



## 37<sup>th</sup> Euroheat & Power Congress

27-28 April 2015, Tallinn, Estonia

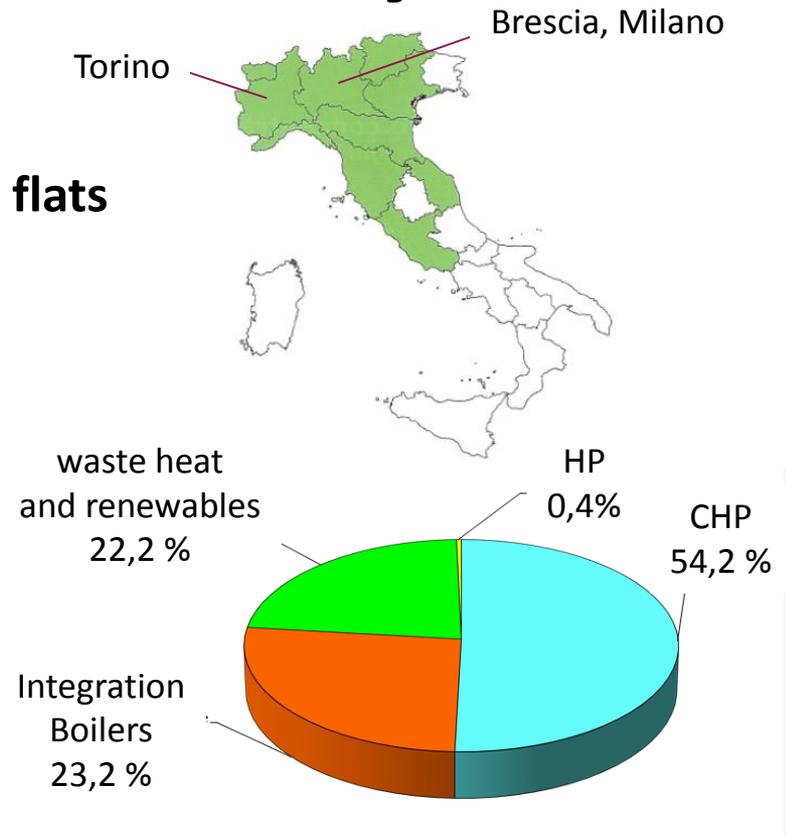
# What role for DHC in the current Italian energy policy?

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# Current situation of DHC in Italy

