

The Areti's Commitment for the Net Zero District

RomeFlex  areti

Reshaping Operational Method to run grid Flexibility



Areti in the European and Italian Energy Scenario

Overview



«...**Interconnected and stable energy networks** are the backbone of the EU's internal energy market and **key to enable the green transition**...»



40% of Europe's grids are over 40 years old

Connection requests at distribution level increased on average by **19%** in a single year in 2021



In this decade alone, **€584 billion in investments** are necessary for the electricity grids, with a substantial part needed in distribution grids



Improve the **long term network planning** to allow the system to **integrate more renewables** and deliver the **demand generated by the electrification** of economy



Incentivate a **better usage of the grids** increasing transparency and adapting grid tariffs to a **reality made of efficient innovative technologies**



Improve the access to fundings giving **more visibility to the EU Programs** funding smart grids and the **modernization of distribution grids**

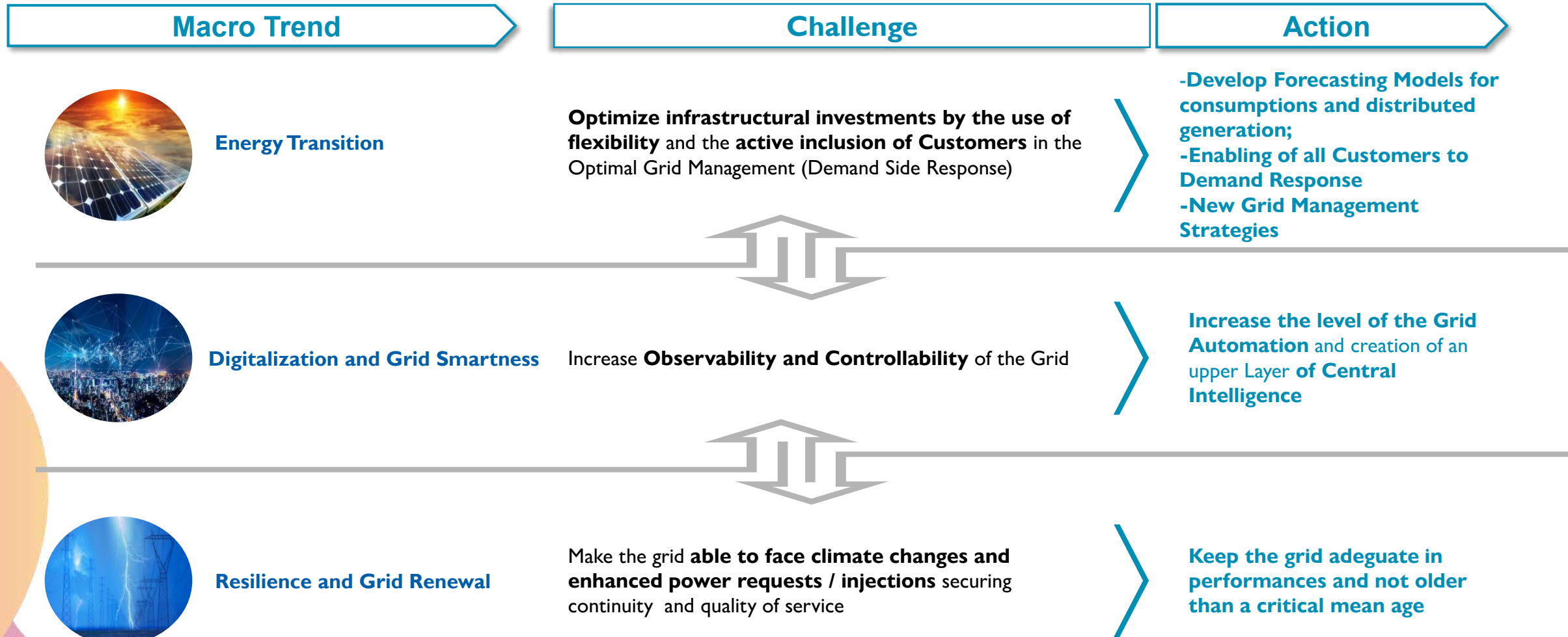


Encourage the **faster granting of needed authorisations** to **upgrade the grids** supporting technically the relevant authorities

The Areti Industrial Plan fully reflects the EU Action Plan for Grids, focusing on the Optimal Network Planning, the Grid Smartness, Enabling Flexibility Markets, Including Customers in the Energy Management of Rome

