

Needs for integrated assessment in air quality management at regional scale

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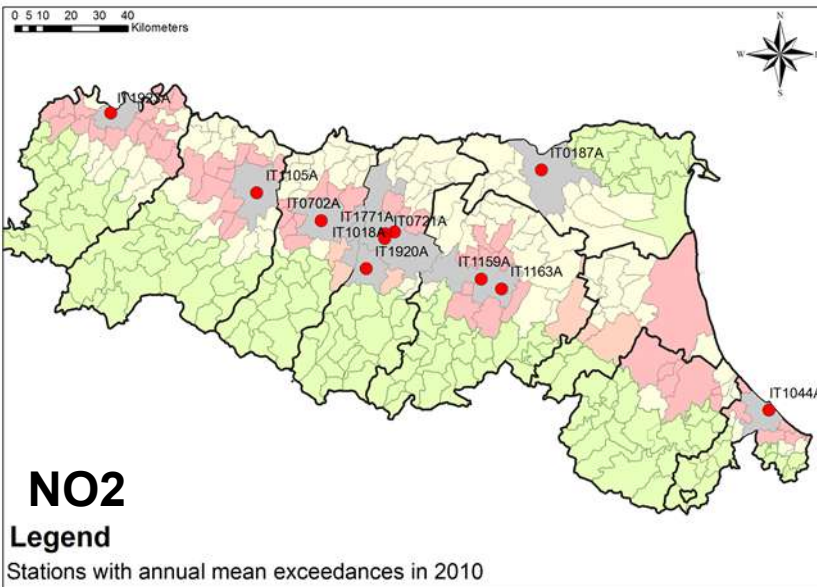
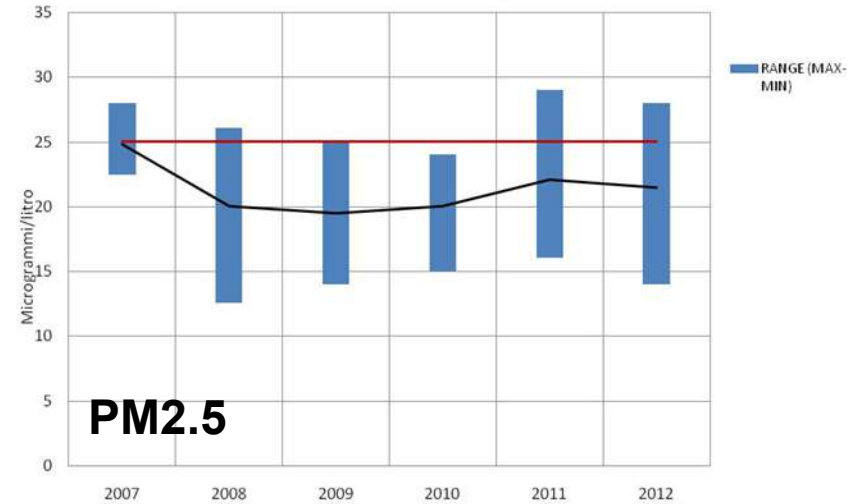
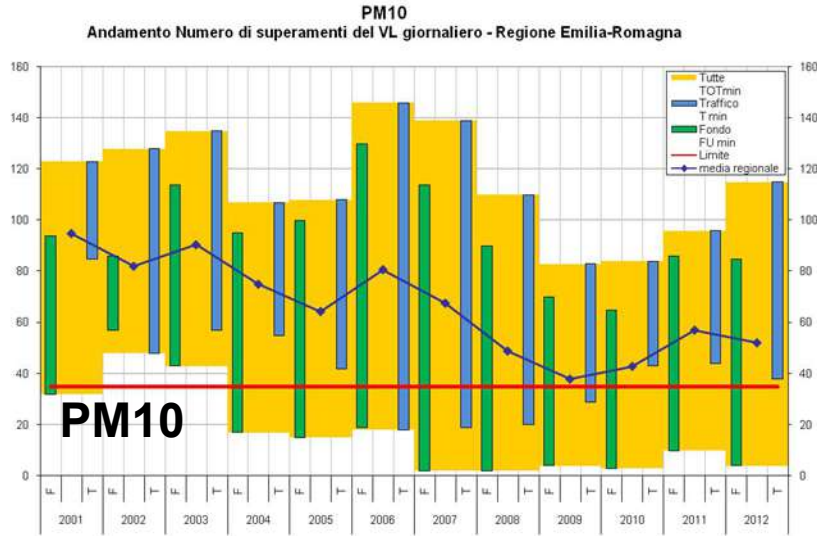


Total area: 22.445 km²
Plain: 47.8 %
Hill: 27.1 %
Mountain: 25.1 %
GDP (2007): 31.000 Euro

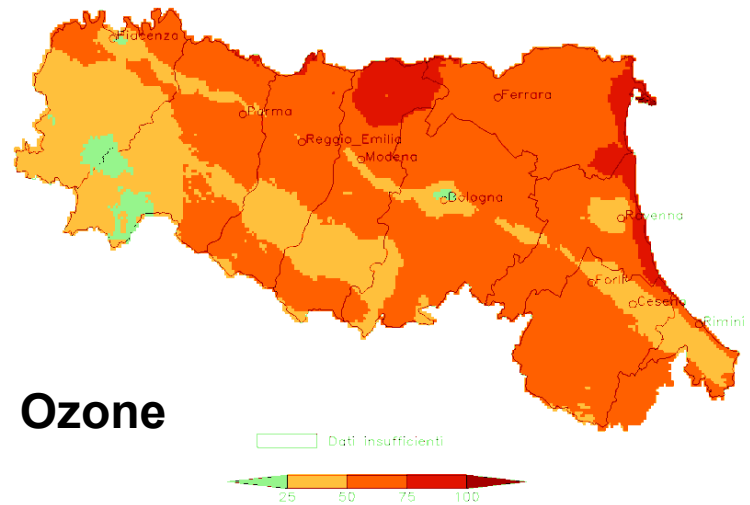


Satellite Image of Northern Italy in the winter season (source: MODIS radiometer, NASA)

