

# The Regional Air quality Plan of Campania Region



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**Task force on integrated assessment modelling (TFIAM)**  
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## the framework

- **It is now more than ten years that the EU Framework directive on air quality (AQ) has been introduced**
- **The Directive require Member States to divide their territory into zones related to air quality standards and to adopt plan and programs inside zones when air quality standards are not respected**
- **Italy legislation delegates air quality planning activities to the 20 regional administrations**
- **Air quality plans must be submitted to Strategic Environmental Assessment (SEA) procedure**
- **Campania Region adopted in 2021 it's new plan to meet air quality standards over all regional territory**

## National vs Regional planning

### ➤ *National modelling & emissions inventory*

Inventory and Projections to assess progress towards targets (UNFCCC and EU NECD) and national AQ models

=> Emissions evaluated at NUTS1 (national) and allocated via proxy variables to 0,1 degree grid levels

### ➤ *Regional modelling & emissions inventory*

Used to evaluate future compliance to air quality standard of zone and agglomerate very important in small area of no-compliance in future national scenario

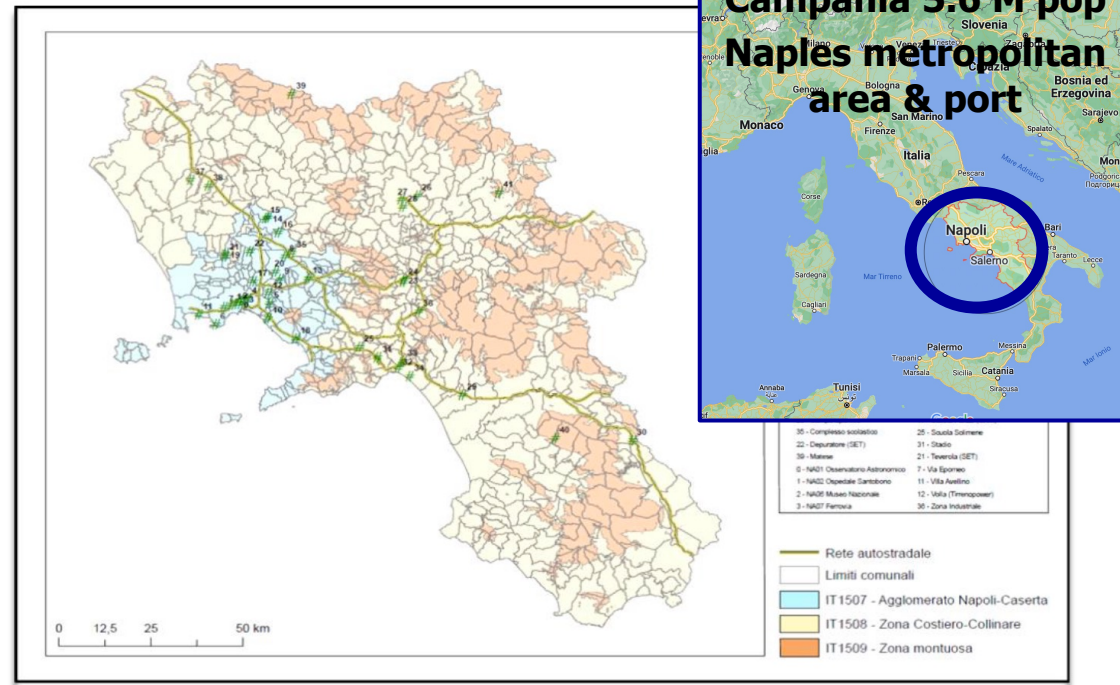
=> Emissions are evaluated at single structure (point, area and line sources) or at LAU (municipalities) level then allocated to 0,01 degree grid level and hourly base



