



# LISBON CES

CIVIL ENGINEERING SUMMIT

2019

24 - 28 SEPTEMBER 2019, LISBOA, PORTUGAL

**Efficient Energetic Solutions**  
**Soluções de Eficiência Energética,**  
**Ania Lopez**



## Agenda

**Introduce**  
Energy Carbonisation and  
access

**Independent Research**  
Research Milan POLI and FIPER

**The best practice of Italy**  
Presentation of Case study.  
ALPERIA  
Delphina

**CONCLUSION**  
Future is now!







## Introduce

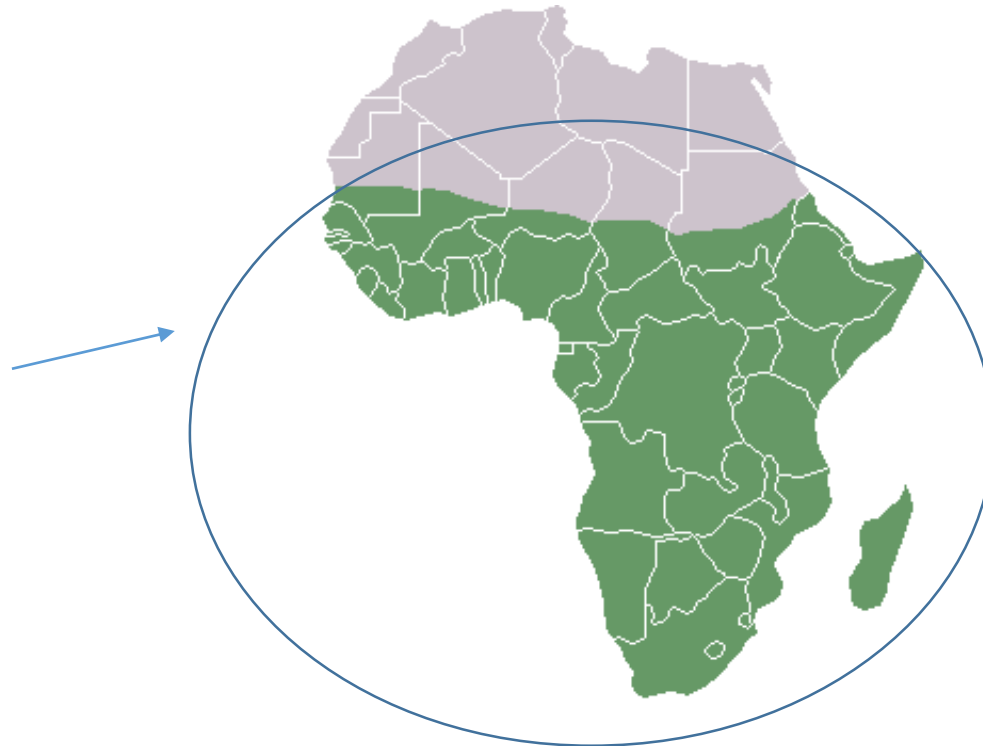
**Why is it  
necessary  
to invest  
in  
renewable  
energy?**

Carbonisation,  
GHE , Traffic, etc.

# Carbonization

Close to **1 billion people** live access to electricity, predominantly in Sub-Saharan Africa (IEA, 2019)