Areti in the European and Italian Energy Scenario

The New Areti's Paradigms to Upgrade and Modernize the Grids of Rome



Areti is an European Leader in Research and Innovation Projects Applied to Energy Grids

Areti is a European reference for Research and Innovation applied to Energy Grids:

all the developments achieved in the EU Projects and the resulting technologies, **are continuously industrialized** for the Digitalization and the Flexibility of Rome **always with a EU scalable and replicable vision**

FLUX

INSIEME

TwinEU

HEDGE-IoT

B
FLEXIBLE

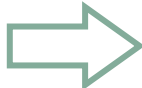
Platone
 PLATFORM FOR OPERATION
 OF DISTRIBUTION NETWORKS


PVSmile

**Piano Nazionale
di Ripresa e Resilienza**

 Commissione
europea




RomeFlex
To Other Grid Operators:

- Netz Nöe (AT)
- Wiener Netze (AT)
- AcegasApsAmga (IT)
- Unareti (IT)
- South America DSOs...



Flexibility Markets and Demand Response in the Areti Plan

The Areti Network Planning use the Leverage of Flexibility to Optimize the Use in energy of the Existing Grid to Face the Increase of the Power Peak in Rome from 2,1 GW (2022) to 3,3GW (2032)



Heat Pumps: 55% of Residential Customers penetration:
850 MW Installed Power



Induction Hobs: 20% of Residential Customers penetration:
310 MW Installed Power



Charging Stations for E-Mobility:
1.800 MW Installed Power

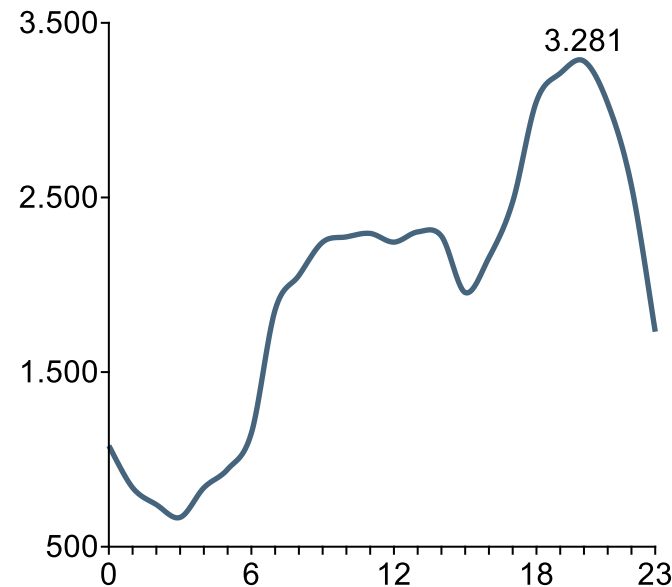


Further Electrification:
+5% of Power Consumption



Distributed Energy Productions and Storages:
+350 PV's Power Generation Installed

Note: The Curve Peak will be Reached in Winter Time...



Infrastructuring for a 3,3 GW of grid capacity is not efficient (only for 1,000 h/year the grid faces >2,6 GW of demand), it is necessary **to handle 0,7 GW through Demand Response and Flexibility Markets**

3.281

Power Peak in Rome at 2032:
for only 1,000 hours a Year Power Curve will overcome 2,6 GW

2600MW – future infrastructuring

2100MW -2022

8760 hours



1,2GW of Peak Increasing handled by an Optimal Mix:
0,5GW by Grid Reinforcements and 0,7GW by Flexibility

RomeFlex Project, pursuant to ARERA Decision 352/2021

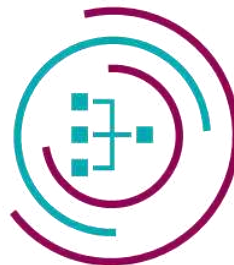
RomeFlex massively enables DERs to the local flexibility market, allows DSOs to purchase ancillary services through transparent and certified mechanisms, fostering the growth of an open and inclusive market for benefit of all the energy sector stakeholders

The Services



Active Power Regulation for Congestion Solving

The Project Ecosystem



Market Platform
Flexibility Register
DSO Technical Platform
BSP Platform
PGUI

The Market



Local Flexibility Market
Run by a Third Party:
- Long Term Tenders for Capacity Allocation
- Spot Market, Day Ahead e Intraday, for Service Procurement