Air Quality in Emilia-Romagna



ozono: stima del numero di superamenti del massimo giornaliero della media mobile su 8h (soglia 120 $\mu\text{g}/\text{m}^3$) nel periodo 01JAN2012-31DEC2012



A REGIONAL CRITICALITY

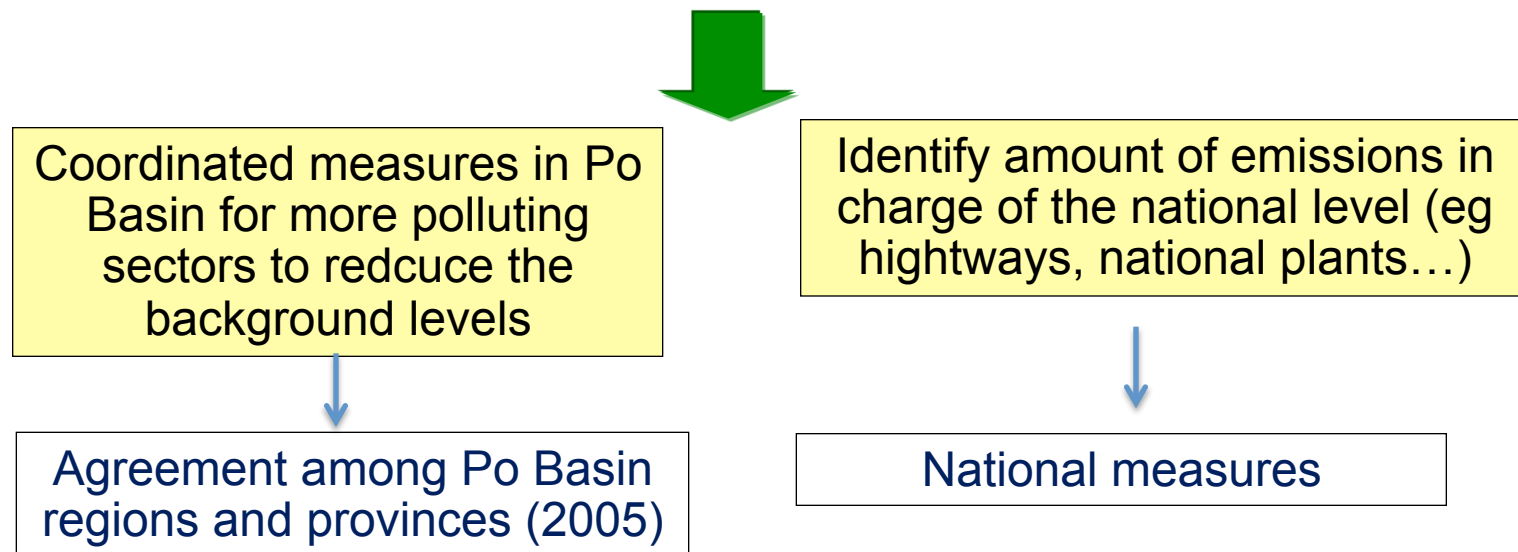
- The criticality is common in the Po river basin due to the influence of orographic and meteorological factors that typically characterize the region
- Air pollution is homogeneous in the Po basin and requires measures coordinated at all levels (national, interregional, regional and local)



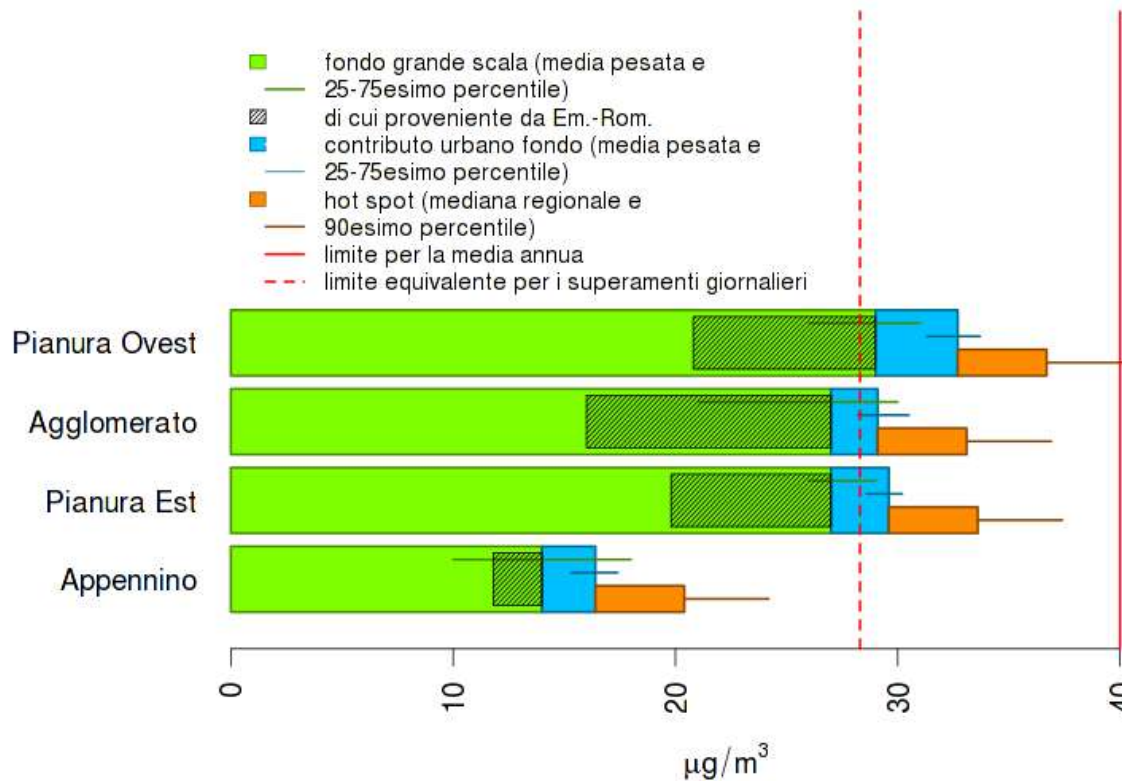
Satellite Image of Northern Italy in the winter season (source: MODIS radiometer, NASA)

