



6° AIEE Energy Symposium

Current and Future Challenges to Energy Security

The energy transition. a pathway from low carbon to de-carbonization

Energy Efficiency and the future strategies of the energy industry

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Bocconi University



Since 1945, Federmanager is a key Association representing managers leading companies that produce goods and services, with about 160,000 managers, both active and retired.

It focuses on aspects such as:

- Contractual
- Institutional
- Social
- Professional
- Cultural



It is made out of a **Central National Structure** and **55 Local Structures**



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For several years, Federmanager has established a solid scientific relationship with AIEE, drawing up four energy reports on contemporary topics .

1° Report – March 2017 – ***An Energy Strategy for Italy - Compatibility between safety, economy, efficiency and the environment***

Energy security and Efficiency

2° Report – January 2019 – ***The ways for de-carbonization and the Italian economic and industrial development***

Decarbonization

3° Report – February 2020 - ***Green transition and development. Can the Circular Economy contribute to the restart of the Italian system?***

Circular Economy

4° Report -2021- ***The energy communities role in the transition process towards decarbonisation***

Energy Communities

5° Report – 2022 **Automotive and Battery technology markets**



Automotive & Smart Mobility

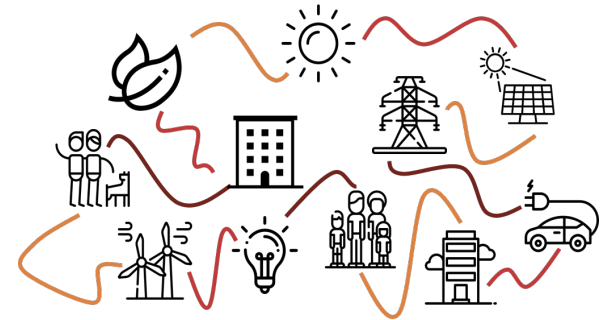
Our long-term goal is to increase synergies between energy communities, prosumers and electric mobility

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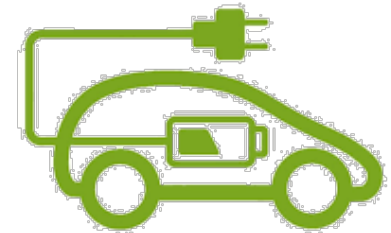
- ❑ Tools to achieve energy efficiency's goals



- ❑ Energy communities : from Consumer to Prosumer



- ❑ Electric mobility and Smart solutions



Introduction

- ❑ To achieve the 2050 net-zero emissions goal, a high level of attention on green energy issues and the de-carbonization process is needed .

Actions in the next decade are crucial

- ❑ By using energy more efficiently and thereby consuming less (and paying less energy bills) , Italy can:

Improve their life quality

Mitigate climate change

Help protect the environment

Reduce reliance on external suppliers

Increase energy independence and auto-production



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- ❑ To attain these benefits it is fundamental to improve energy efficiency throughout the full energy chain (from production to final consumption), raising the implementation of energy communities.

Some Tools to achieve energy efficiency's goals

- ❑ **Improve** the way people consume by growing **circular economy and *energy recovery*** systems (Pyrolysis).
- ❑ **Create local energy communities** developing innovative methods of management and control of the electricity grid through distributed logics, in order to increase energy efficiency in the cycle of production, transport and distribution of electricity.
- ❑ **Generate ethical Citizens:** reduction of citizen's energy waste (consumption awareness) and develop of prosumers.
- ❑ **Digitization**, cutting-edge technologies (*Cogeneration*) and developing of a **Electric Mobility System**. In Italy we are at first level in the world for digitalization of energy network with the installation of the “electronic meter” since 2000.

Energy communities

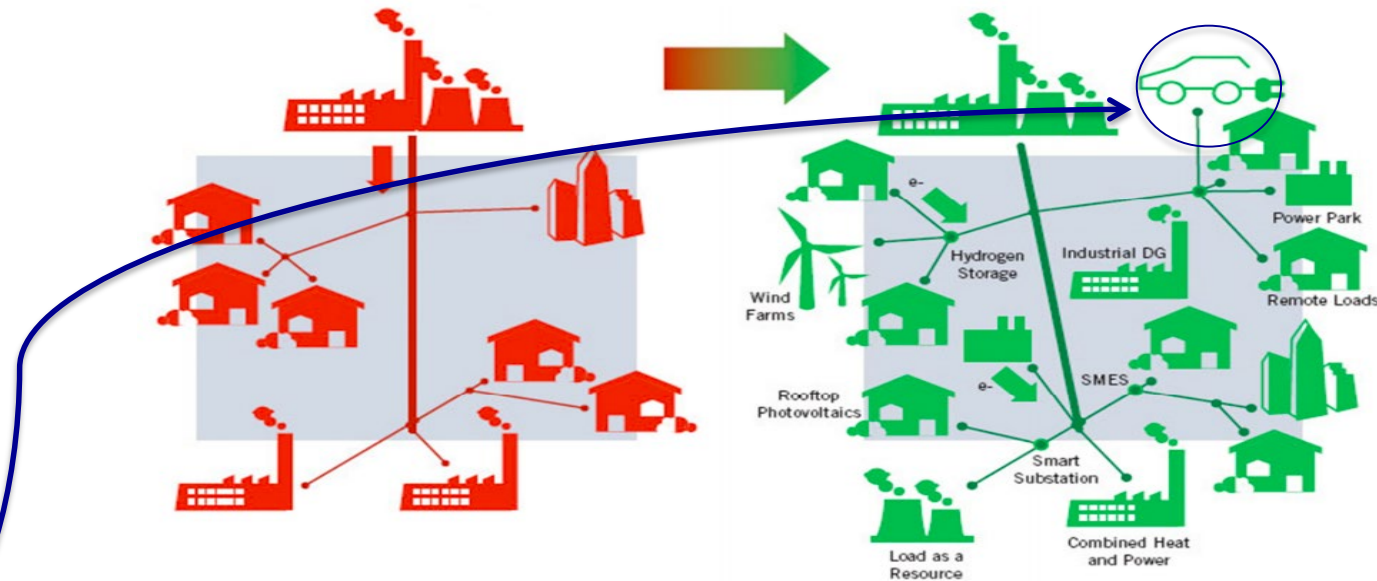
The aim of energy communities is to move from a single concentrated generation to a distributed generation coming from an energy mix composed of :

