



CO-FUNDED BY
THE NER 300 PROGRAMME
OF THE EUROPEAN UNION



MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE

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NETWORK DEVELOPMENT - GLOBAL INFRASTRUCTURE AND NETWORKS



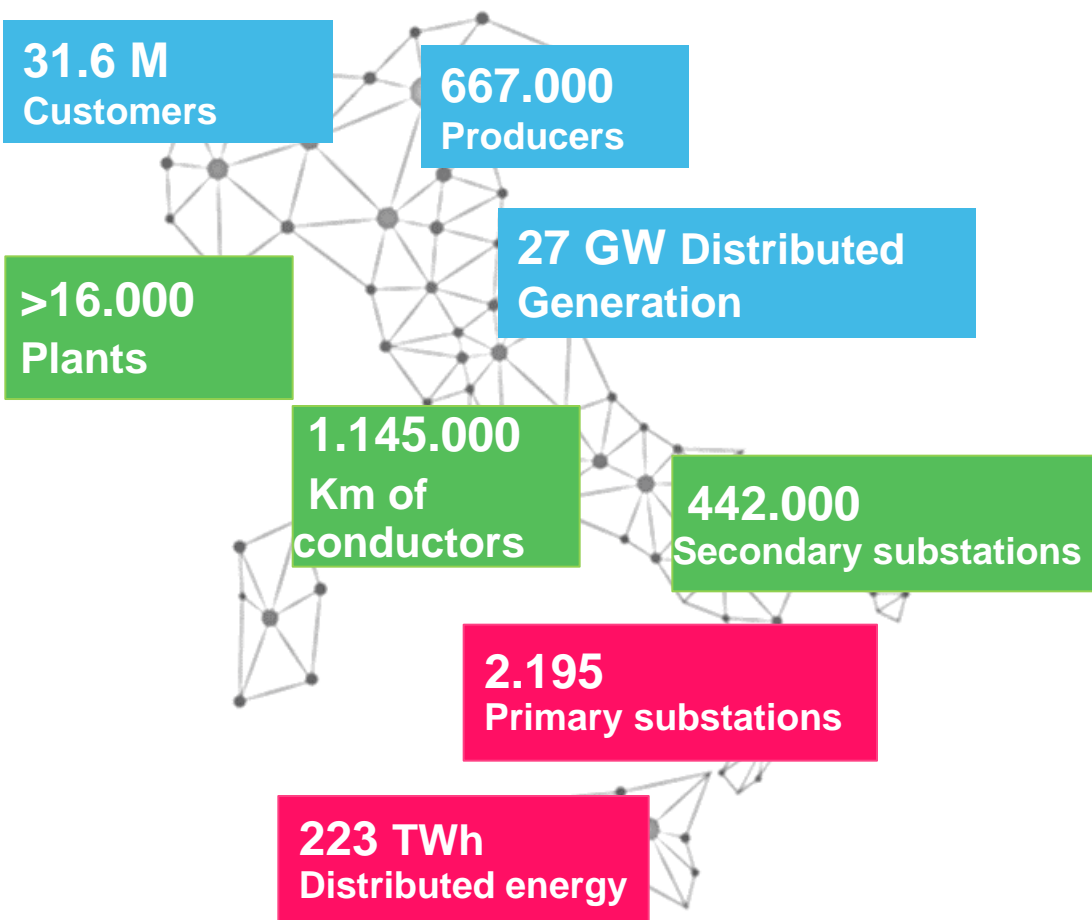
P R O G E T T O

Puglia Active Network

e-distribuzione

e-distribuzione S.p.A.

Italian infrastructure and networks



Evolution

From **large scale demonstration to regional deployment** of innovative solutions to facilitate:

- Integration of renewables and DRES
- Supporting customer engagement
- Providing EV charging infrastructure

