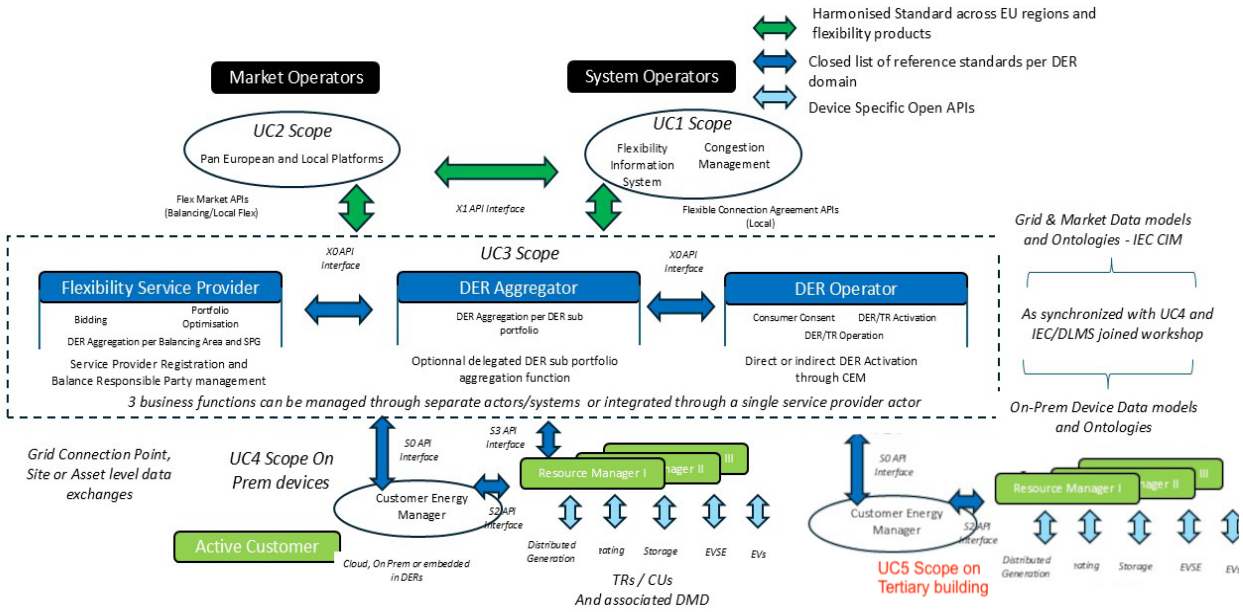
- a role of Charging Station System Operator (CSSO) (e.g CS OEM cloud)

- a role of Car Park SO (CPSO) (e.g Car park management OEM cloud)

They can orchestrate the flexibility for the charging station in the same way EVSO orchestrate for cars.

3. Architecture

UC5 fits in the general architecture already defined for all the UC.



An important objective will be to experiment how dataSpaces can streamline operations and ease the integration of distributed and beyond the meter devices with service providers. The CEEDS governance framework should foster trust and drive adoption of flexibility services that will unlock untapped flexibility capacity coming from the tertiary building segment.

4. Further work

FlexReady is based on IEC 62746-4 for the services it presently supports. We propose to use this FlexReady implementation of data exchanges as a concrete example to analyze UC5.

This may lead to propose complements to standardization, notably for the discovery phase of building flexibility potential as well as for the reporting after execution.

5. Conclusion

Use case 5 « Data exchange for flexibility management in tertiary buildings » addresses the specific tertiary building needs and constraints. By using the lessons learned from Flex Ready® deployment and being based on the general architecture defined in UC3 « Activation (explicit and implicit) of distributed energy resources », it will enrich the framework for data exchange to cover the use case of tertiary buildings, important in the context of EPBD Directive. By staying fully aligned on IEC 62746-4, it will also help for larger adoption of the standard.

Work on dataSpaces is the ideal opportunity to work on UC5.