Needs for territorial integration

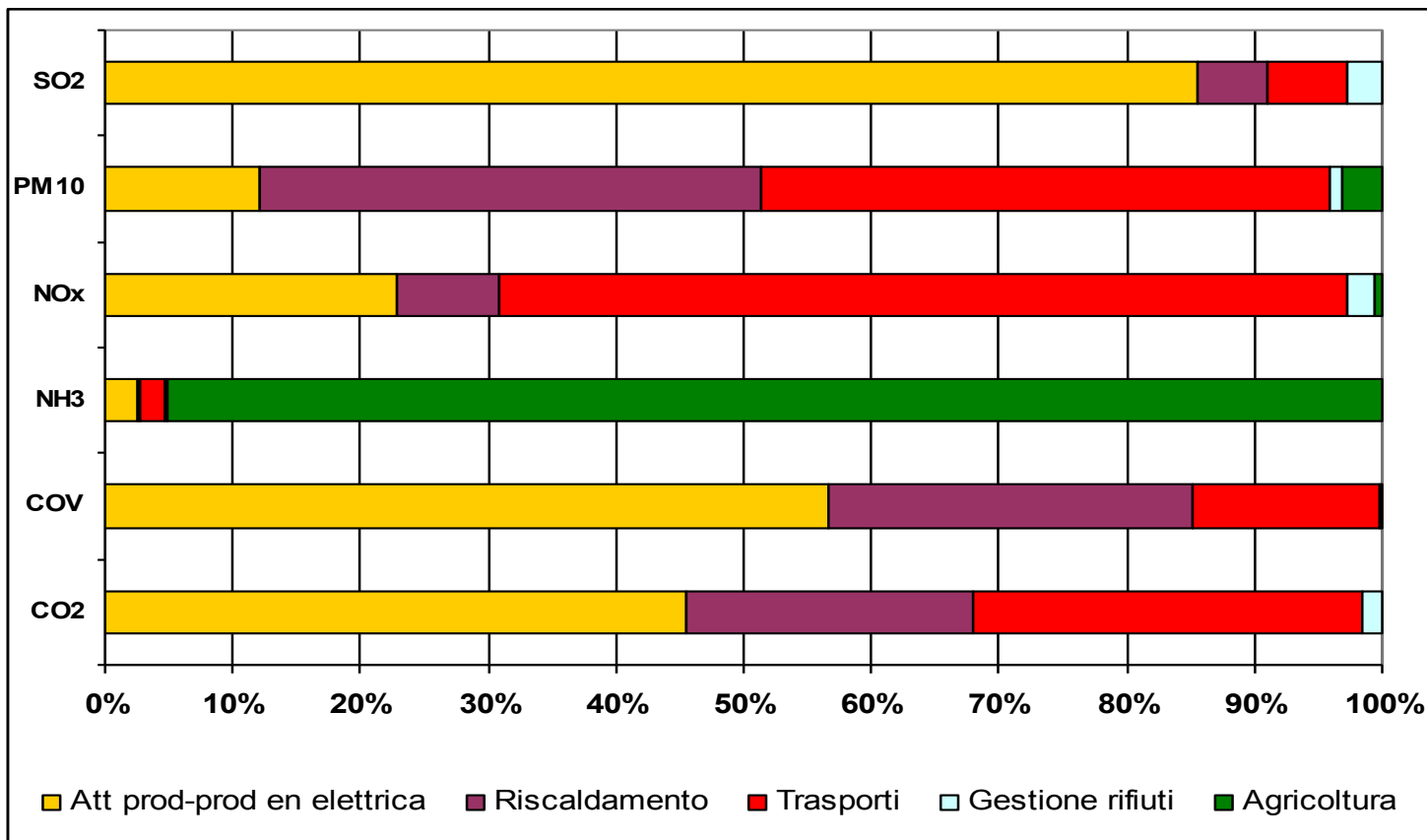
- A wide spread and homogeneous condition in the Po basin: it contributes for 50 % on national emissions (also 50% of the national GDP); for ammonia it contributes for 70%
- Meteo-climate conditions have a strong influence on air quality: low wind and thermic inversions
- Emilia-Romagna contributes to the emissions of Po basin for 20%



ORIGIN OF POLLUTION – PM10



Emission sources (2010)



Main sources of primary PM10 are transport (45%) and civil heating (39%).

NOx emissions are mainly due to transport (66%), industry and energy production (23%).

COV emissions are mainly related to industry and energy production (57%) and civil heating (29%).