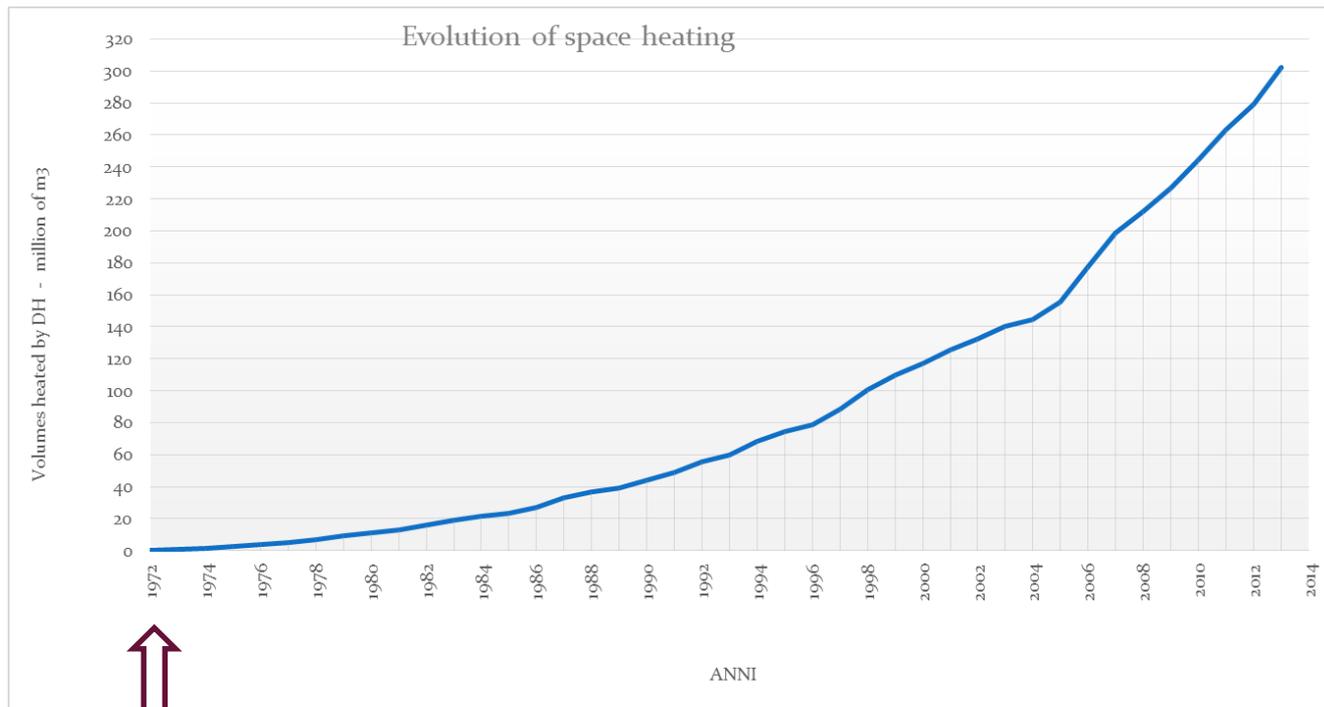
- 200 DHC systems
- space heating 302 Mm<sup>3</sup> → 1,120,000 equiv. flats