IEA: International Energy Agency



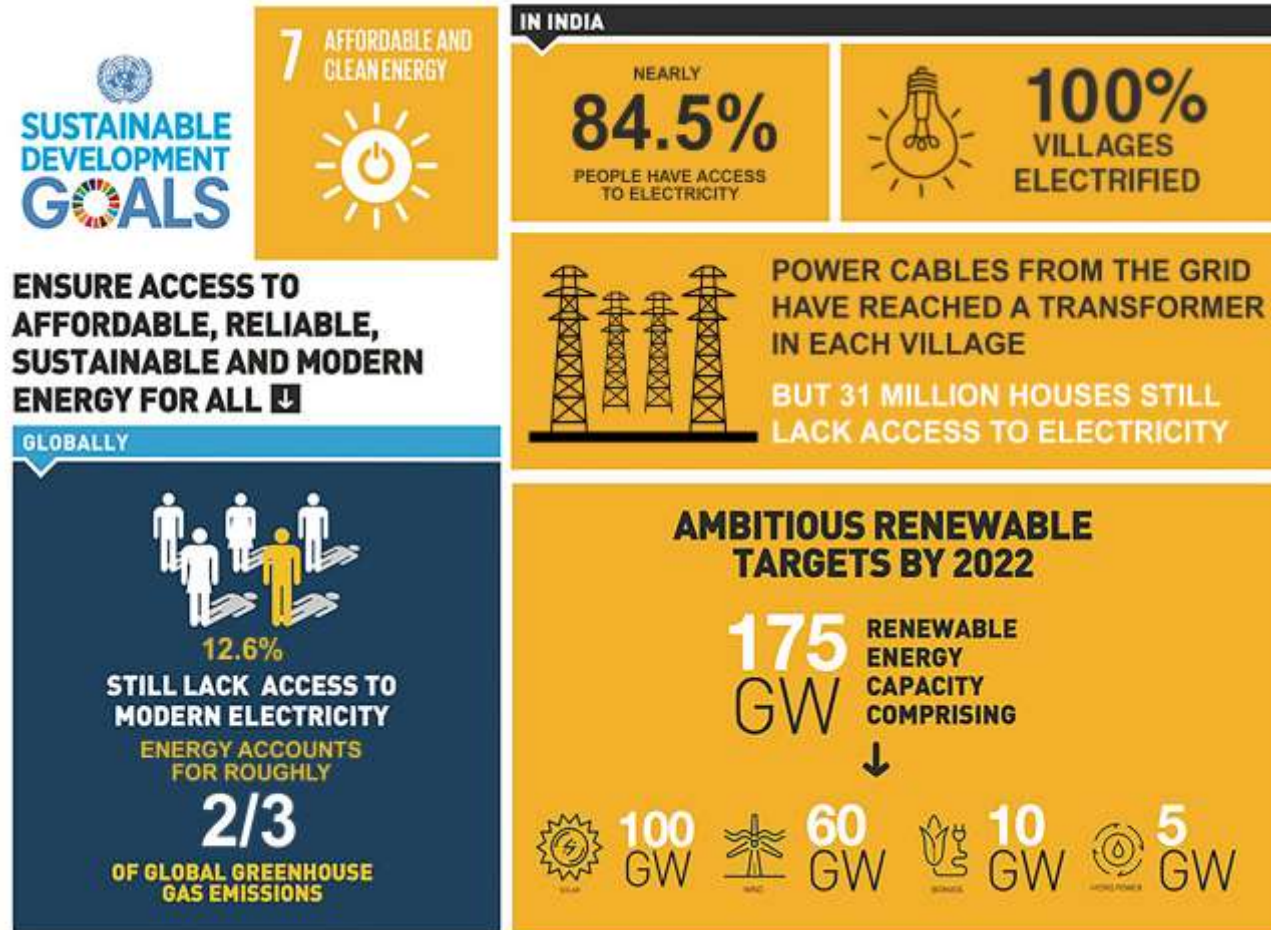
More than **3 billion people** rely on polluting solid fuels for cooking, causing an estimated **4.3 million** premature deaths each year (WHO, 2016).

WHO: World Health Organization





# Energy



The amount of modern renewable energy in the total global energy supply increased by an average **5.4%** annually over the past decade. However, as the absolute consumption of fossil energy continues to grow as well, the current trajectory is inconsistent with the objective of decarbonizing the energy system (REN21, 2018).

## Introduce

Global passenger demand (measured in passenger-kilometres) is expected to more than double between 2015 and 2050, with most of the growth occurring in developing economies (OECD/ITF, 2017).



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In 2016, 4.2 million people died from ambient air pollution

The number of cars in the world is about 1.2 billion considering that the world population amounts to about 7.4 billion.