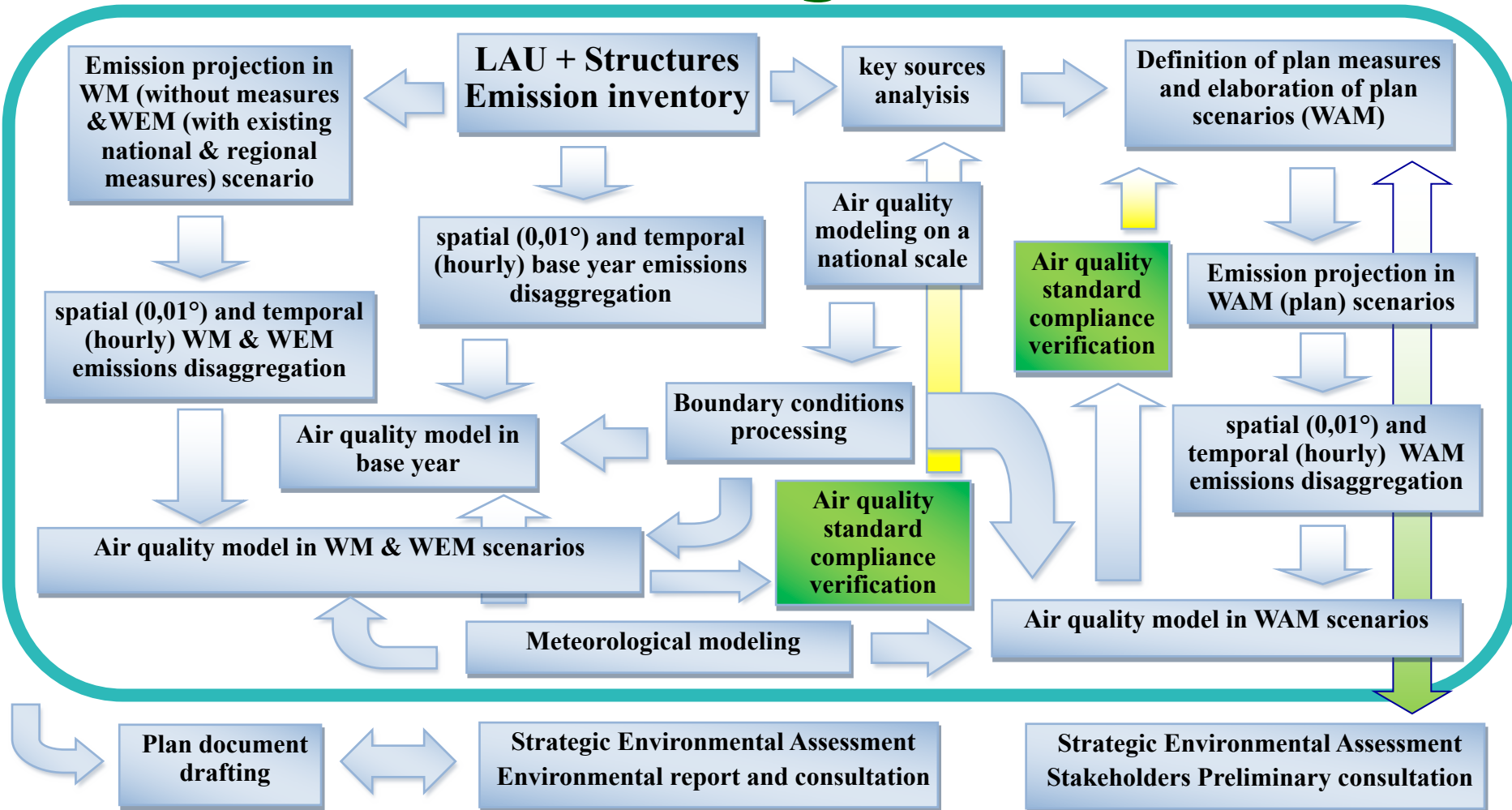
# Air quality in Campania Region

The air quality monitoring network (managed by ARPA Campania) consists of 42 stations: 23 in the Naples-Caserta agglomeration, 16 in the Coastal-Hilly area and 3 in the Mountain area.

