e-SCALE

Energy - Services Connected to the Aggregate management of resources in the electric system

SCENARIO

The project develops and will validate a complete management service of aggregates of generation and / or consumption resources of the electricity system (**DEMAND-RESPONSE-AS-ASERVICE**) to enable the new figure of the **"aggregator"** operating in an innovative and coherent way with the **Smart Grid** paradigm.
The aggregator is a new actor that provides services by adequately coordinating a **series of resources** through digital tools (consumption plants and / or generation from non-programmable sources) to perform different types of services and in particular to contribute to the **dynamic balancing of the system for the correction of the differences between consumption and production.**

SYNOPSIS

DURATION: 18 June 2019 - 18 December 2020
COSTS : € 1,043,954.40
FUNDING : € 608,099.58

COORDINATOR

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ELECTRICITY MARKET

Roma Gas & Power
Rome

SCIENTIFIC DIRECTION

L'Università degli Studi di Cassino e del Lazio Meridionale
Cassino

OBJECTIVES

The **E-SCALE platform** therefore represents a tool not yet present in the Italian and **international market**, which is distinguished by several aspects:

Integrated technical and economic approach: the models developed within the project will take into account consumption and production data in relation to the economic data of users (opening hours, type of contract, type of activity, etc.). Therefore, in addition to the forecast of production and consumption, for example, the platform will be able to give information about the actual propensity to disconnect by users, useful for the economic plan of the aggregator.

Adaptive model: the developed models will be able to automatically adapt to the change of the user's technical and economic profile.

Purely software "digitized" system: a platform that is easy to update, to move with both Italian and international regulations (therefore also suitable for the international market) and open to new services (for example "power exchange" among users of the aggregator ").

End-to-end solution in closed loop: the entire cycle of realization of the service is in full automated way. There is the measurement part, the scalable and modular measurement and actuation device, the management part of the interaction with the operator and with the market and the actuation chain that can even perform BMS functions.

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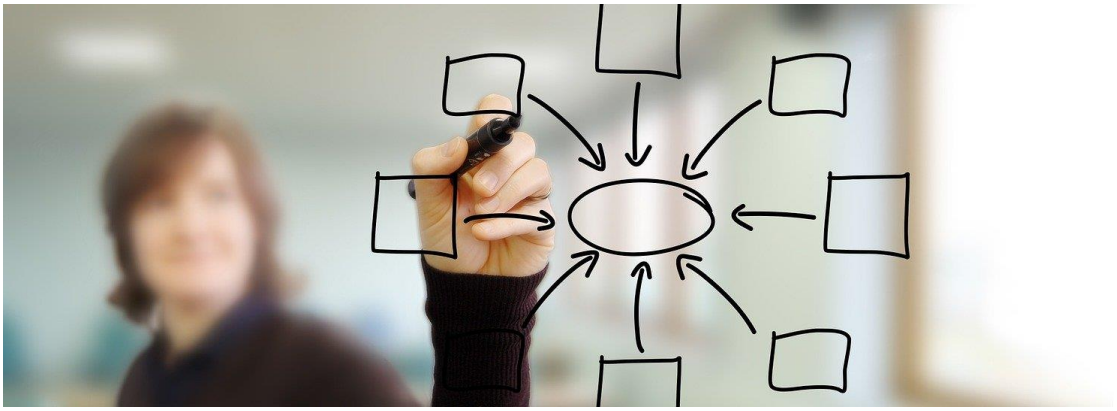
INNOVATION

The development will start from the analysis of the **business models and processes** that are the fundamentals of the work of the aggregators in the countries where the figure of the aggregator has been present for years in order to prepare the platform to meet the different needs that may arise in future on the **Italian and European** market which is progressively following in the footsteps of already developed experiences.

Based on these processes, the technological platform will be developed along with the equipment necessary for the operational management of the service. Management models and optimal dispatching algorithms will be developed, also introducing **self-learning and self-adaptation** functions to be able to dynamically adapt the management functions to the real behavior of the aggregated subjects and their current availability.
On this basis, the algorithms for formulating offers on the energy market will also be developed to maximize the revenues of the service.
The platform will then be validated in an operational context to verify its behavior.



TECHNOLOGIES

E-SCALE enters this market with the proposal of an innovative approach both in the **business model (DEMAND RESPONSE AS A SERVICE)** and in the **technological instrumentation (End-to-end platform in closed cycle)** which capitalizes the experiences of the countries that first they have opened the market to the participation of new players (eg USA, UK).
In particular, the E-SCALE approach already targets a scenario in which the involvement on a relatively large scale of distributed demand and generation is envisaged, **involving buildings, small industrial and commercial users, distributed generation systems** (co-generation, photovoltaic, mini-wind , mini-hydro, ...) and, to tend, the **residential users themselves**.
To obtain this result, **E-SCALE** adopts **totally digital and innovative technologies** for data analysis, prediction of the behavior of the units involved, interaction with the market for dispatching services that exploit the most recent developments in the "**big data**" field.

CONSORTIUM

algoWatt S.P.A. with headquarters in Milan and branch offices in Genoa and Rome (where all the planned activities are carried out)

Roma Gas & Power with headquarters in Rome - ITALY.

L'Università degli Studi di Cassino e del Lazio Meridionale with heaquarters in Cassino

The results of the project are published on the website www.e-scale.it

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