Isernia project



2011-2014



- 10 M€
- 1 Primary substation
- 8000 customers

PROGETTO Puglia Active Network

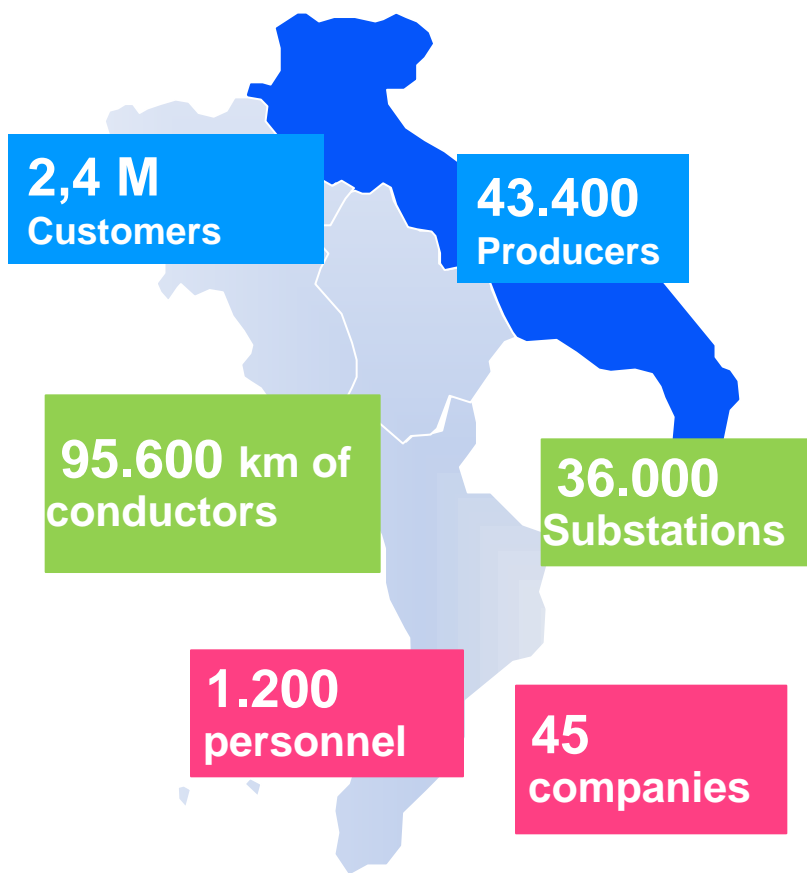


2014-2018

- 170 M€
- 102 Primary substation
- Entire region (2.4M customers)

Impact of the PAN project on the distribution network

e-distribuzione in Puglia



Impacted by PAN project

67.670 km lines	70%
102 primary substations	80%
100 satellite substations	56%
7.968 secondary substations	22%
41.000 producers connected to the network covered by project	94 %

Reference scenario

- Puglia is the region with the largest energy production from New Renewable Non-Programmable Sources
- Adapting infrastructures to accommodate high power generation from Distributed Generation
- Enhanced network management to ensure quality and security of supply

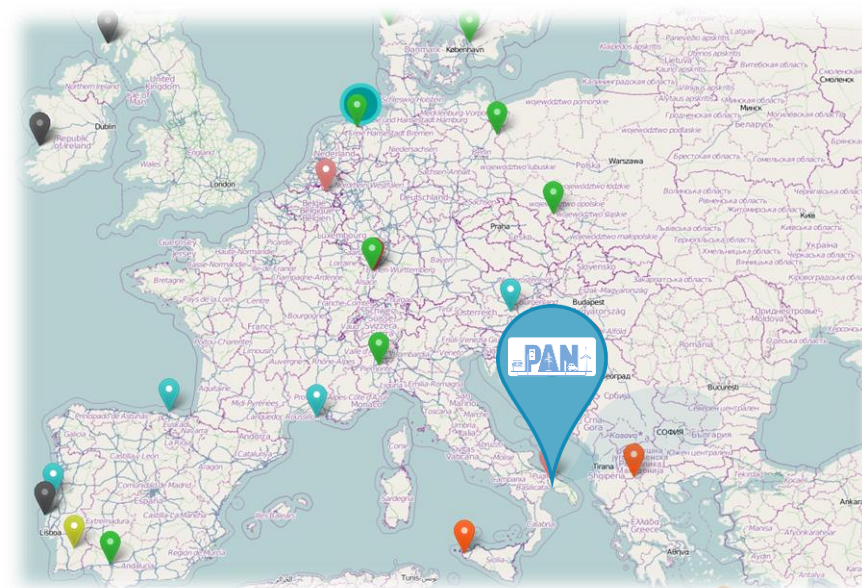


The NER300 call

NER 300 is one of the world's largest funding programmes for **innovative low-carbon energy demonstration projects**. The programme is conceived as a catalyst for the demonstration of environmentally safe carbon capture and storage (CCS) and **innovative renewable energy (RES)** technologies on a commercial scale within the European Union.