The multi level governance

- Ten Air Quality Acts signed since 2002 by Region, Provinces and Municipalities with over 50.000 inhabitants – totally 23 authorities – plus 50 Municipalities that joined the agreements on a voluntary base
- Measures for transport, energy, agriculture, buildings, industry, urban regeneration
- Total financing: more than 900 M€ in ten years (500 M€ from regional funds)

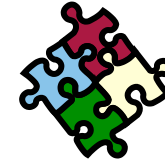


REGIONE EMILIA-ROMAGNA
PROVINCE
COMUNI CAPOLUOGO
E
COMUNI SUPERIORI
A 50.000 ABITANTI

ACCORDO DI PROGRAMMA 2012-2015
"PER LA GESTIONE DELLA QUALITÀ DELL'ARIA E PER IL PROGRESSIVO
ALLINEAMENTO AI VALORI FISSATI DALLA UE
DI CUI AL D.LGS. N. 155 DEL 13 AGOSTO 2010"

- The X agreement was signed in July 2012. For the first time it lasts for three years
- € 35 million for investments in the areas of subscribers entities

An integrated approach



- Integration is needed among sector policies (transport, energy, industry, agriculture...) and between policies for climate change and the ones for air quality
- Towards the **New Regional Air quality plan (PAIR 2020)** where air quality and climate change objectives are integrated



- **The key word of PAIR 2020 is integration**
- To act in a synergic way on all processes generating pollutants, through a cross-sector approach