## Share of energy from renewable sources in the EU Member States

(2017, in % of gross final energy consumption)



Renewable energy produced in the EU increased by two thirds in 2007-2017. The primary production of renewable energy within the EU-28 in 2017 was 226.5 million tonnes of oil equivalent (toe). The quantity of renewable energy produced within the EU-28 increased overall by 64.0 % between 2007 and 2017, equivalent to an average increase of 5.1 % per year.

Share of energy from renewable sources, 2017 (in % of gross final energy consumption)  
 Source: Eurostat ([nrg\\_ind\\_ren](http://nrg_ind_ren))



## Independent Research

Research Milan POLI and FIPER

Problems/Solution

Positive Effect

Benefits to the Environment

Considerations for the future



# Independent Research

Independent Research was carried out by several expert bodies including FIPER, AIRU, POLIMI, SEV, in order to demonstrate the economic and environmental advantages of introducing the Wood Biomass district Heating in the wooded areas.



**POLITECNICO**  
 MILANO 1863



● Total Power ( 668 MW)

● Biomass (367 MW)

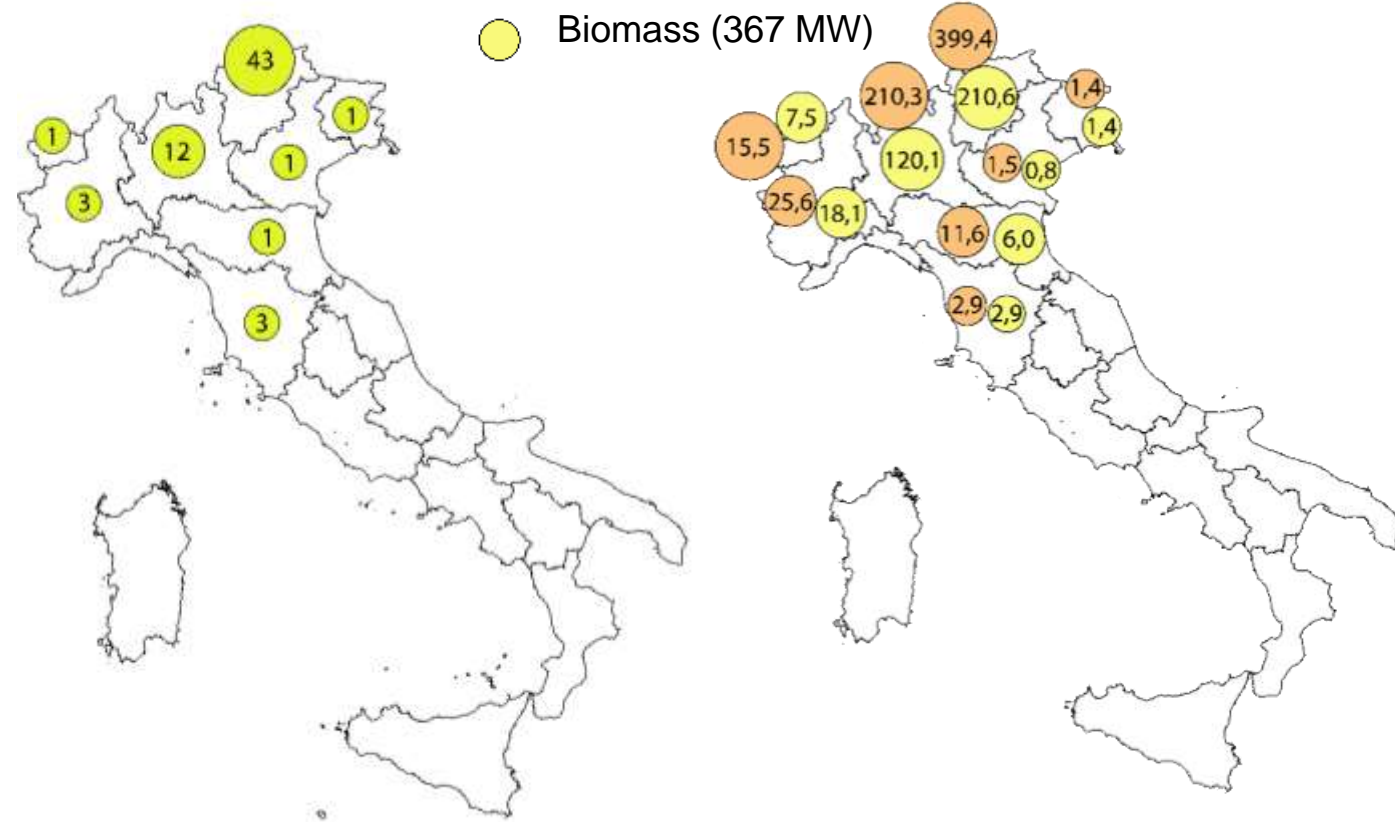


Fig. 2. 65 Power Plants by Region

Fig. 3 Total Power produced by Biomasse



## Problems/Solutions

**Clearer regulatory framework on incentives for the use of Renewable Energy;**

**Greater incentives also for private individuals to use biomass district heating;**

**Speeding up of the bureaucratic procedures for implementing Incentives**

## Benefits to the Environment

**Positive effects of biomass district heating:  
Valorisation and care of the territory; CO2 savings compared to competitive carriers;  
Atmospheric emissions:  
Reduce the concentrations below the legal limits;**

## Positive Effects

**Clearer regulatory framework on incentives for the use of Renewable Energy;**

**Greater incentives also for private individuals to use biomass district heating;**

**Speeding up of the bureaucratic procedures for implementing Incentives**

## Considerations for the future

**Positive effects of biomass district heating:  
Valorisation and care of the territory; CO2 savings compared to competitive carriers;  
Atmospheric emissions:  
Reduce the concentrations below the legal limits;**



# The best practice of Italy

Presentation of Case study.  
**ALPERIA**  
Delphina

# 2018

Renewable  
energies also grew  
in our country,  
from 33 to 35 % in  
electricity  
production,  
according to Terna.