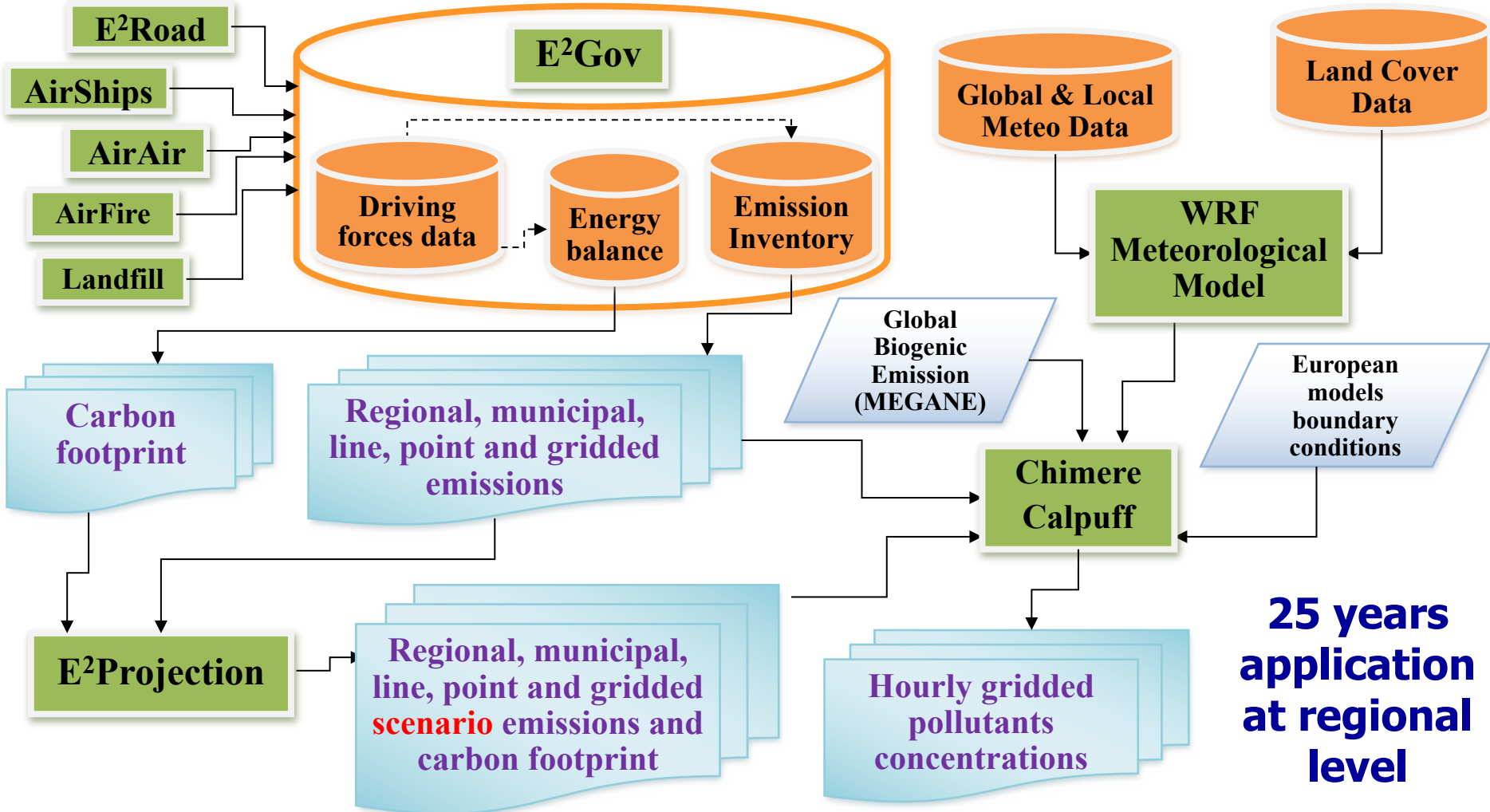
There are **critical issues** for the **annual average** and the **daily average** of **PM<sub>10</sub>** and for the **annual average** of **NO<sub>2</sub>** in the **Naples-Caserta agglomeration** and for the **coastal-hilly area**. **The ozone long-term goal for health protection is systematically exceeded in all the Region**