# Current situation of DHC in Italy

## ■ District heated volume growth

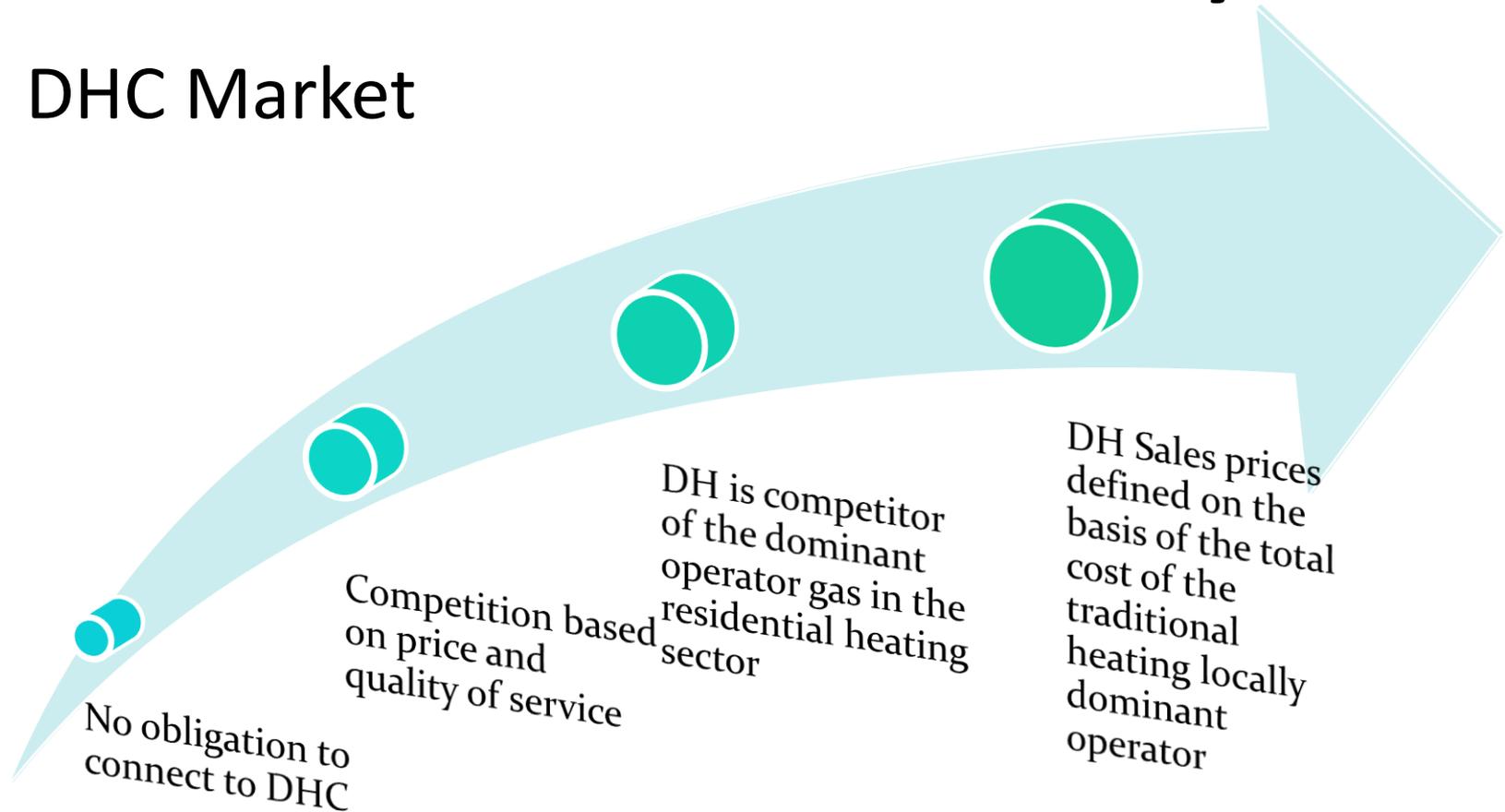


1st system in operation: Brescia (1972)