Needs for cross-sector integration

- ➔ Sinergies
- ➔ Potential conflicts
- ➔ Integration of funds

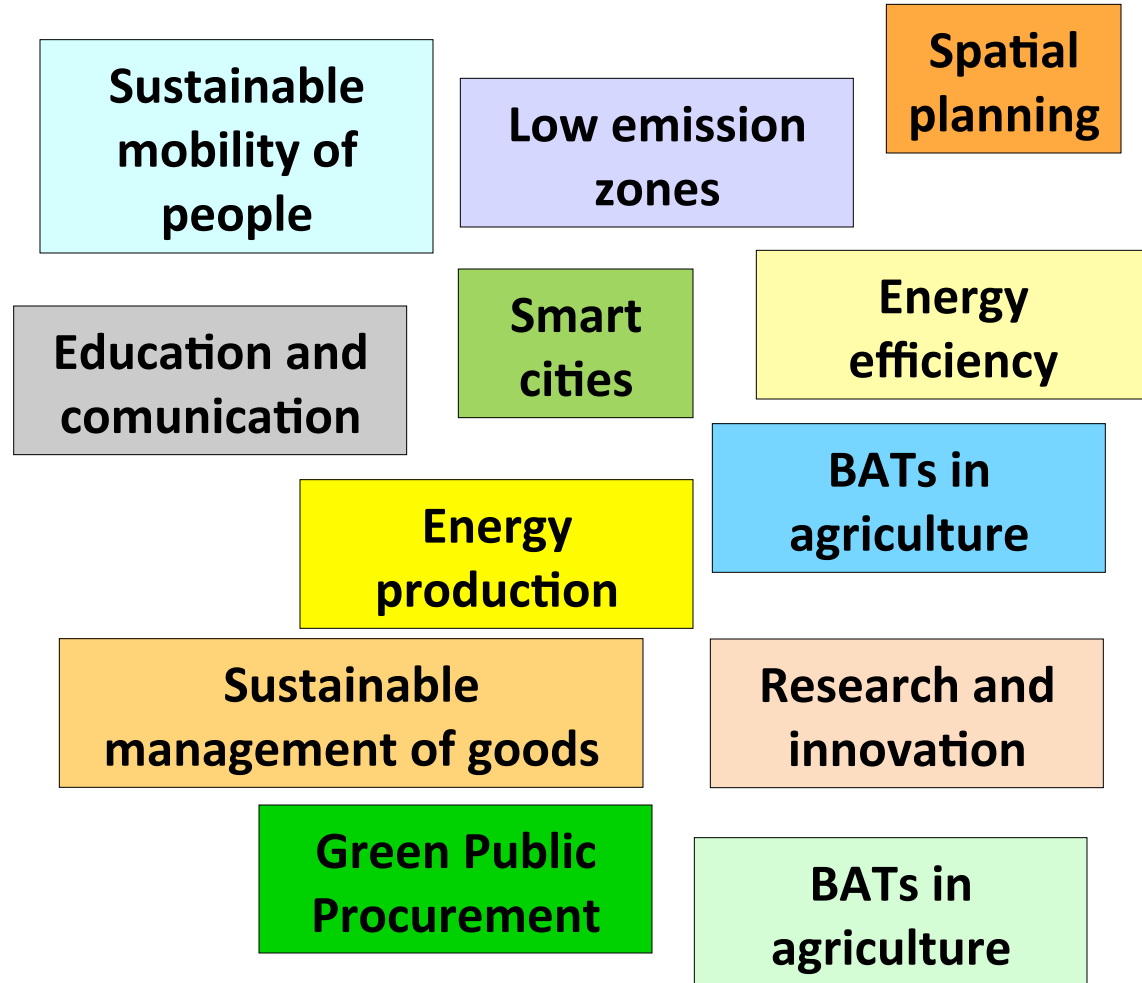
Air Quality Plan



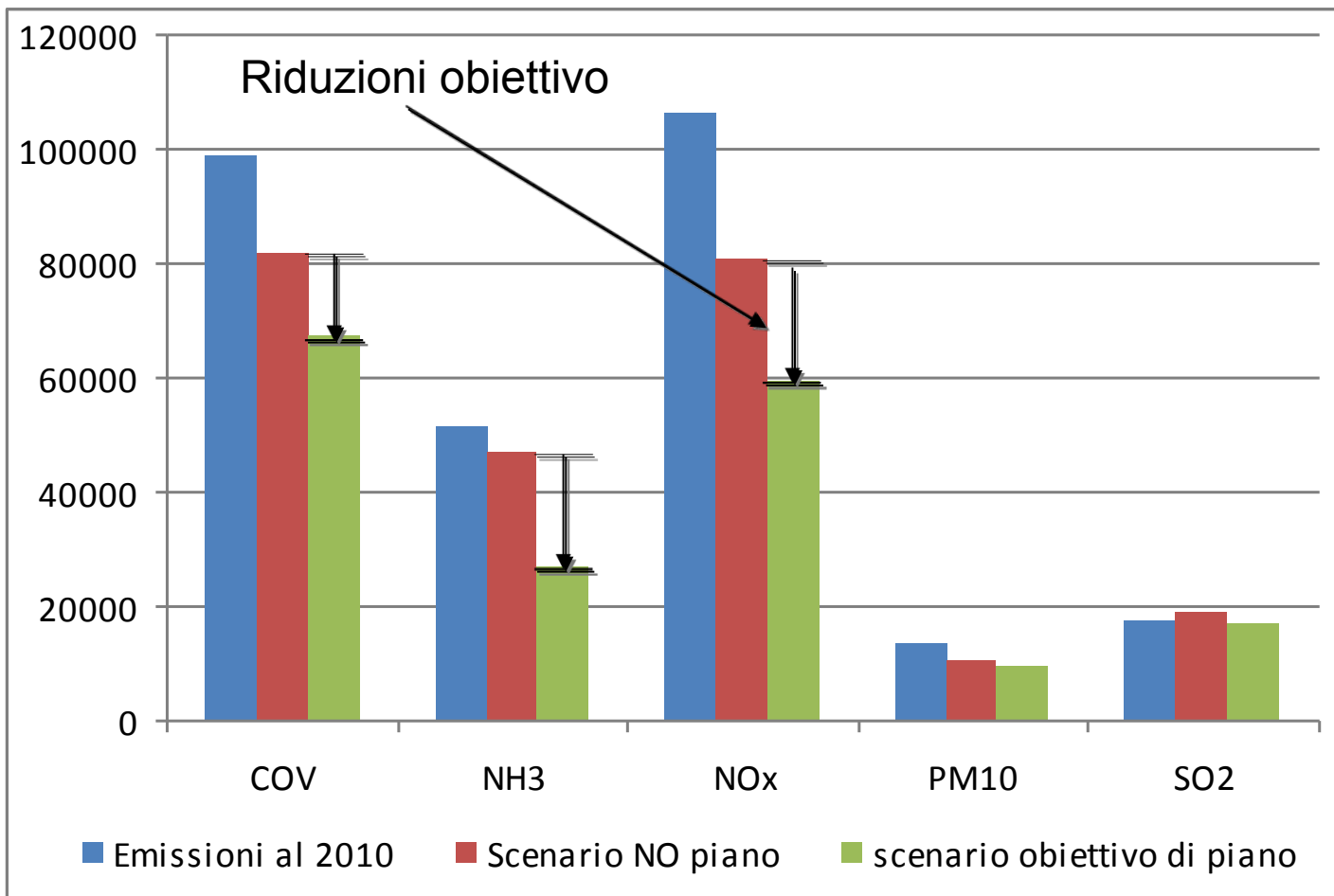
Spatial Plan
Energy Plan
Mobility and Transport Plan
Water protection plan
Waste management plan
Rural development programme
Operational Programme ERDF
...

Themes and measures

- ⇒ The cities
- ⇒ Planning and land use
- ⇒ Transport
- ⇒ Energy
- ⇒ Agriculture
- ⇒ Industry
- ⇒ GPP
- ⇒ Over-regional measures