Summary

- ❑ First Call - 2011: **20 selected projects** for a total funding of around **1.1 billion euros**
- ❑ The second call - 2013: a further **19 selected projects** for a total funding of around **1 billion euros**, including the Puglia Active Network project
- ❑ Eligible Costs: **50% of CAPEX + 50% of OPEX** for the first 5 years from the date of entry into operation
- ❑ All projects coming into service **by June 2020**
- ❑ Balanced geographical breakdown: **1 to 3 projects per Member State**



PROGETTO
Puglia Active Network

Puglia Active Network (PAN)

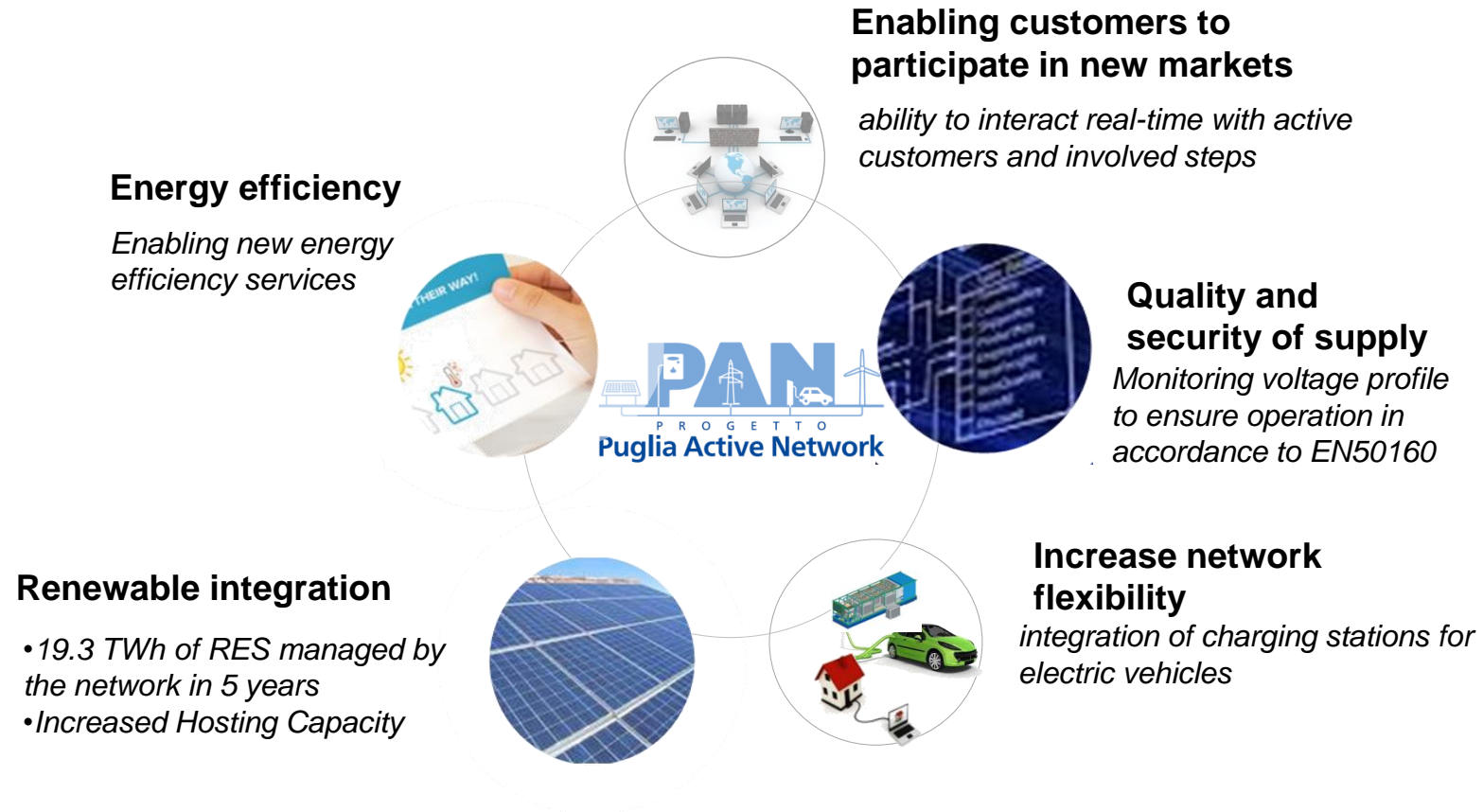
E-distribution project with a total budget of € 170 million and € 85 million funding by the European Union through the Call for Proposals NER300. The PAN project will provides innovative solutions for services for the first time in a whole Region