# Current situation of DHC in Italy

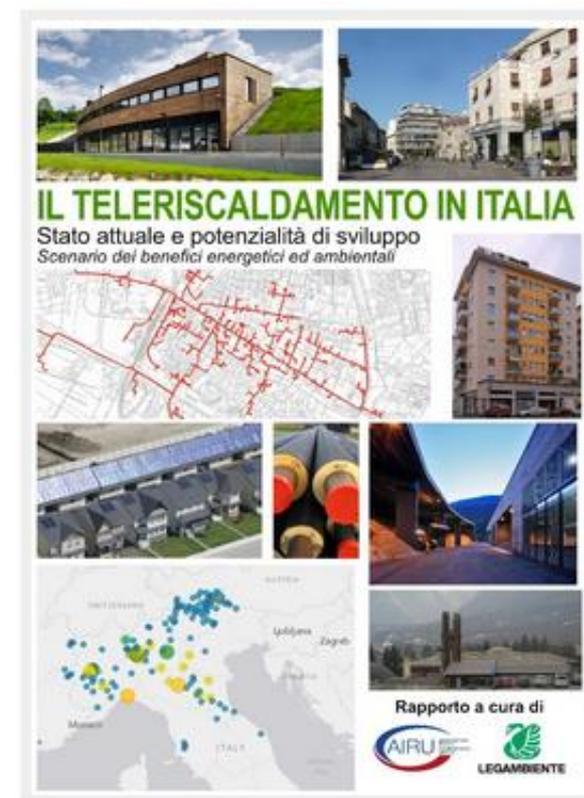
## ■ DHC Market





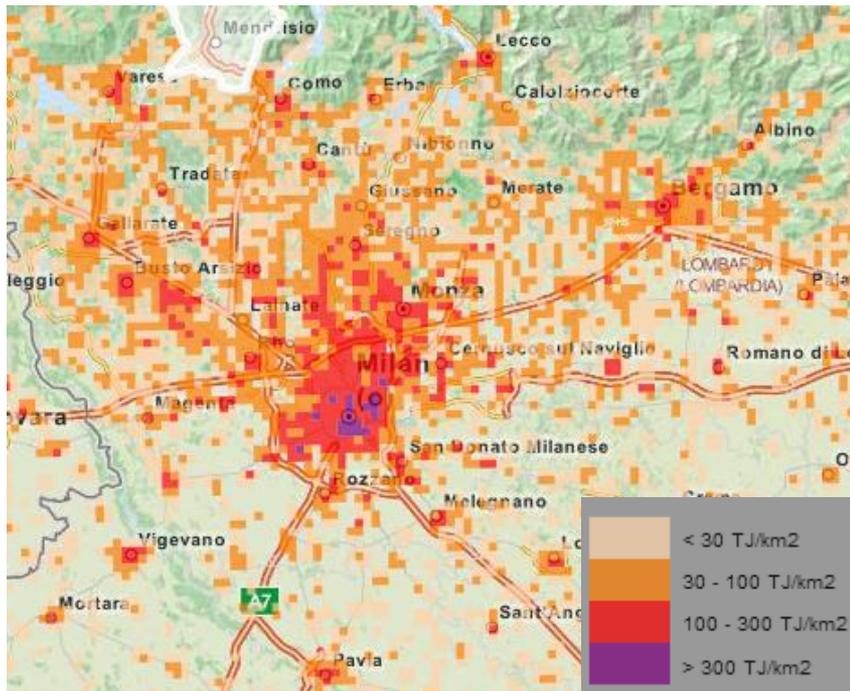
# Undeployed Potential for DHC

- Heated Volume potential increase:  
1.100 Mm<sup>3</sup> (+360%)
- Primary Energy Saving potential:  
1064 kTOE (+196%)
- Avoided CO<sub>2</sub> increasing potential:  
5.343 kt (+300%)

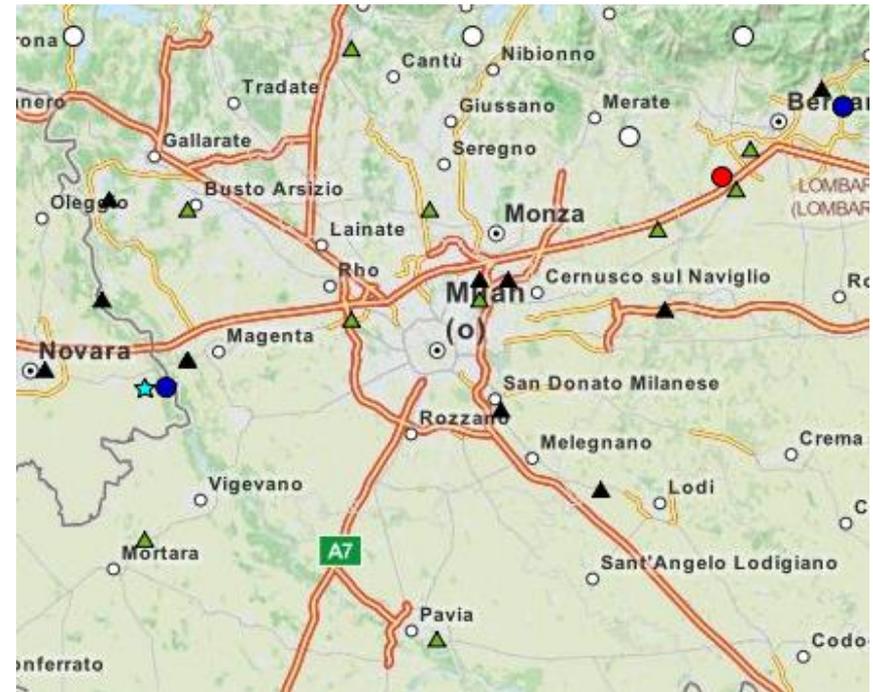




# First results from STRATEGO project



Heat demand mapping

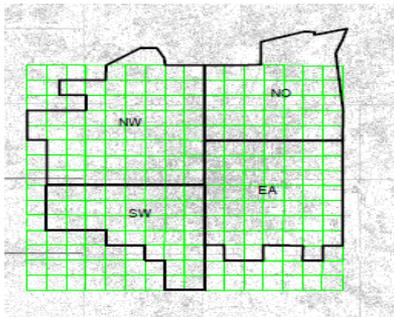


Waste heat sources mapping



# Main ongoing developments: Milan

- DH market potential in Milan: > 4,5 TWh (50% of total Italian DHC)