# Plan modeling activities



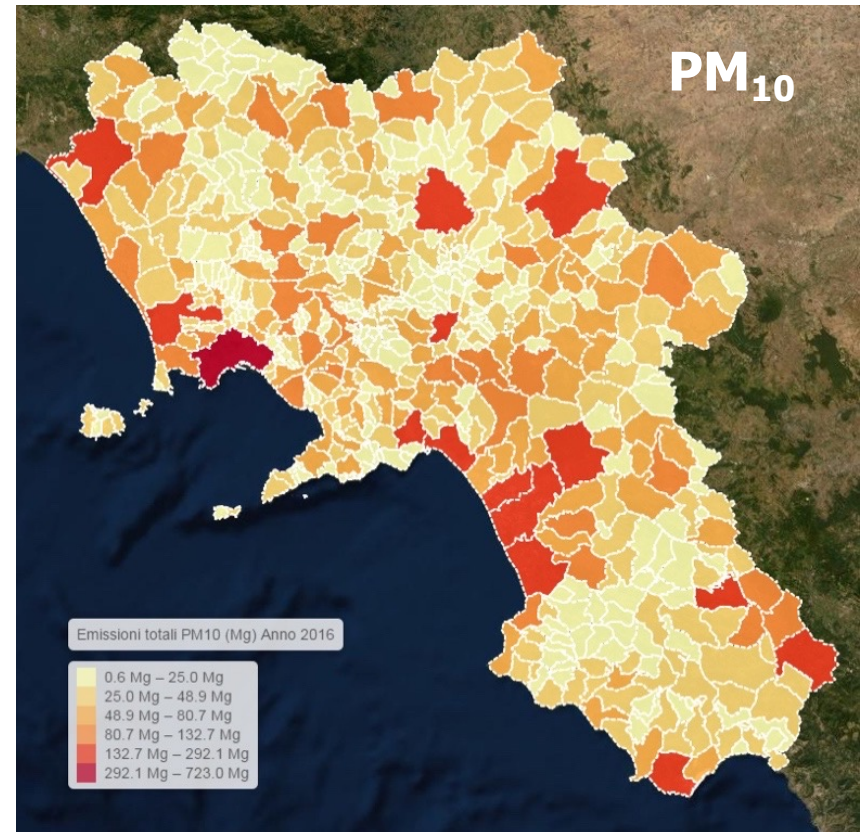
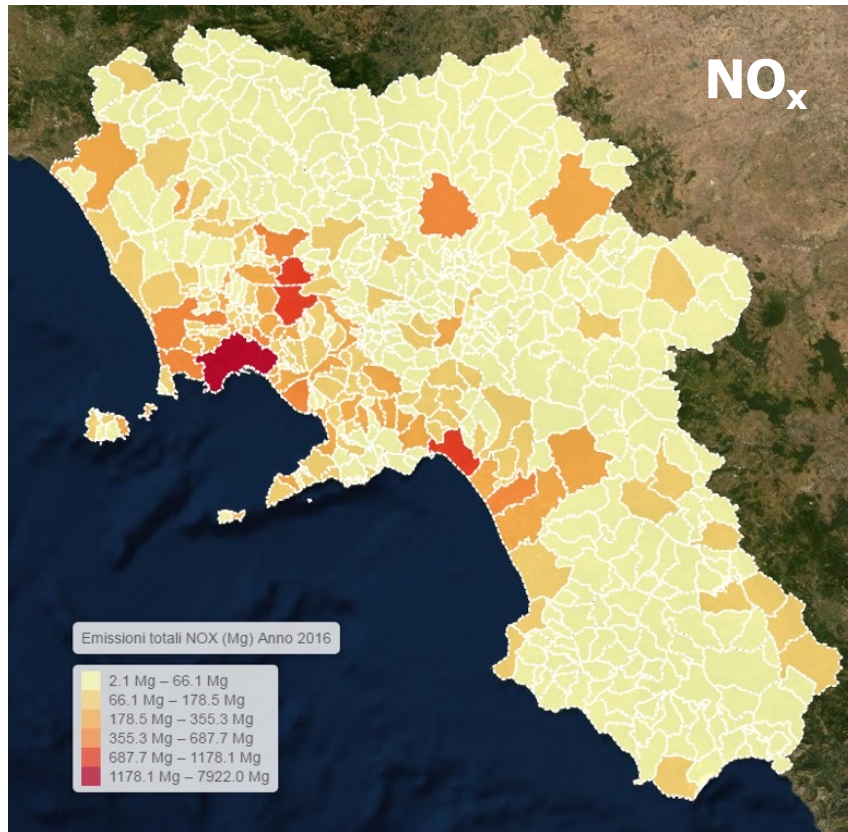
# E<sup>2</sup>Plan - Tool for regional/local AQP & CF