Renewable energy

Energy recovery

Energy efficiency

Circular economy



- Developing widespread energy community systems would allow citizens and condominiums to become energy independent, and would also stimulate the demand for electric cars that could be charged with zero km energy.
- For those reasons we can assert that: *“Energy communities do not transport energy but with energy they transport things”*.

Energy communities



- ❑ The condominium can become an aware **prosumer** and invest in improving energy efficiency, allowing inhabitants to install Renewable resources.
- ❑ The direct exchange of energy would make electricity consumption more efficient by sharing electrical utilities and exchanging the energy accumulated for each user thanks to the accumulators.
- ❑ Distributed production is also useful for the lightening network to avoid distribution overload, reduce energy transport costs (energy transport, together with system charges, almost double the cost of energy, penalizing Italian companies and energy dispatching), contain network losses (energy efficiency) and charging electric vehicles (smart mobility).

The evolution of the citizen's role: from Consumer to Prosumer



The **Prosumer** is the protagonist of the current energy revolution, he produces and consumes self-produced energy, putting the remaining part into the network.

Citizens (new Prosumers) can become energy communities, collaborating for the goal of energy production, consumption and management thanks to local plants (energy efficiency); enjoying greater autonomy, contributing to environmental sustainability and obtaining economic benefits.

- ❑ The combination of renewable energy, energy efficiency and energy security in a community of Prosumers allows to integrate electricity with mobility (raising up the electric vehicles supply), to balance the grid, to reduce electricity costs, and to enable a feeling of local belonging
- ❑ The first step in making a city intelligent is to embrace the new model of energy communities, and this step is within the reach of any urban center.

Electric mobility in Italy

The electric vehicles market in Italy, despite the problems arising from the covid, has recently registered exponential growth respectively:



The future Vehicles' Demand can be further stimulate by the develop of Energy Communities

BEV +4,5%

PHEV +4,5%

Total Sales +9%

Strengths and weaknesses of electric vehicles



Strengths

- Sustainability: absence of emissions
- Savings: significantly reduced cost per kilometer due to the non-use of fuels
- Different Benefits such as : access to the ZTL and free parking

Weaknesses



- charging times is longer than others resources
- EV charger systems are not spread efficiently in both urban and extra-urban areas
- Disposal and Recovery of batteries at the end of the life's product
- Presence of rare and highly polluting components inside the battery such as lithium and cobalt (geopolitical problems)

5° Report : Automotive and Battery technology markets

The fifth Report AIEE-Federmanger will focus on the effects of the revolution underway in the Italian industrial vehicles sector.

The transformation is going to be determined by four factors:

- New models of Mobility
- Autonomous driving
- Digitization
- Electrification (MADE).

→ HOW? →

Implementing efficiency measures of the distribution lines towards **independence, self-sufficiency and self-production**

Among the key points of the analysis, the comparison between the forecasts on the development of intermodality and the shared modality will provide a realistic evolution of the sustainability ecosystem.

During the analysis the Report will examine the innovative skills and know-how of future's Mangers, underlining the importance of training and the always more significant implementation of innovative approach towards digitalization

Main emerging skills of future's Managers



Conclusions

To achieve concrete objectives in the electric mobility sector, it is necessary to put forward proposals aimed at minimizing the economic and social impact of the revolution underway in the vehicle sector, through:



- the creation of a favourable context for the reconversion of the sector, through measures and moral suasion aimed at reducing the current fragmentation of the production system;
- The implementation of measures to support the process of technological innovation and the professional retraining of workers;
- The propensity to capitalize experiences of other European countries
- The creation of the conditions (eg bureaucratic simplification, tax advantages) to make the Italian supply chain attractive to foreign investments.
- Investing in Energy communities and Circular economy in order to be energy independent, reducing in one hand costs of energy from the transportation to the consumption, on the other hand the GHG emissions.



THANK FOR THE

ATTENTION !