	Heat demand MWh
Northwest	1,238,691
Southwest	888,319
North	551,793
East	1,830,361
Total	4,509,123

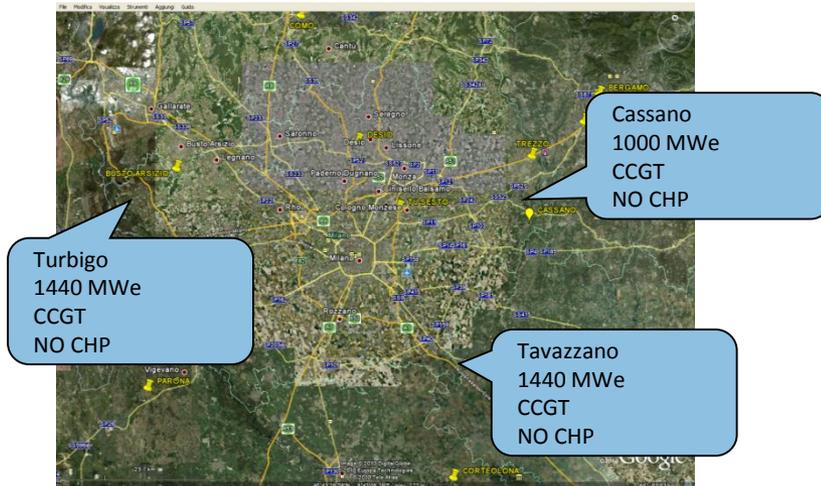
- Three main DH systems under development in the city



	2013A	2019F
Distributed Heat (TWh):	1,0	1,5
Primary energy saving (kTOE):	38	68
Avoided CO2 (kton):	110	180
Avoided Nox (ton):	129	152
Avoided PM10 (ton):	5	8



# Ideas for further developments



- **Several huge power plants (CCGT) less than 40 km from city centre**
- **Technical feasibility of a heat transport network 35 km long**
- **Coherence with regional energy and urban planning**
- **Checking political willingness, resource availability and business plan**



## The National Energy Strategy (SEN) – March 2013

- Towards a more competitive and sustainable energy.
- **Growth** is a priority for Italy. Growth means both economical and sustainable growth. Growth means job creation to assure more social equity and resources to reduce the amount of public debt.
- **Growth** need improved competitiveness of the companies and of the economical system.
- Energy sector is a key factor in economical **growth**: cheap energy with limited environmental impact and is a crucial conditions for development.