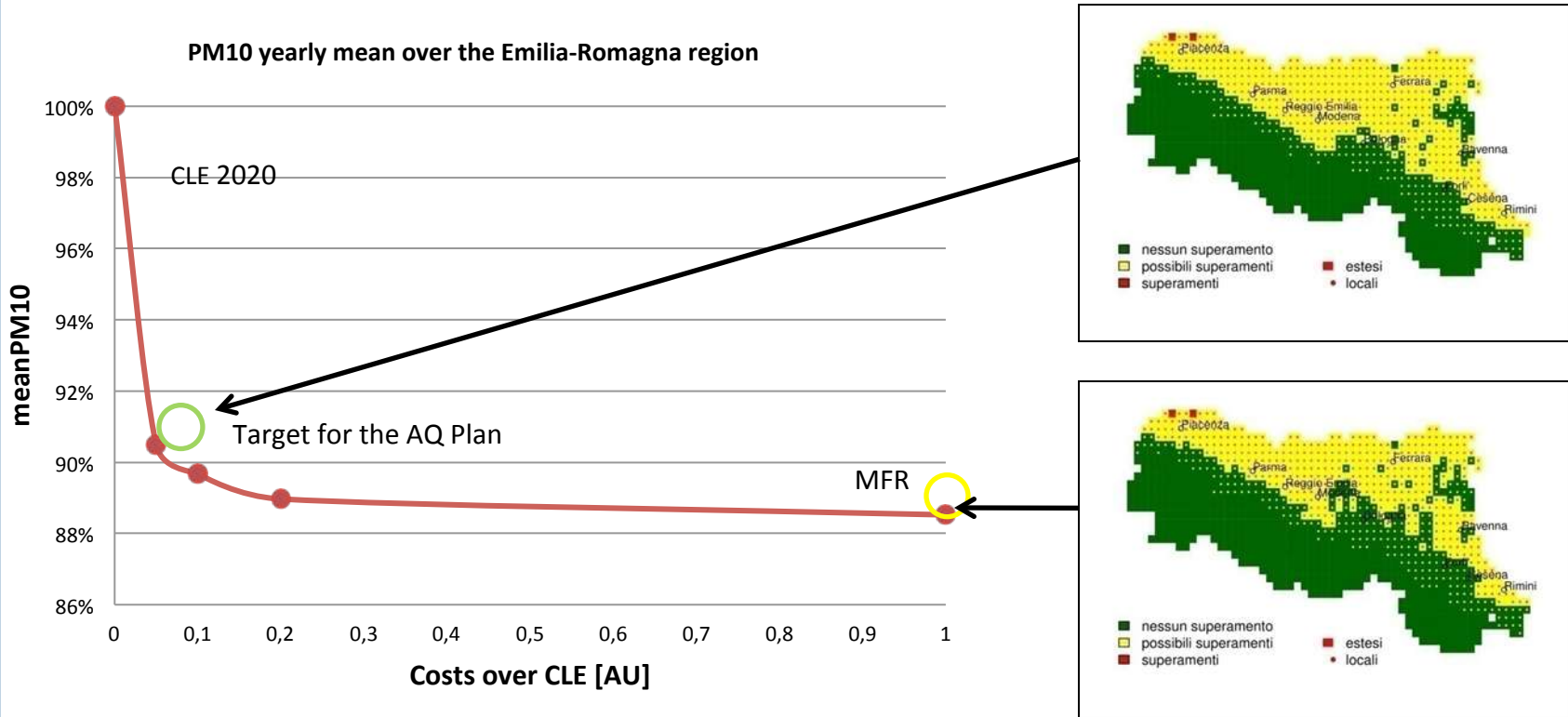


Trend and target scenarios



Costs – effectiveness (RIAT +)

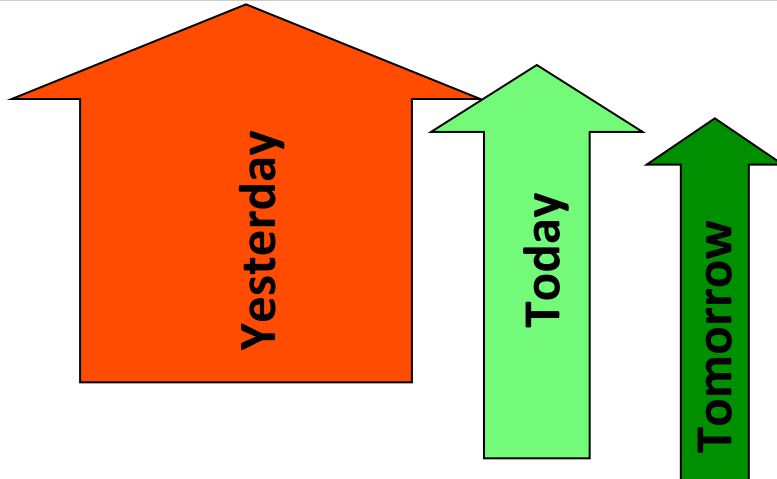
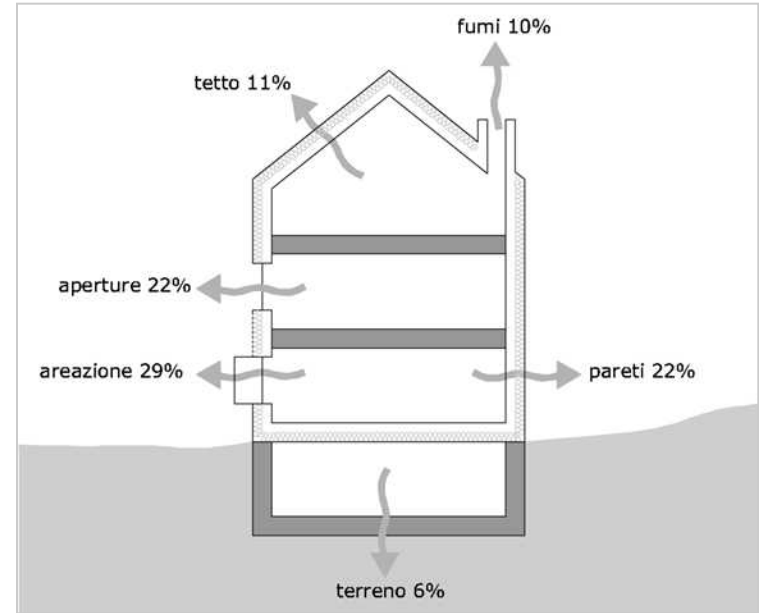
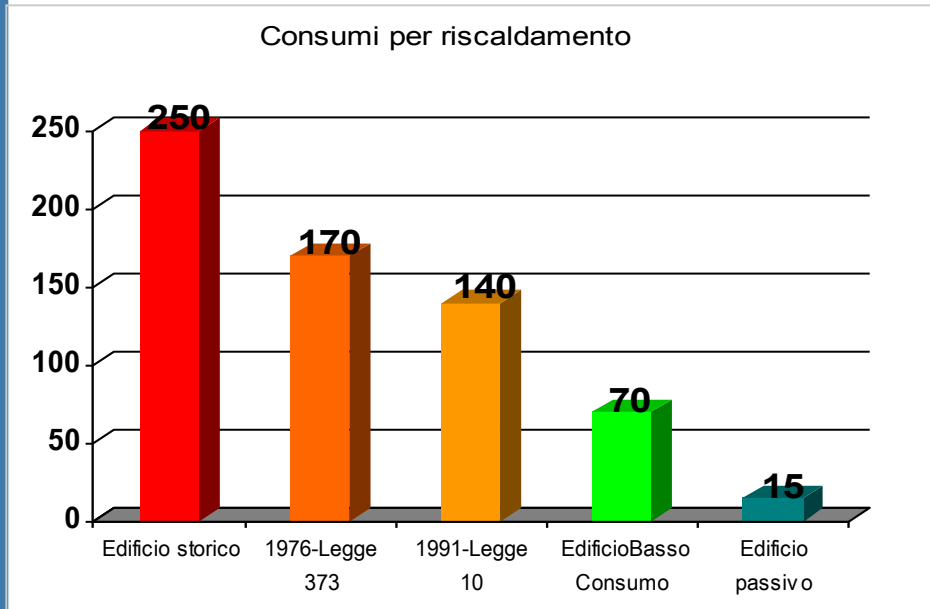
- The costs – effectiveness analysis is applied to set the total emission reduction target at regional level for the AQ plan (PAIR)