**25 years application at regional level**

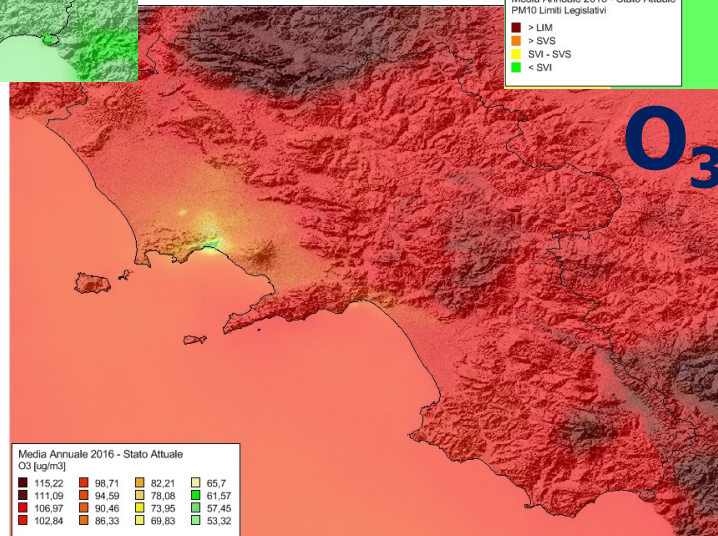
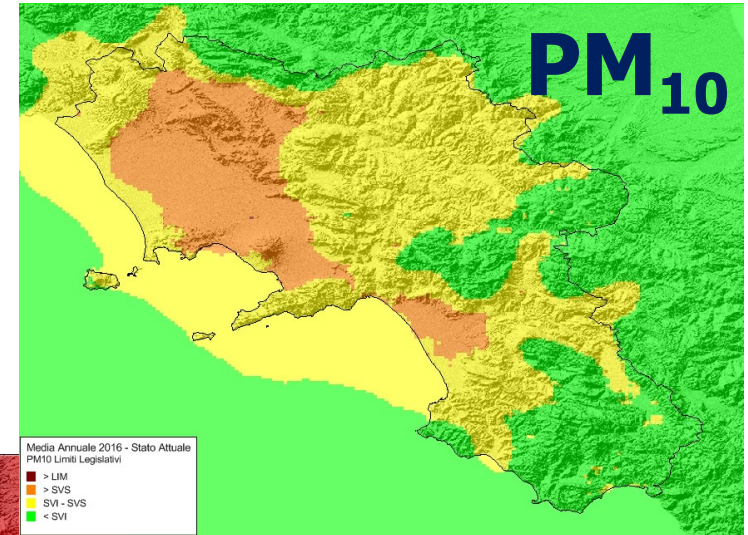
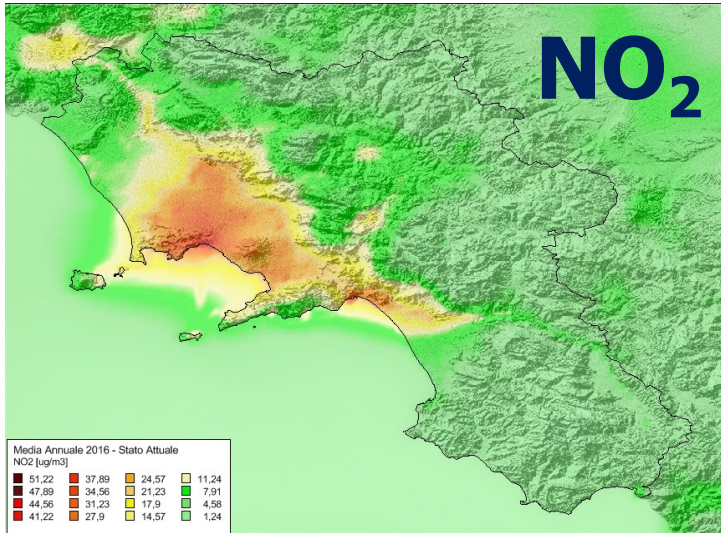


