Session 8.1
Urban air quality – the challenges and opportunities for European green cities
Emilia-Romagna Region

Total area: 22,452.78 km²
Plain: 47.8 % Hill: 27.1 % Mountain: 25.1 %
Inhabitants: 4,459,246
GDP (2011) per capita: 31,688.9 €
AIR QUALITY IN EMILIA-ROMAGNA

- Although the situation is improving, air pollution is still a critical item
- PM10 reduced by 25% in ten years
- Particulate, NOx and ozone exceed EU air quality standards in many areas of the regional territory
Air Quality trend – PM10

- PM10 is reduced by 25% in ten years
Air Quality trend – NO2

- Decreasing trend in background stations while stable in traffic ones
Emilia-Romagna - Cross Road
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)
ORIGIN OF POLLUTION – PM10

- fondo grande scala (media pesata e 25-75esimo percentile)
- di cui proveniente da Em. Rom.
- contributo urbano fondo (media pesata e 25-75esimo percentile)
- hot spot (mediana regionale e 90esimo percentile)
- limite per la media annua
- limite equivalente per i superamenti giornalieri

- Pianura Ovest
- Agglomerato
- Pianura Est
- Appennino

μg/m³
Emission sources

• The main emissions sources of PM10 are transport (45%) and domestic heating / tertiary sector (39%)

• The NOx emissions are mainly due to industry and production of Energy (23%) and transport (66%)

• VOC emissions are due to industry and production of Energy (57%) and heating (29%).
Focus on urban areas (> 50000 inhab.)

- Emissions from urban areas contributes to the regional total emissions for 37% of NOx and 28% of PM10.

- In urban areas transport contribute to 48% of PM10 emissions and 69% of NOx. The heating accounts for 32% of PM10 and 8% of NOx.
The Governance

- Ten Air Quality Acts signed since the year 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).
Structural Actions

- 1580 new ecological buses have been acquired (48% of the regional bus fleet)
- DPFs have been fitted on 680 existing buses (35% of the regional bus fleet)
- 25,000 vehicles have been transformed from petrol (any vehicle category) to methane or LPG
- Areas with traffic limitations and pedestrian zones are increased of 46% from 2000 to 2010. In major cities electronic control of access has been installed
- Bike paths increased from 419 km in 2000 to 1319 in 2010
- Low speed areas (“30 km/h areas”) increased from 19 km² on 2000 to 206 km² in 2010

- Minimal requirements for energy efficiency in new buildings and renovations → 46,000 tpe/year saved. Energy certification of buildings → 5,000 tpe/year saved
- Energy qualification in public sector: n. 517 projects → 33,000 tpe/year saved
- Energy qualification in industrial sector: n. 167 projects → 20,000 tpe/years saved
- Ecologically equipped productive areas: n. 167 projects → 42,000 tpe/year saved
Influence of meteorological conditions

PM10 - Emilia-Romagna

numero medio giorni critici / numero medio giorni con superamenti
An integrated approach

- The Air Quality Agreement aims at integration among the sector policies (transport, energy, industry, agriculture...) and between the policies for climate change and the air quality ones.

- In March 2011, the Regional Government approved an act which recognizes that all the regional planning and programming tools (transport, energy, industry, agriculture, urban plans...) contribute to the air quality objectives and that in all the planning and programming processes the necessity to get the EU air quality standards has to be taken into account.

- The 10th agreement was signed in July 2012.

- € 35 million for investments in the areas of subscribers.

- The key word is integration.

- Acting through a synergic approach on the processes that generate pollutants, through a cross-sectoral approach.
Main measures in urban areas

- Low emission zones: limitation of circulation in urban areas for main polluting vehicles
- Ecological Sundays: local events dedicated to sustainable mobility, energy efficiency, smart cities…
- Emergency measures: Additional days of traffic restrictions; reduction of 1 degree for heating; banning of biomass in open fires
- Emission limits based on best available technologies have been fixed for civil and industrial plants, particularly for biogas and biomass plants
- Criteria of “zero balance” is required for biomass new plants in the areas where EU air quality standards have been exceeded
- To restrict urban sprawl and land consumption; to increase green areas
- Other measures: binding of closed doors in shops and public spaces; green public procurement, bike sharing, car sharing, mobility management…
Encouraging cycling and walking

5 million € for cycle paths or lanes, completing and safety improvement of existing circuits, facilities for safe parking and connection with bike sharing areas

Not eligible:

- Incomplete works, bike paths not protected or which present elements of danger
• Purchase of 61 CNG buses and 1 trolleybus for deletion of the same number of diesel buses Euro 0, 1, 2. It is estimated a reduction of 3.18 tons / year of CO, 1.31 tons / year of VOC, 9.45 tons / year of NOx and 0.61 tons / year of PM10
• Total cost of the project: 19,072,114,72 €
• Expected time for completion: August 2014
TICKETS INTEGRATION

Abbonamenti forfettari bus e treni + possibilità di accesso ad altri sistemi di mobilità
ELECTRIC MOBILITY
RENEWABLES

• Project dedicated to small and medium-sized enterprises.
• € 9 million from regional funds for removal of asbestos from buildings, insulation and installing photovoltaic systems
• Total amount of operations amounting to 18 million euro (enclosing co-financing).
Towards the Integrated Regional Plan for Air Quality

Objectives

• Reducing emissions at the source of the most critical pollutants (PM10, NO2 and ozone) and their precursors (VOC, NH3, SO2) through a multi-objective

• Scenarios to 2015 and 2020

Priority areas of intervention
Integration of sectoral policies and targets for reducing greenhouse gases

Cities
Planning and land use
Transport
Energy
Agriculture
Industry

Towards Integrated Basin Plan