Emission reduction targets

% EMISSIONS REDUCTION 2020	COV	NH3	NOx	PM10	SO2
Target scenario respect to the 2010 emissions	-32%	-48%	-44%	-30%	-2%
CLE 2020 trend scenario respect to the 2010 emissions	-17%	-9%	-24%	-24%	+9%
Target scenario respect to the CLE 2020 emissions	-18%	-43%	-26%	-8%	-10%

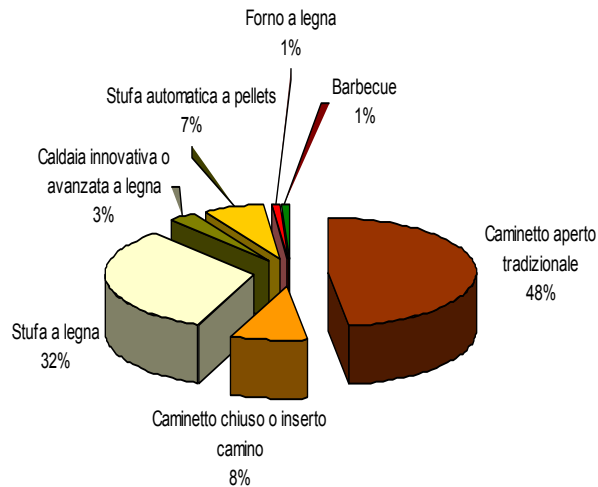
A case of win-win measure: energy saving



WE CANNOT CONTINUE TO BUILD SO!

A case of potential conflict: combustion of biomass

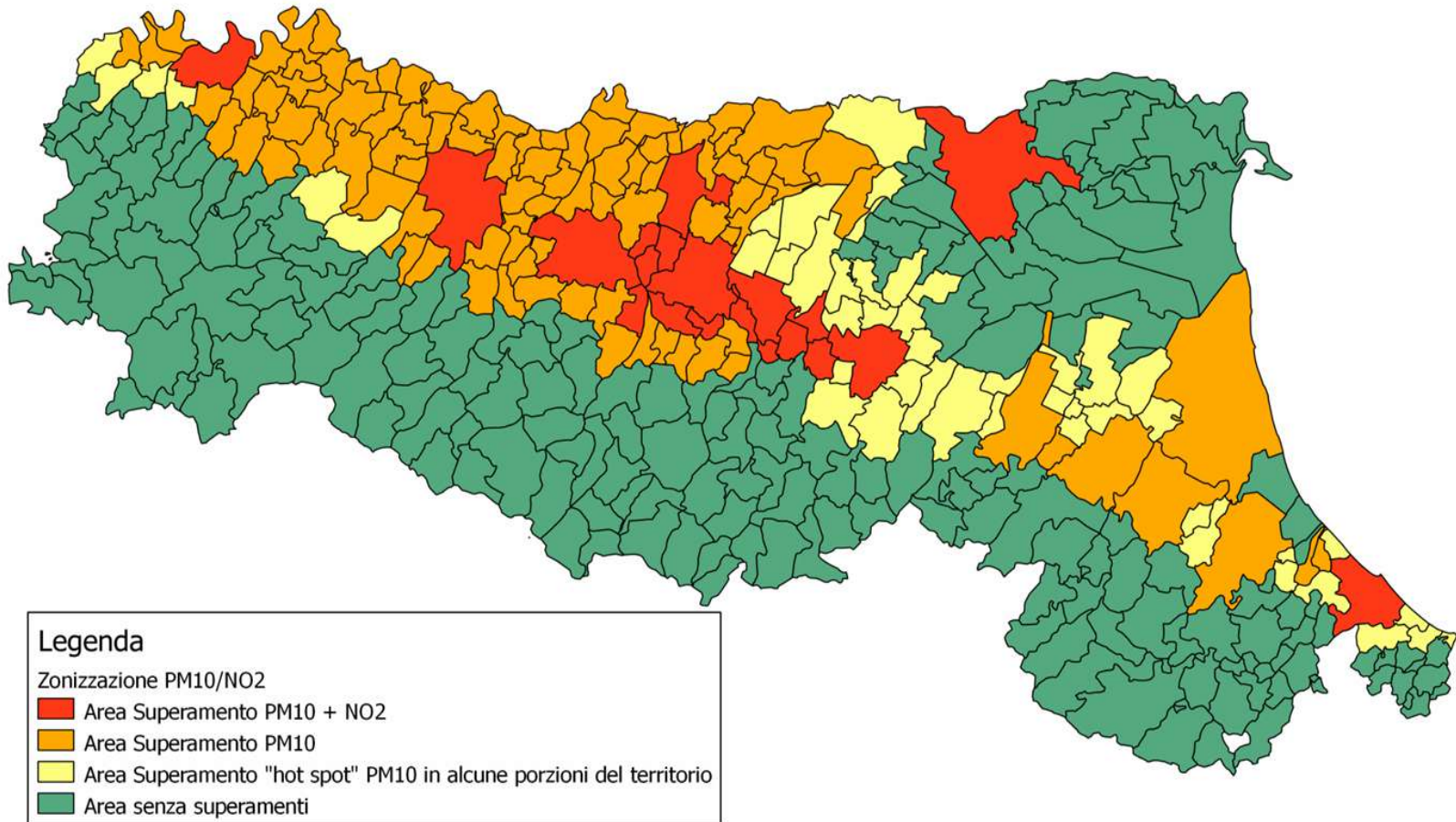
- The emissions from combustion of biomass is strongly influenced by the different combustion ways