# LAU 2016 emission inventory





# 2016 air quality modelling





# Emissions Projections

**Projected emissions are computed for:**

- **activity&fuel&technology, pollutant and future year**
- **in a single municipality or for single structure (point, line or area source)**

**using specific national, regional and municipal/structure projections factors (drivers) of activity level and emission factor due to emissions technology measures**

**Some examples of legislation or plan measures:**

- **National: coal ban, long range transport planning, ...**
- **regional: energy, transport, agriculture planning, specific AQ measures valid on all the regional territory**
- **municipal or single structure: urban traffic plan, renewal of public bus park, pre-Euro 5 car ban & old wood appliance ban in non-attainment areas, specific plants control measures**

## Scenario definition in regional plan

- **Baseline:** the current situation (2016 data)
- **WM scenario:** future situation without any policy actions
- **WEM scenario:** future situation with already decided policy actions including:
  - **national** measures defined in the 'with measures' (adopted measures) NECD or energy/GHG strategies projection
  - **regional** measures adopted in energy, transport, ..., planning
  - all the other measures already adopted at **city level** planning
  - eventual "**hot spot**" measures (single plant, road, port)
- **WAM (Plan) Scenarios:** added **regional, city level, hot spot** policy measures to the WEM, same time horizon

## WEM main regional measures

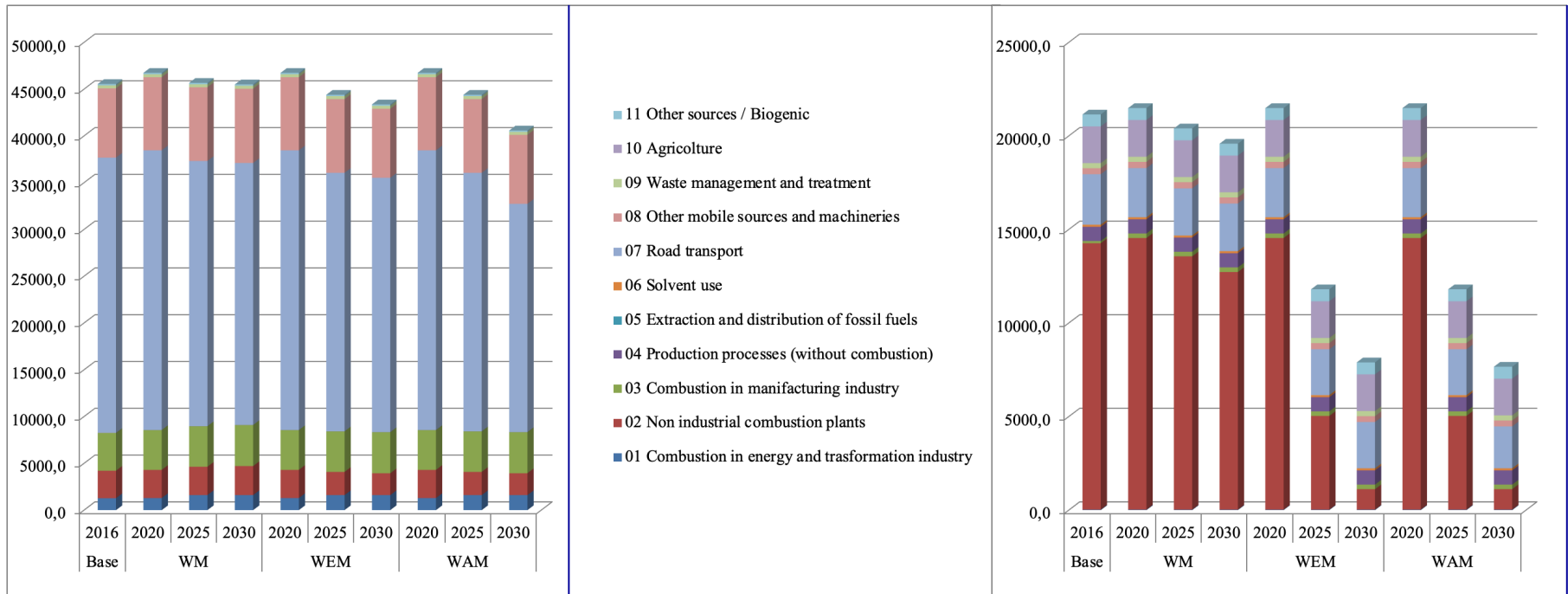
- **Incremental (2021-25) restriction on circulation of Euro 3/4/5 diesel vehicles and Euro 1/2 motorcycles in main urban areas**
- **Cold ironing (electrification of ships) in main ports**
- **Incremental (2021-25) restriction on use of 2 and 3 stars (following national classification) biomass domestic appliances**
- **Limitations on the open burning of agricultural residues**
- **Implementation of best available technologies for manure management**

## WAM main regional measures

- **Extension to Euro 6 diesel vehicles of restriction on circulation in main urban areas**
- **Emissions abatement from commercial (pizza & wood-fired ovens)**