Procurement Mechanisms:



Transparent Mechanisms always based on market approach and settlement certified by Blockchain

Main Features:



Service Granularity: 15 minutes
Minimum DER size: 3 kW in withdraw or injection
Minimum Service Size: 300 W

Romeflex Stakeholders



Household appliance and home automation systems manufacturers

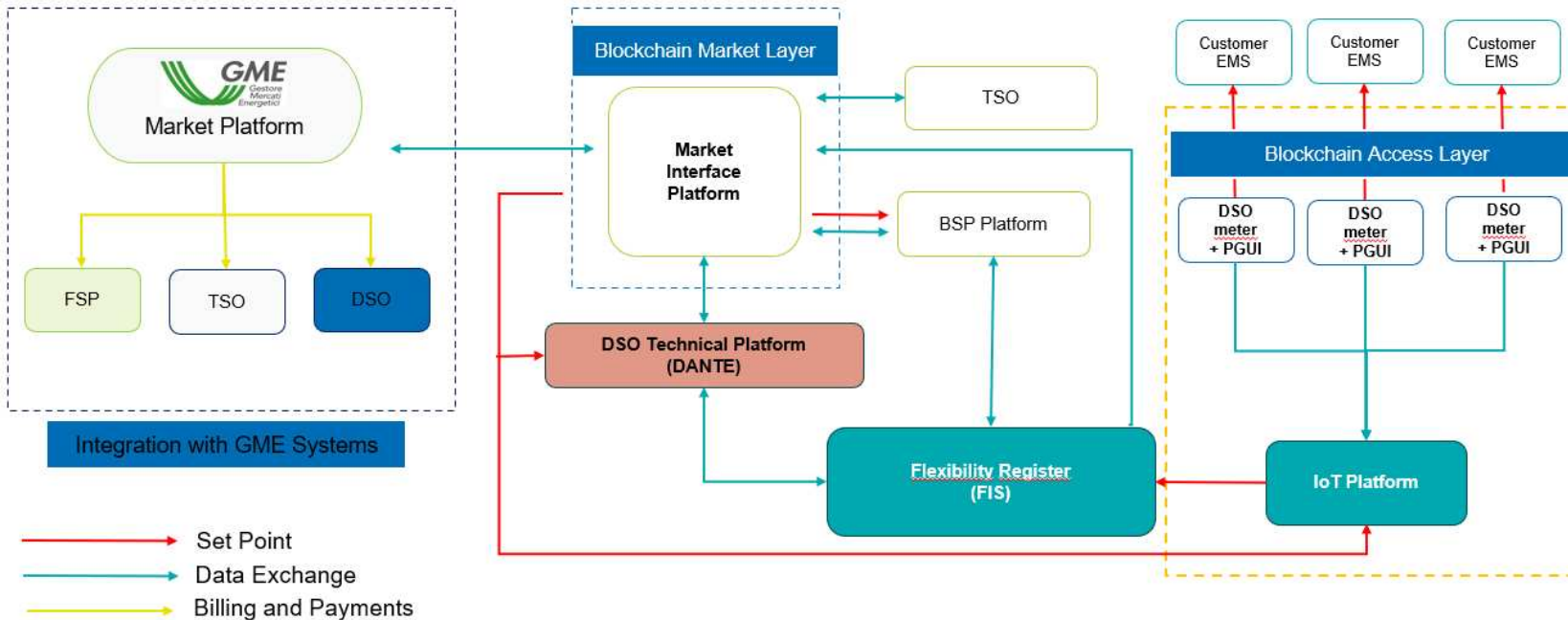
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Energy-intensive company and SME

RomeFlex Market Organization & Architecture

L'Architettura di Sistema



- **Areti:** operates network intelligence and market management platforms, identifying critical issues that Balancing Service Providers (BSPs) must resolve by modulating their power absorptions
- **GME:** manages the marketplace, receives flexibility requests from Areti, and conducts forward (medium- to long-term) and spot (daily) auctions, contracting with BSPs on behalf of Areti
- **BSP:** aggregate flexible resources across the territory, bringing them to GME auctions, and—if successful—provide the service in response to activation requests from Areti's Operations Center

RomeFlex

Market Organization



Aste a Termine

Procurement of power availability by BSPs for Areti; annual frequency, remuneration in €/MW/year.