	Nox (g/GJ)	PM10 (g/GJ)
Camino aperto tradizionale	100	500
Camino chiuso o inserto	100	250
Sistema BAT pellets	100	30
Stufa automatica a pellets o cippato o BAT legna	100	70
Stufa o caldaia innovativa	100	150
Stufa tradizionale a legna	100	250
Caldaia metano	35	0,2

	PM10 (t/anno)
Inventario 2010	5343
Scenario hp senza caminetto	2856

Evaluation at the appropriate territorial level!

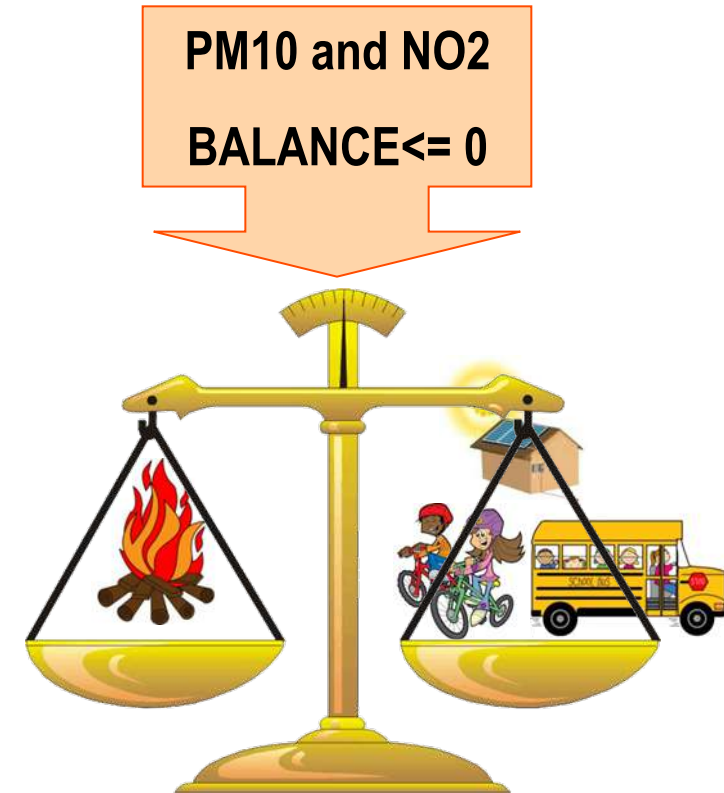


The «zero balance» criteria

For biomass plants

Two cases:

- A new plant substitutes an old one
- A new plant associated to integrated measures that reduce global emissions in the same area, also through agreements with local authorities



- Limit values have been defined for biomass plants as well as building and managing criteria

Economical sustainability

Should consider the effects on health of air pollution:
environmental externalities

From the EEA Report «Road user charges for heavy goods vehicles (2013): the costs caused by air pollution related to heavy good vehicles amount at 43-46 billion € each year

From the EEA Report on industrial areas (2009): air pollution generated from big industrial plants costs to Europe between 102 and 169 billion €

Air quality and health



International Project Hyytiälä (Finland)
Augsburg (Germany) e Pittsburgh (USA)
(PM2.5 e PM1) e ultrafine (PM0.1)

New pollutants

Source apportionment

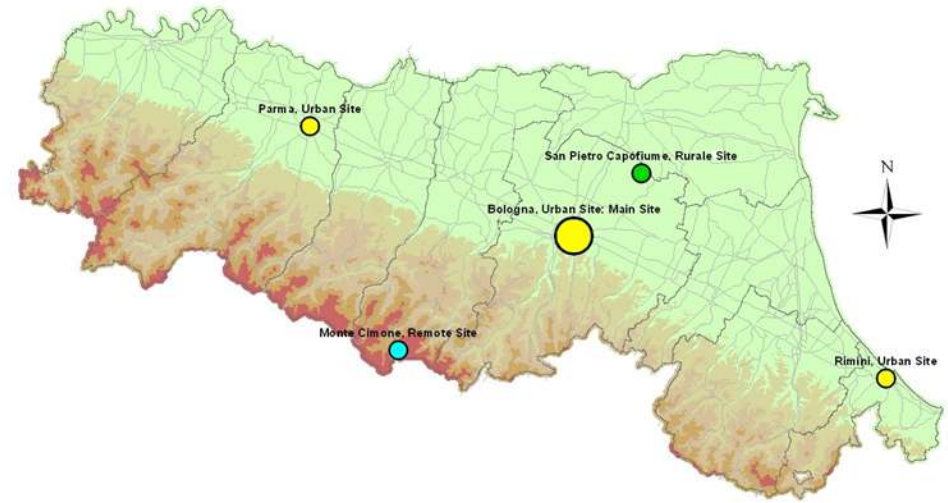
Epidemiology studies

4 new regional monitoring stations

2010-2015 7.250.000 Euro

Objectives: better understanding to drive air quality strategies

Kick off 15 November 2011



Thanks for your attention!

More info:

<http://ambiente.regione.emilia-romagna.it>