# Campania Region future Emissions (Mg)

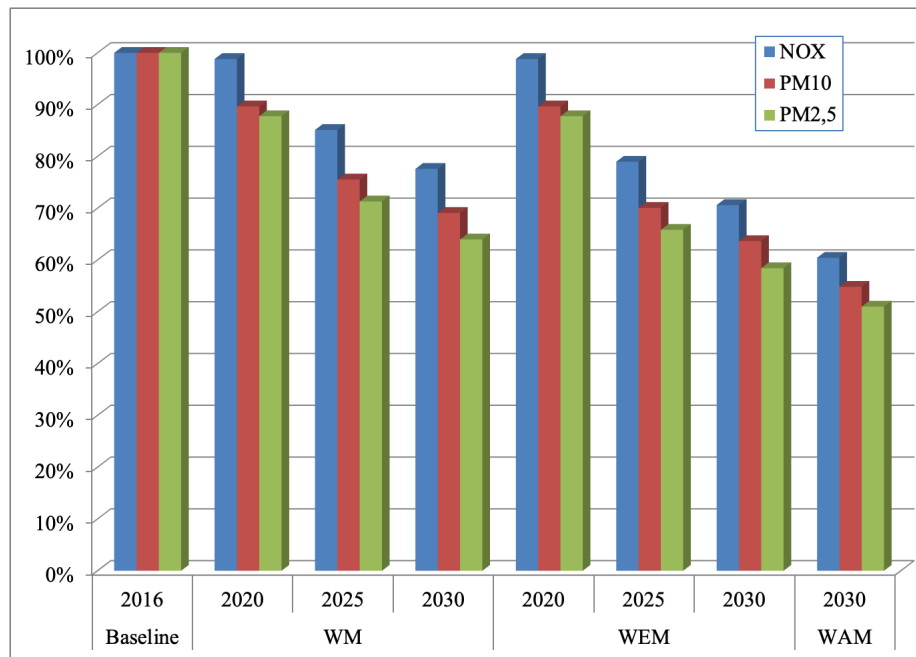


## $NO_x$

**WM = Without measures**  
**WEM = With existing measures**  
**WAM = With additional measures**

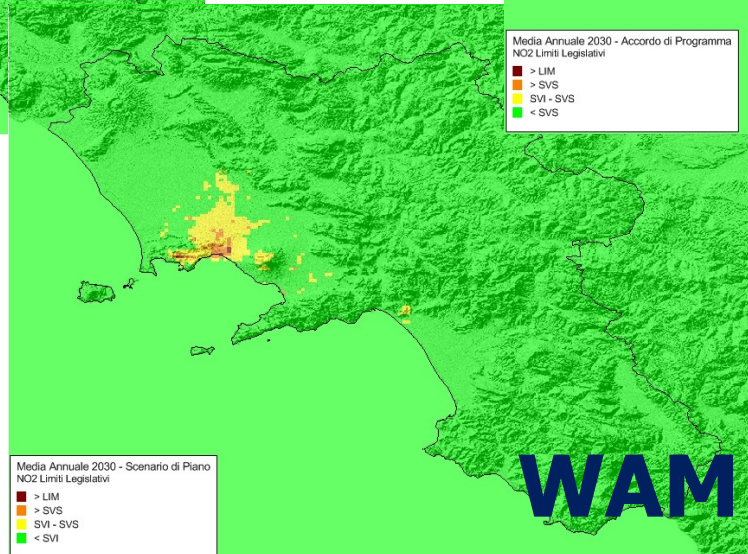
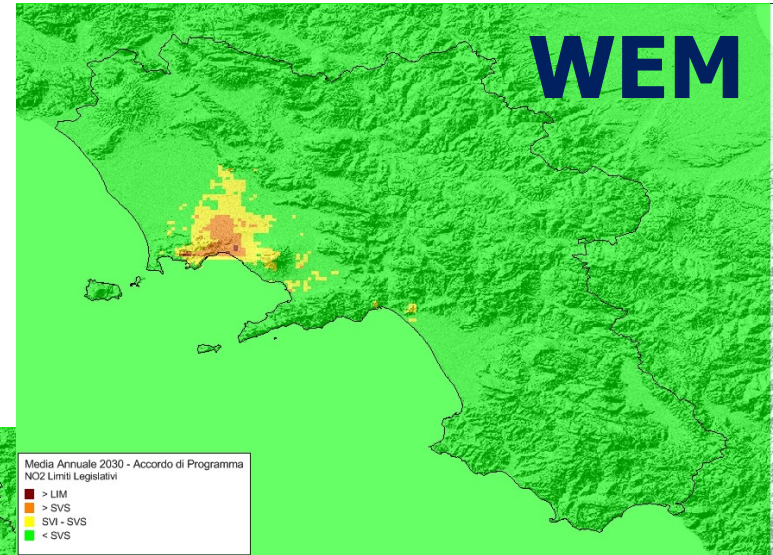
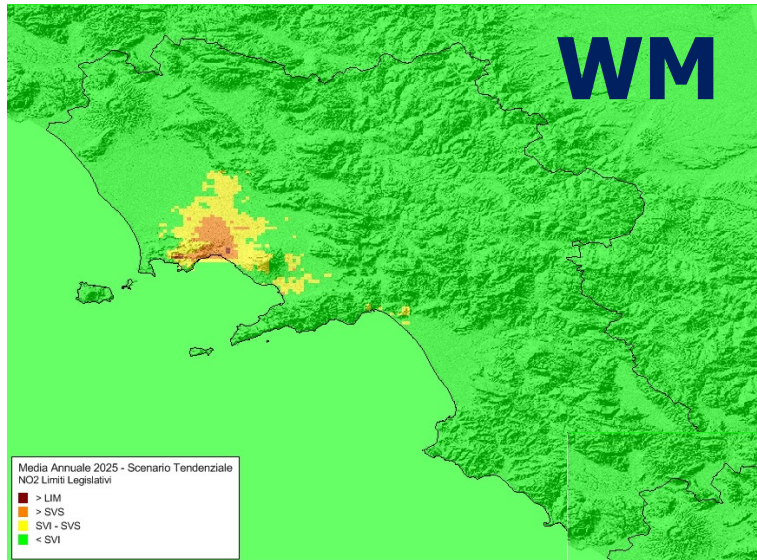
## $PM_{10}$