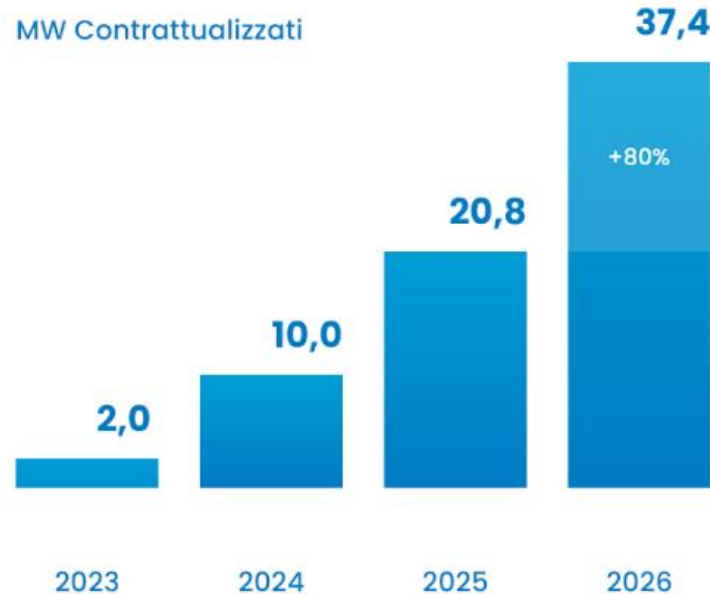


Aste a Pronti

Procurement of the Power Modulation Service by BSPs for Areti; daily frequency, remuneration in €/MWh

RomeFlex Market Liquidity at February 2026

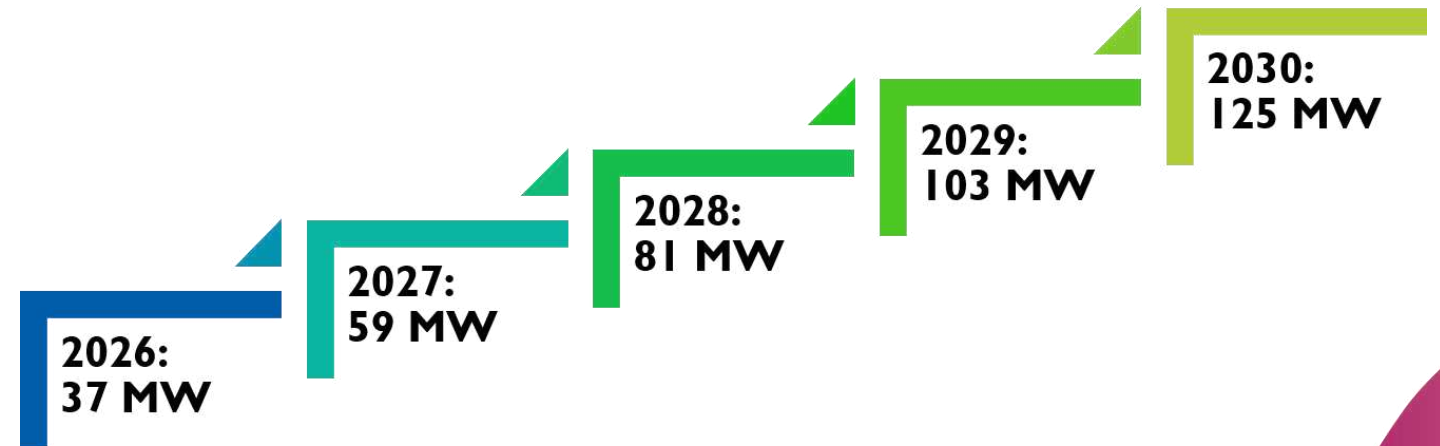
Trend in costante crescita
della potenza contrattualizzata
in RomeFlex, con un **+80% sul 2025**