Terna: Italian National Electricity Network





## **ALPERIA is an energy provider.**

They produce energy from renewable sources, manage an electricity grid and sell district



## **Why use District Heating?**

District heating means it is possible to prevent the emission of thousands of tons of CO<sub>2</sub> every year. The heating can count on a sustainable source and we can breathe cleaner air. Heat management in a district heating system guarantees centralised, efficient, state-of-the-art use of energy resources. The plants are in fact constantly monitored and optimised to guarantee maximum sustainability and safety.





In the **Chiusa and Lazfons plants**, heat is mainly produced with biomass (wood). From the control unit the energy demand of the users is monitored. The biomass boilers heat the water which is then fed into the district heating network, a closed circuit of underground pipes.

**Lazfons** district heating plant. In operation since 2005, the plant serves around 130 users through 3 km of network.





Chiusa

District heating plant in Chiusa. Inside it produces heat using biomass, therefore wood, coming from the sawmills and from the agroforestry activities of the region.



Floor plan of the **Lazfons** district heating network. The circle in orange indicates the Lazfons district heating plant.





**Delphina  
Valle dell'Erica**

Welcome to  
**North Sardinia**  
The resorts, hotels and residences

**Delphina** are located in North Sardinia, in the area called Gallura, a region rich of white sandy beaches and small coves with crystal clear waters. **Delphina** decided to build and manage directly its own hotels (between 4 and 5 star), respecting the surrounding natural environment, with the aim of offering the clients the best of its deep knowledge and love for this fascinating land, with all the warmth and the professionalism of a true host.





**Delphina**  
every year saves

3536/ton  
CO<sub>2</sub>

the amount absorbed by  
**25.000** trees



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**23** International Awards

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- 4 Hotel Award High Life
- 3 Gold Award HO
- 2 Just Sardinia

- 1 Gold Medal Tui UK
- 1 Platinum Premier Collection Thomson
- 2 Charming Sardinia
- 2 Olimar Golden Wave Award
- 2 Thomas Cook Sunny Heart



# CONCLUSION

## Future is now







Obrigada pela vossa  
atenção!



Ania Lopez  
Consiglio Nazionale degli Ingegneri ( Italy)