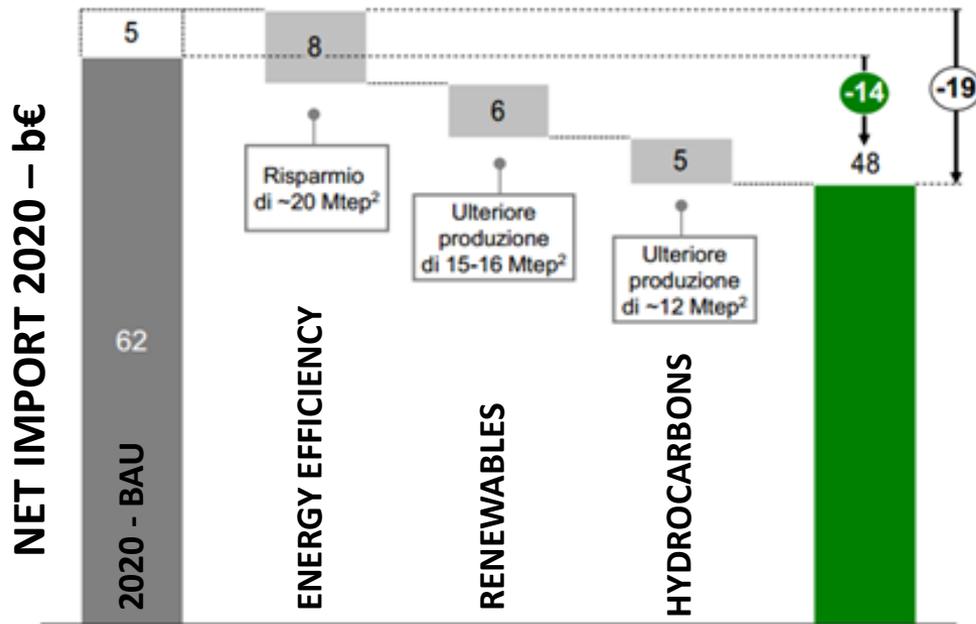
# National Energy Strategy - 4 Tasks

- **Competitiveness:** -9 b€ bill cost reduction for costumers (2020 Vs 2012)
- **Environment:** do better than 20-20-20 goals



# National Energy Strategy - 4 Tasks

- **Safety:** reinforce security of supply and reduce dependence on imports



Energy import reduction equivalent to 1% GDP

- **Growth:** Expected investments in energy efficiency (60 b€), renewable energy (70 b€) within 2020 will amount to **130 b€**: more than 70% of the total investments expected in the energy sector.



# Heating Sector according to SEN

- SEN recognise that:
  - Heating use is the most important energy use, both in the civil and in the industrial sector (around 45% of the total final energy use).
  - Thermal RES are in general more efficient of the electrical ones and their incentivisation is less expensive in a cost/benefit perspective (€/tCO<sub>2</sub> avoided, €/TOE saved)
  - In the last years thermal RES development was not bad (5,4 MTOE at 2010), but without a stable and dedicated incentivisation framework able to lead the market to the best practice.
  - RES development mainly used the incentivisation framework of the «energy efficiency» (fiscal bonus and white certificates).
  - The industry sector of thermal RES is quite developed in Italy, even in high technology segment, especially in the biomass field.



# Interventions for the Heating Sector

- Thermal Account for renewable small size (about 900 million euro a year dedicated)
- Strengthening White Certificates mechanism
- Activation of a guarantee fund for DHC.



# Thermal account

- Incentivate the substitution of old and unefficient heating and cooling systems.
- Apply to small installations (< 1 MW)
- It can be hardly applied to DHC, except for small systems, mainly using biomass, in the Alps region.



# “White Certificates” market

- **Demand side:** electricity and gas distributor has to reach every year specific energy efficiency goals fixed by Authority (6.6 MTOE in 2015). They can do interventions by themselves or buy “energy efficiency titles” (white certificates) from the market.
- **Offer side:** ESCO can get white certificates from the Market Authority (GSE) for energy efficiency projects of different kinds.
- **DHC companies** can get white certificates when connecting new costumers to the network and substituting less efficient costumer’s heating system with a more efficient DHC supply.
- A white certificates corresponds to a primary energy saving of 1 TOE. Its market value is currently around **90 – 100 €/TOE**.
- Special bonus are foreseen for “**Large Energy Efficiency Projects**” (saving more than 35.000 TOE/year) linked to infrastructure developments and further bonus (up to 150%) is foreseen if the project has positive effect on air quality in urban areas.