13 Balancing Service Provider
1.500 Users - 37 MW of Flexible Capacity



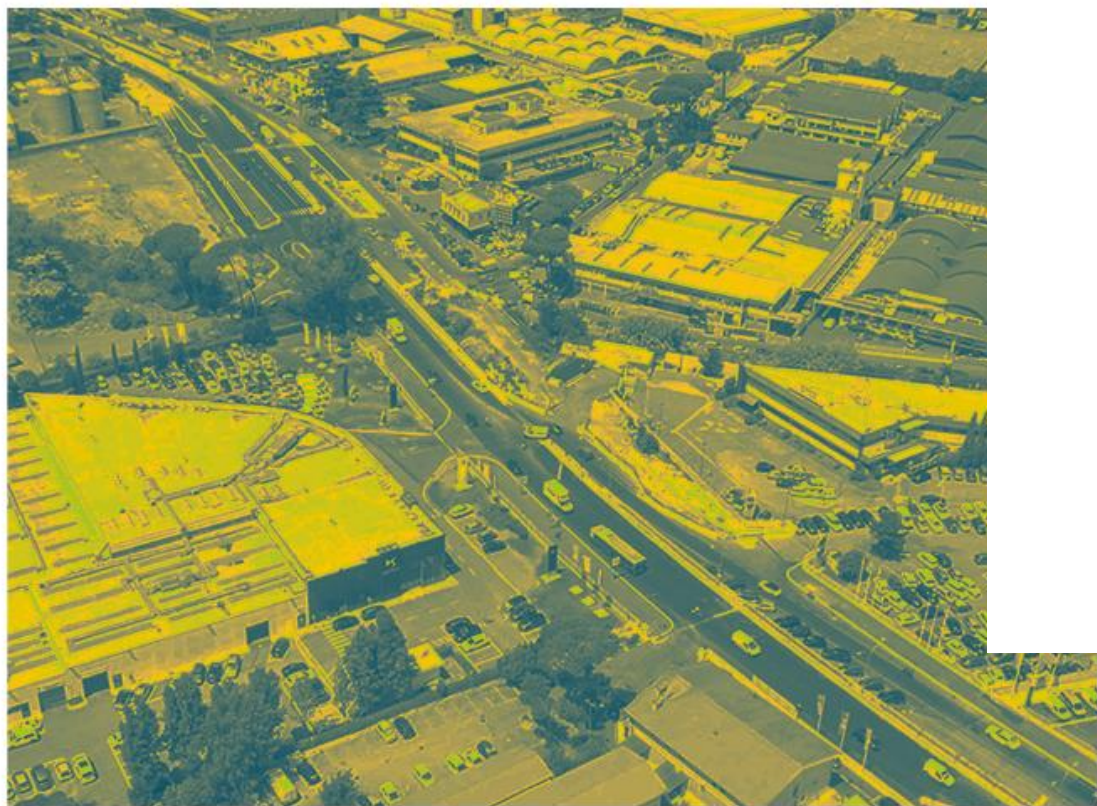
Flexibility Needs Areti
as from Development Plan
(Flex + Storage)



RomeFlex Focus on NZD Master Plan Outcomes

NET ZERO DISTRICTS: DISTRETTI SOSTENIBILI IN UN CLIMA CHE CAMBIA

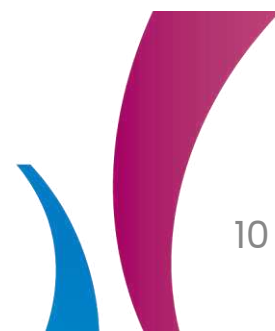
Master Plan del Distretto Tiburtina Valley