**Realisation of the First Smart Community in the World
on a regional scale**

Project Objectives and Expected Benefits

Entry into operation June 30, 2018



Smart Grid functionality

Enhanced management of an active network across an entire region

PROGETTO
Puglia Active Network



Advanced automation



Monitoring and Controlling Distributed Generation



Monitoring and monitoring the tension of the medium voltage lines

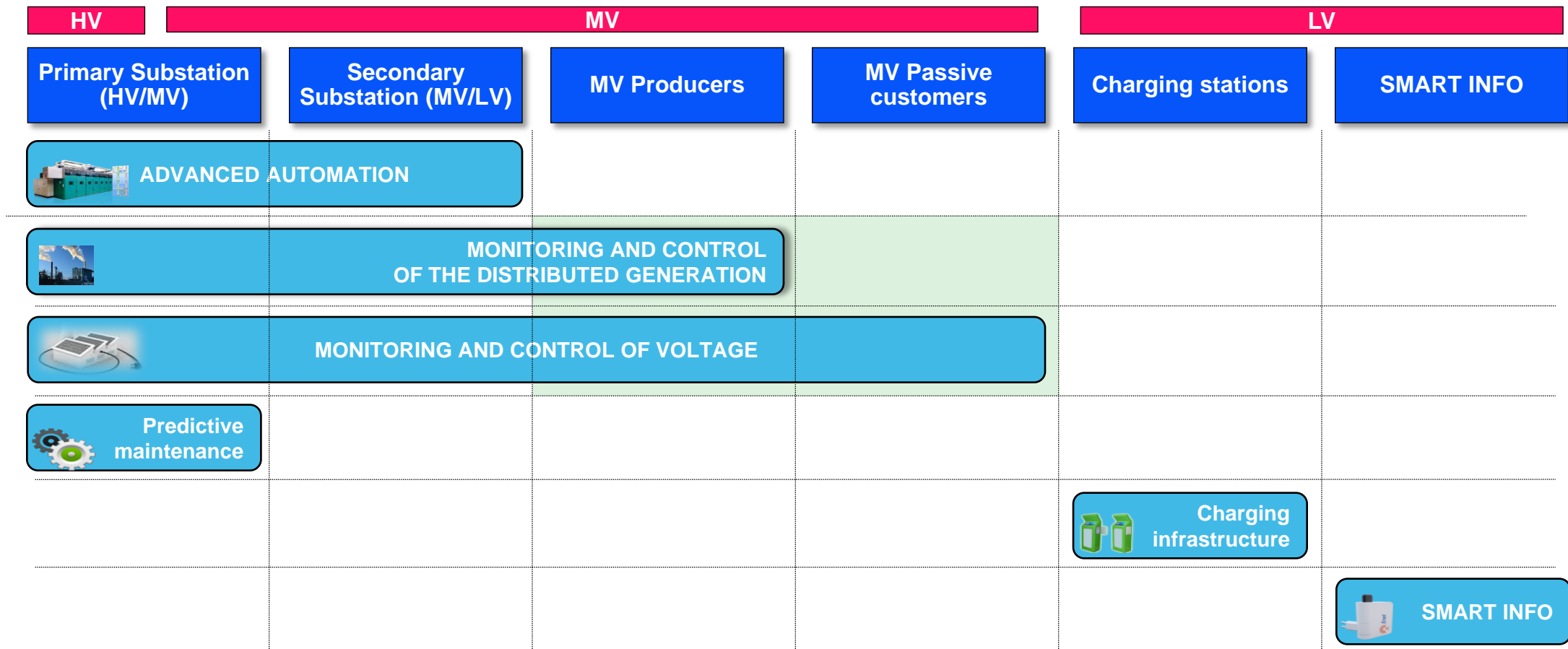


Predictive maintenance on primary substation MV switches

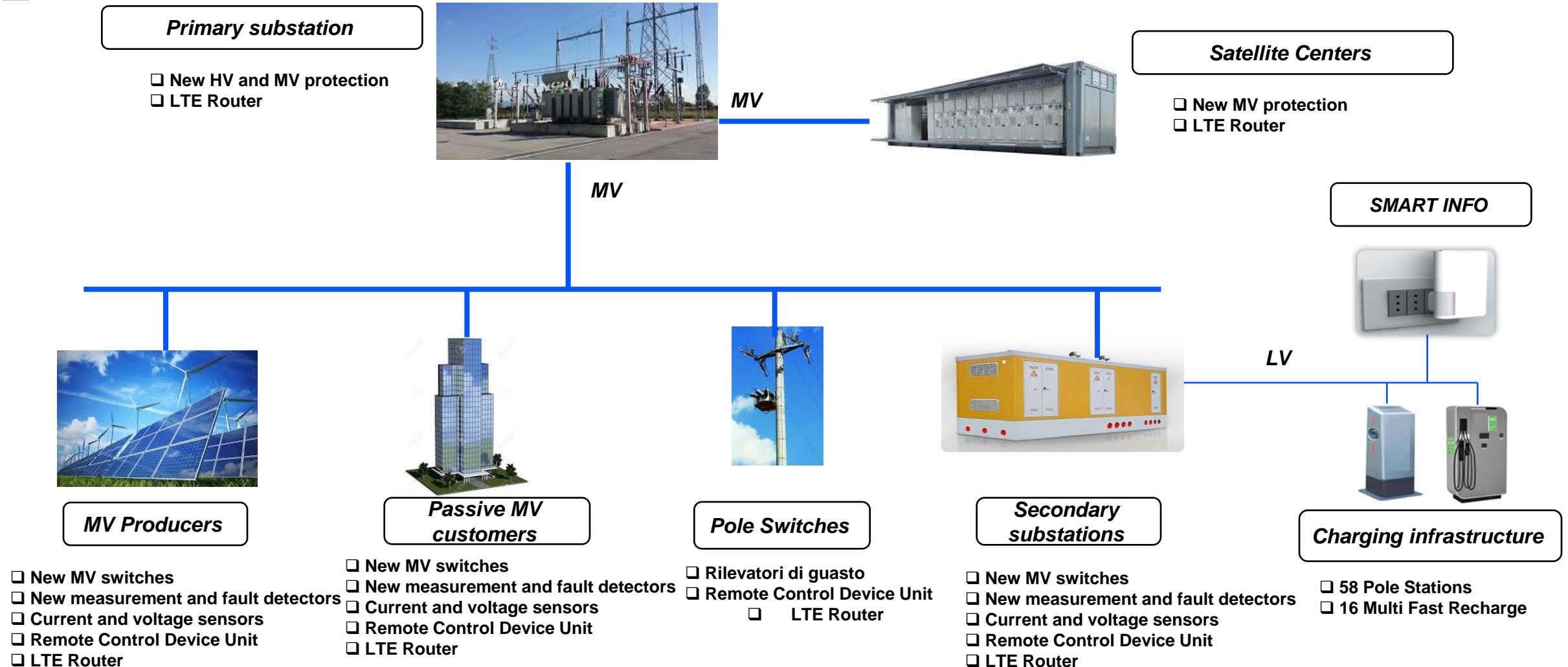


Electric vehicle charging infrastructures

The features to implement will guarantee the evolved management of an active network