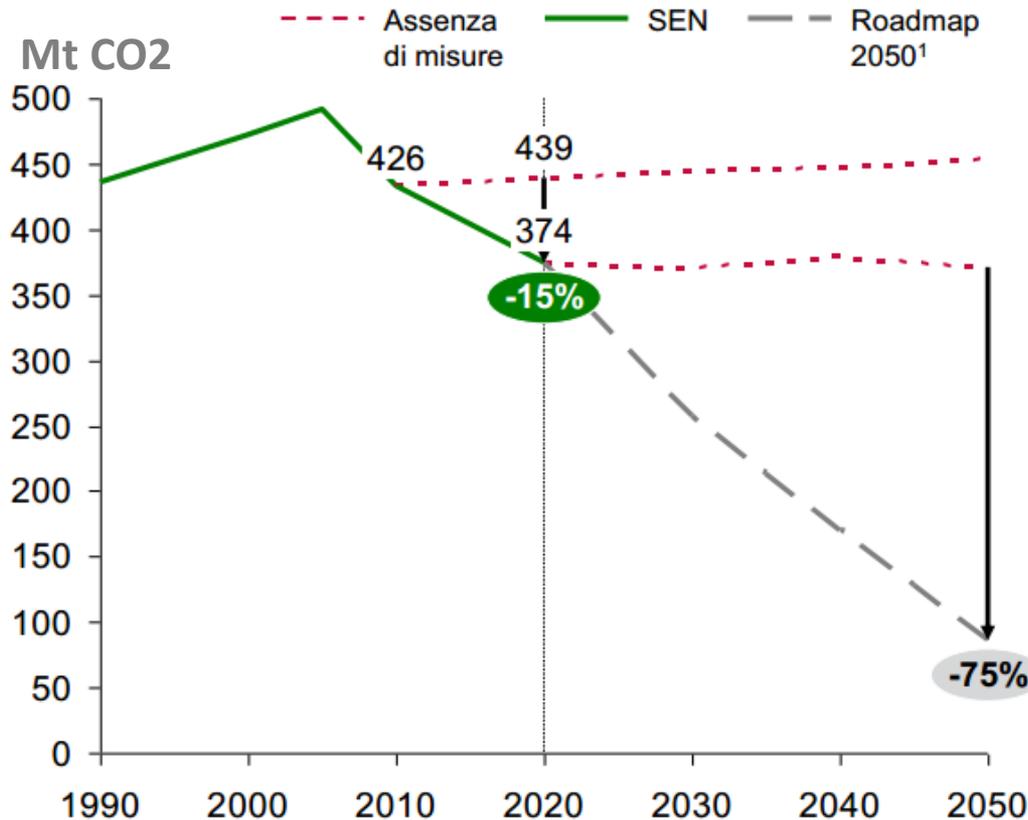
# Guarantee fund

- Decree n. 28/2011 established a **Guarantee Fund** for development of DHC networks, financed by a part of the bill paid by gas costumers (roughly **50 M€/y**). The fund was financed but never started its operation.
- EED Implementation Decree (Decree 102/2014) moved the financial resources of the Guarantee Fund to a more general **National Energy Efficiency Fund (NEEF)**.
- NEEF could be financed also with resources coming from voluntary contributions from public entities and from European Structural Funds.
- NEEF is no more a fund dedicated to DHC but also to other kinds of project, like: improving energy efficiency in Public Buldings or social housing, public lighting, energy efficiency in industry.
- NEEF doesn't start its operation so far (waiting for operative rules from Government).