6.3 Flessibilità elettrica di distretto

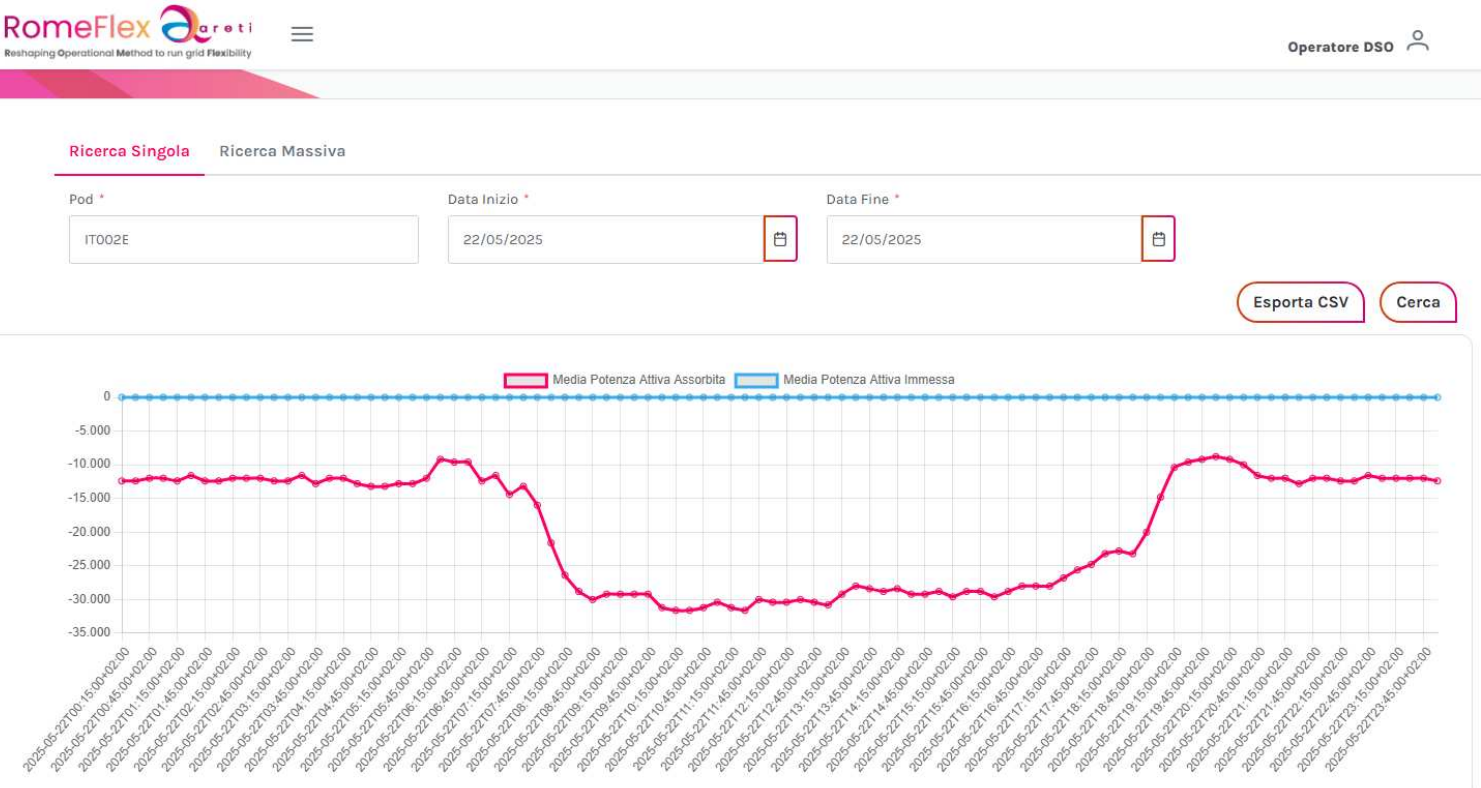
A partire dal confronto con Areti, il distributore locale di energia elettrica, e con RomeFlex, il suo mercato dedicato alla flessibilità, questo approfondimento esamina **la flessibilità elettrica come risorsa a disposizione dell'intero distretto**. Per "flessibilità" si intende qui la capacità di un'impresa di modulare temporaneamente i propri consumi di elettricità, aumentandoli o riducendoli per un periodo limitato, senza che questo comprometta la normale attività produttiva.

Questa capacità non significa necessariamente consumare meno energia in totale, ma anche solo spostarne l'uso verso le fasce orarie più favorevoli, contribuendo così a contenere i picchi di richiesta che possono essere all'origine di blackout nel distretto.



Criticità e raccomandazioni

La criticità principale riguarda la mancanza, per la maggior parte delle apparecchiature, delle cosiddette curve di carico quartorarie: la registrazione, ogni quindici minuti, dell'energia effettivamente assorbita da ciascuna apparecchiatura. Questo dato sarebbe necessario per ricostruire con precisione quanto ciascuna risorsa può essere effettivamente modulata: nella pratica, **la stima della flessibilità dovrebbe sempre partire da risorse la cui potenza può essere misurata direttamente.**



RomeFlex Focus on
NZD Master Plan Outcomes



PGUI – Power Grid User Interface

Thanks to RomeFlex technologies (like PGUI and Flexibility Register), that are free to provided, Service Providers have real time measurement of each plant and day ahead forecast of the daily power profile

An aerial photograph of a city with a large lake in the foreground. The city is densely packed with buildings, and a tall skyscraper is visible on the left. The lake is surrounded by greenery and a few smaller buildings. Overlaid on the image is a network of white lines and glowing nodes, suggesting a digital or technological theme. The sky is a mix of blue and purple, with some clouds. The word "Thanks" is written in a large, stylized font in the center of the image.

Thanks