

# H2020 InterConnect Project



## CERF and Energy Applications Technical Overview

May 2023

## Context and Scope

The creation of Energy Applications for Consumer participation is an opportunity to promote energy efficiency actions via recommendations and tips towards the reduction of energy expenditures and its costs. It is also an opportunity to make use of the flexibility from the demand side and combine multiple sources of data (public and voluntarily provided by consumers) to define the suitable time of the day in which electrical energy consumption should be avoided whenever limitations from the grid supply side may exist.

For this reason, a blueprint for the implementation of services and solutions that support the creation of energy applications to consumers has been defined within the scope of a new use-case in InterConnect: supporting the grid resiliency via energy applications for consumers. This blueprint is part of an evolving strategy, as depicted in Figure 1, that fosters the creation of the energy applications in different member states of the EU. The blueprint includes: the definition of the data sources, the target end-users, the recommendations for action; the intervention strategy, the implementation strategy, and the approach to field piloting.

In the first stage (or generation), data sources from the public domain are used, namely grid stakeholder information and energy end-users' information. The envisioned targets are mostly end-users with the ability to control relevant loads (e.g. owners of Electric Vehicles) as well as grid operators (starting from TSOs) who will exchange data to allow consumers to establish the best time for load consumption, based on recommendations and tips. These recommendations will also include relevant information concerning the adoption of efficient behaviour and actions towards the reduction of expenditures and energy costs. The intervention from the consumers is assumed to be mostly manual and most of all on a voluntary basis.

The second stage (generation) will be achieved in March 2024, based on the evolved gen 1 and the respective lessons learned, where more data sources can be included, namely data from smart meters, commercial contracts, etc., to extend the functionalities of the energy applications, through the integration with Energy Management Systems that will support the provision of customized recommendations to consumers, rely on automation of devices and systems to support the necessary actions from the demand side to better adapt its consumption to the grid conditions.

The InterConnect project has a Semantic Interoperability Framework (SIF) and a Distribution System Operator Interface (DSOi) that allow the creation of interoperable services, including those being defined by the project to support energy applications. Components such as semantic adapters, knowledge engine, and a service store are publicly available and will be used to support the necessary services that will compose the first generation of the blueprint that will be proofed in real cases and prepare the next generation with a modular integration of additional services. This is part of the roadmap that the project will support by March 2024.

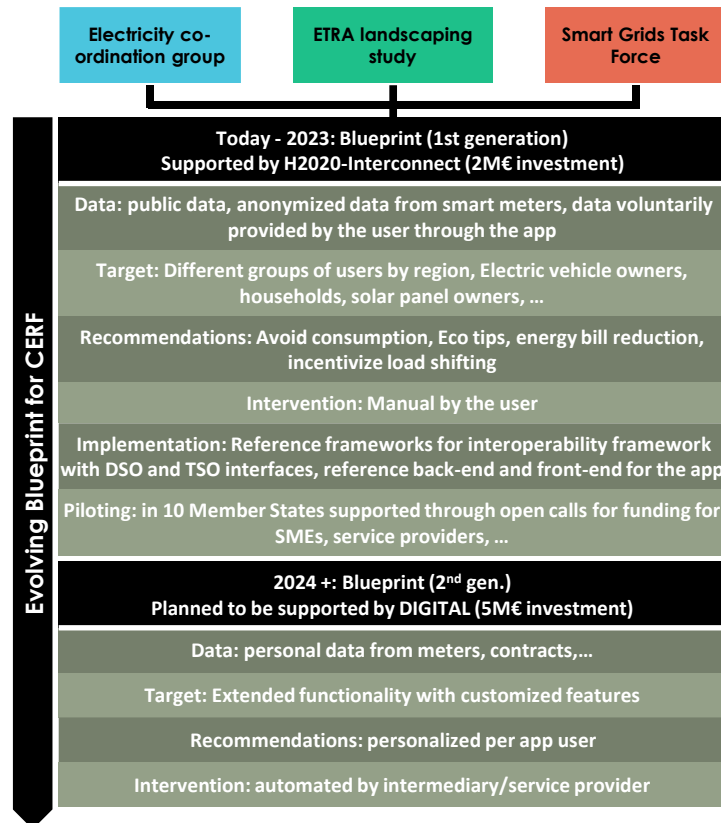


Figure 1: Blueprint Evolution for the CERF

## Roadmap

The roadmap for the deployment of the CERF [Figure 2] and the scale up of the piloting activities from 4 to 10 Member States consists of 7 logical steps that sustain the CERF as means to onboard new supporting stakeholders, integrate new publicly available data sources and creating or reusing new interoperable recommender services. Developed interoperable recommender services can be explored in new Member States and serve as a canvas for new Member State specific developments. Finally, the roadmap is completed by departing from the established App backend system and commissioning the development of a Member State specific frontend, that can easily communicate with consumers in the Member State’s native language.

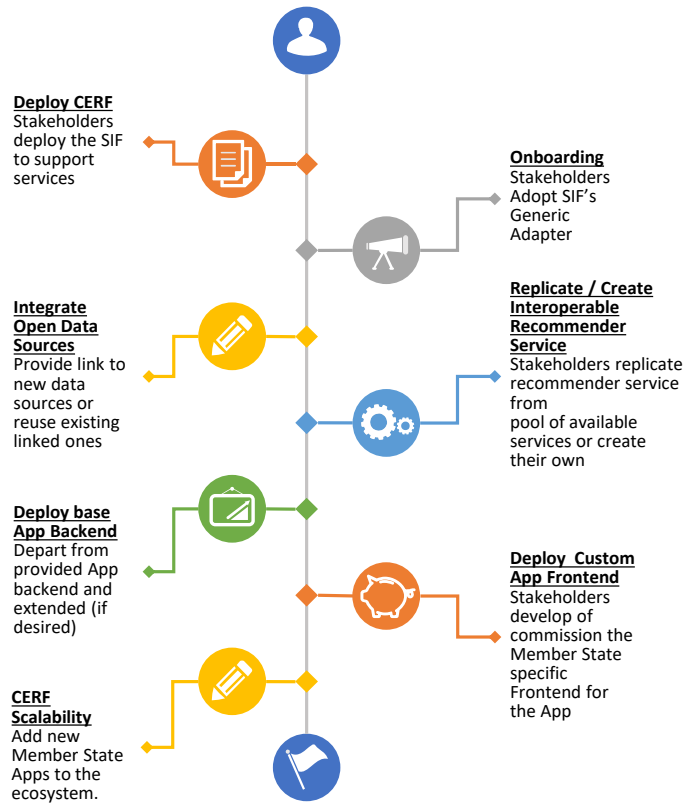


Figure 2: CERF Roadmap