Overview of the PAN Project



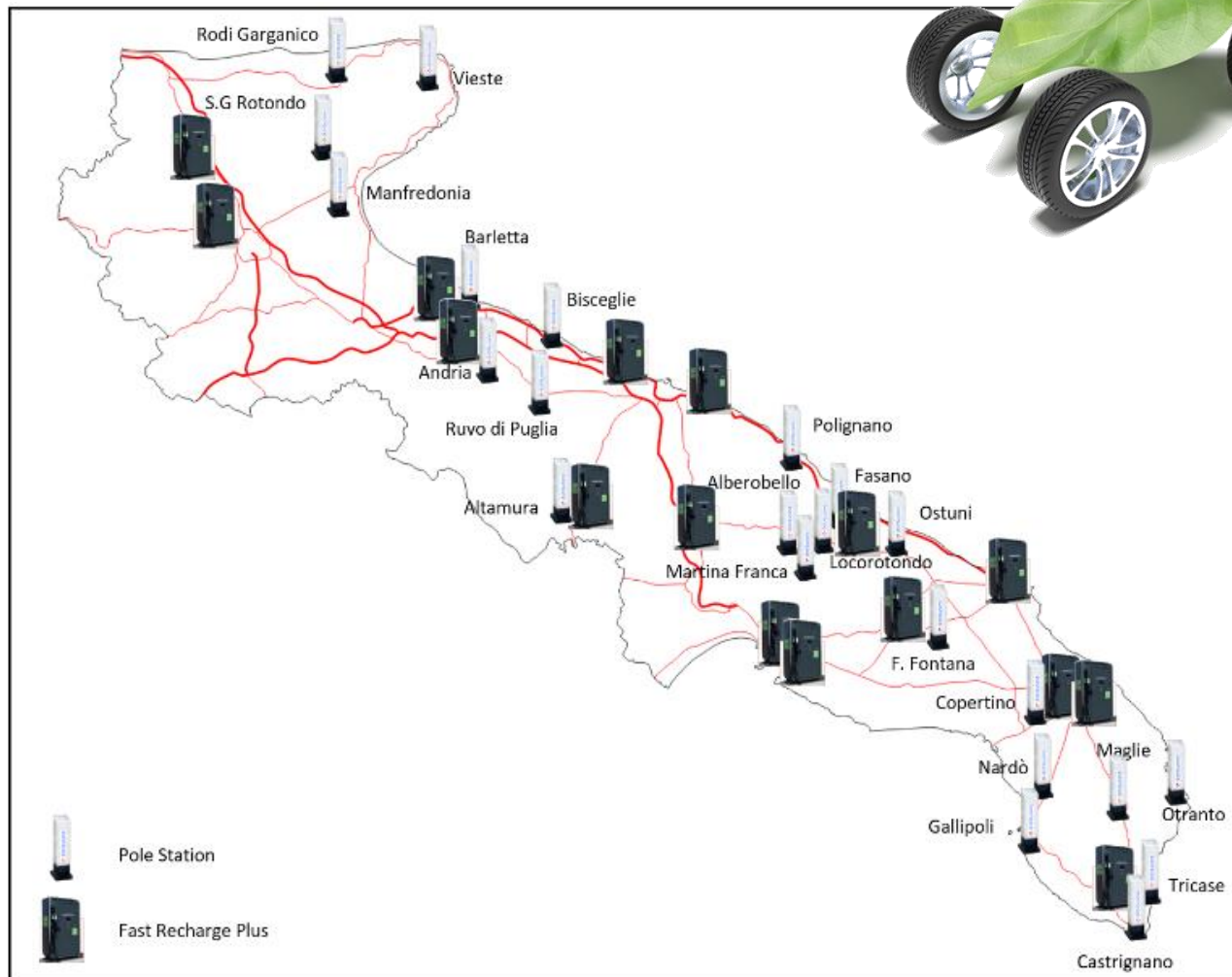
A regional charging network for e-MOBILITY

Development of a network of 74 public charging infrastructures for fully integrated electric vehicles with the distribution network, located throughout the regional territory along the main routes.

- ❑ Refurbished Infrastructure Designed with Open, Interoperable, and Multivendor Philosophy to Accept Clients With Contracts Of Any Power Trader
- ❑ Coverage of the region and connections with the neighboring regions by maximizing the efficiency of the charging infrastructures already present on the regional territory
- ❑ Simultaneous charging of multiple vehicles for a lesser impact on the territory and greater serviceability
- ❑ Central Remote Control System (EMM) for the entire network supervision and complete management of the entire charging process



The scenario



Figures

Over 30 Municipalities Involved

16 Multi Fast Recharge

58 Pole Stations

164 Simultaneous charging points

Enabling Demand Response for LV Customers

Free distribution of 30,000 Smart Info + kits, an innovative system for providing the customer with information acquired from the smart meter and streamlining energy consumption in a simple way.

Smart info info can be viewed through a wifi connection device (dongle) and built-in (sw / web-app) devices for displaying consumer data over PCs and / or mobile devices.



The Benefits of Puglia Active Network

Economy



- Significant distributed resources in the region will support the economy and productivity
- Valuation of competencies both within E Distribuzione
- Supports Local business development
- New value-added services addressed to citizens

Environment



- Integration of renewable energy
- Reduced network losses
- Intelligent management of energy consumption
- Realisation of new infrastructure for a new model of zero emission transport

Main Outcomes

1. Verification that **advanced monitoring and control** system on electrical distribution network has **attainable benefits** for **increasing hosting capacity** of renewable generation sources.
2. Demonstrated **reduced costs** as the scale of the deployment is increased
3. Further potential for **increased flexibility** that **can be facilitated**
4. Installations of **more efficient charging station** including fast recharge and better distribution, allowing an increased output
5. Realisation of **improved customer engagement** resulting from Smart Info deployment