# After 2020 – SEN long term scenario

## Applications to Italy of European Roadmap 2050

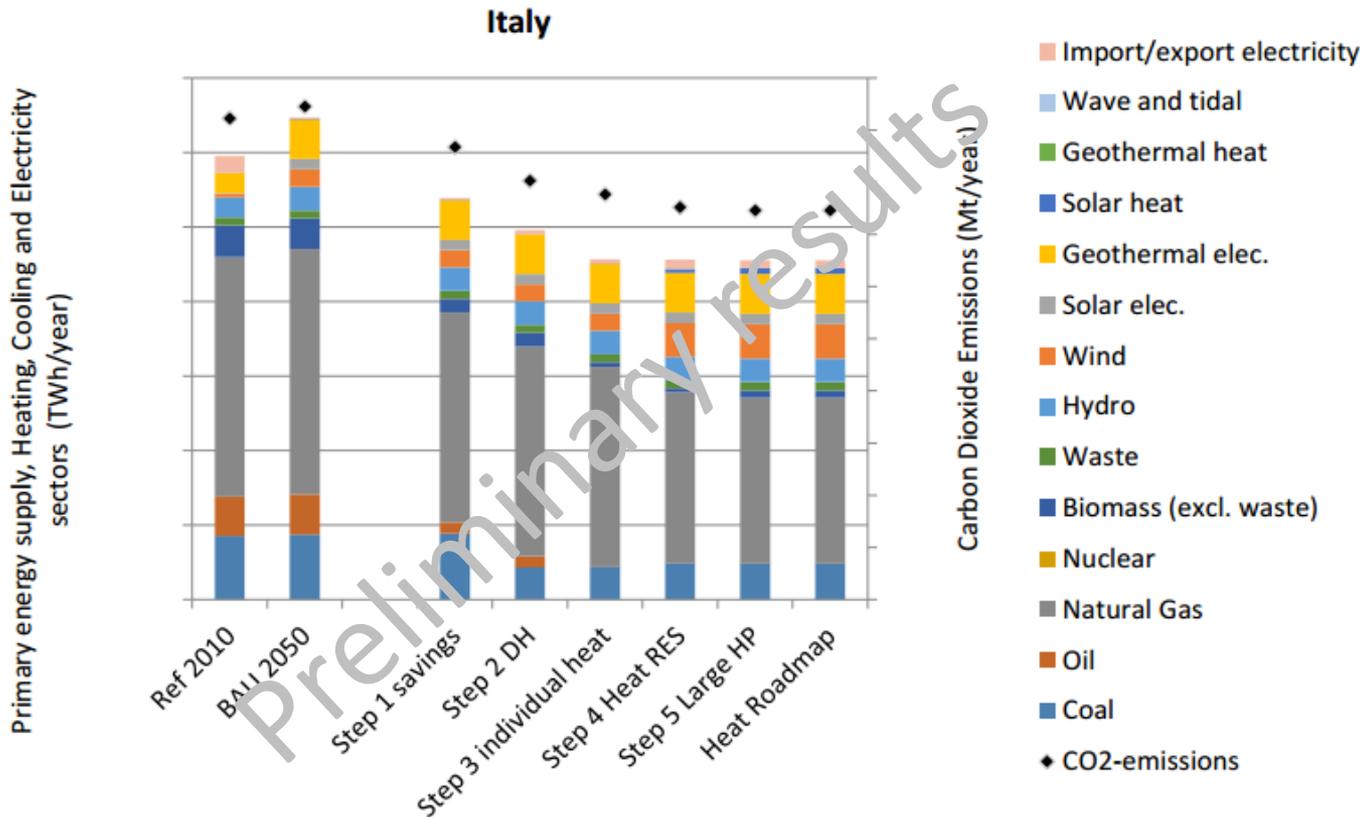


## Implications after 2020

- Energy Efficiency:**  
-26% vs 2010
- RES:**  
60% of total final use
- Electrification:**  
+200% consumptions
- Gas:**  
Key factor in energy transition (at least to 2035)
- R&D:**  
development of new low carbon technologies.



# STRATEGO long term scenario (2050)



DH should be expanded up to a level of approximately **40% to 70%** of the heat demand



## Conclusions

- Italian DHC: small, but growing reality. It can play a significant role in achieving the national climate goals.
- SEN recognised that the Heating Sector represents the most important energy use and defined incentivisation instruments to foster the development of the sector.
- Unfortunately the implementation of these instruments has been carried out in a contradictory way and has introduced uncertainties for investments of the DHC operators.
- Risk not to fully exploit the potential of the DHC sector, just at the moment in which the new European Commission is defining a new European Strategy on heat where DHC can play a significant role.