# impact of measures on urban traffic emissions



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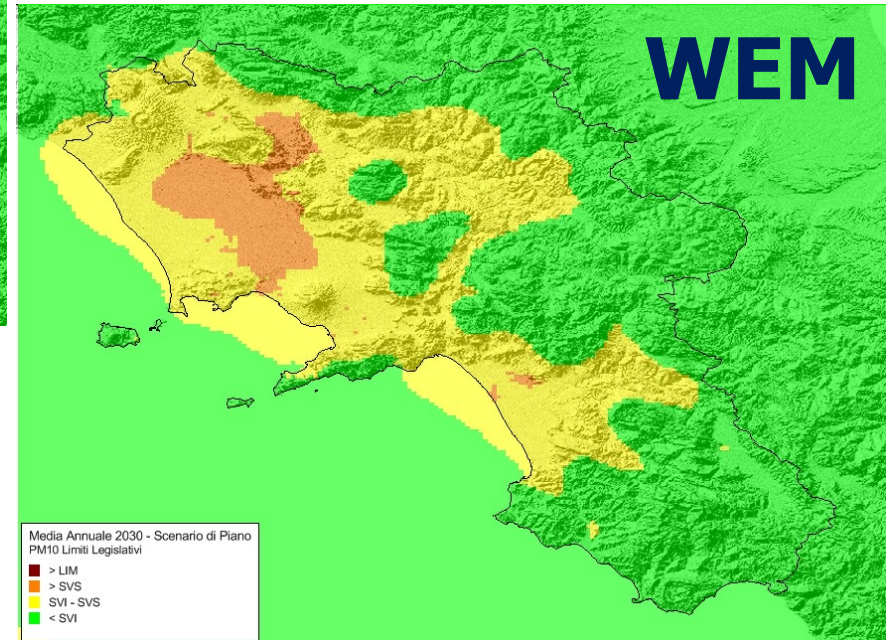
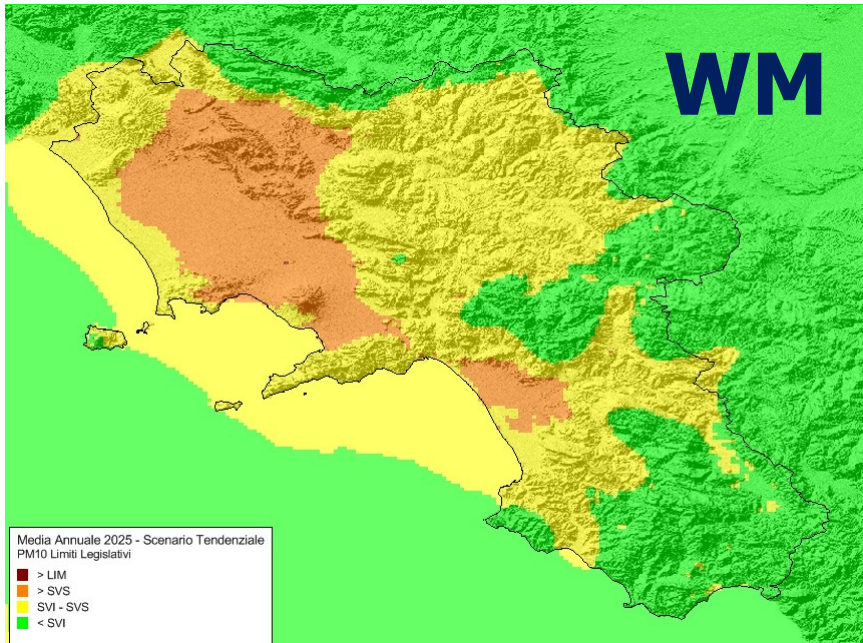
# Future Air quality : NO<sub>2</sub> annual average



**LIM: limit value**  
**SVS: upper assessment threshold**  
**SVI: lower assessment threshold**

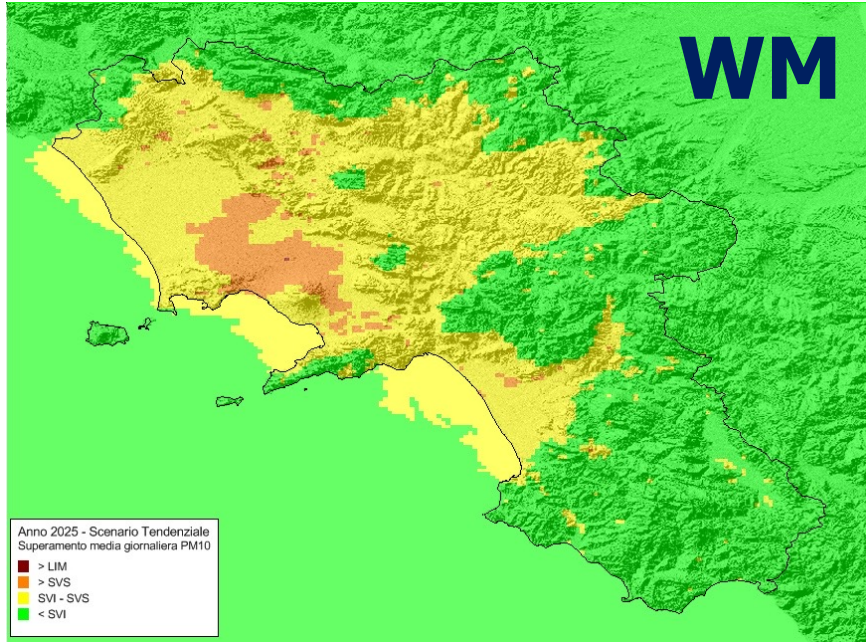


# Future Air quality : PM<sub>10</sub> annual average

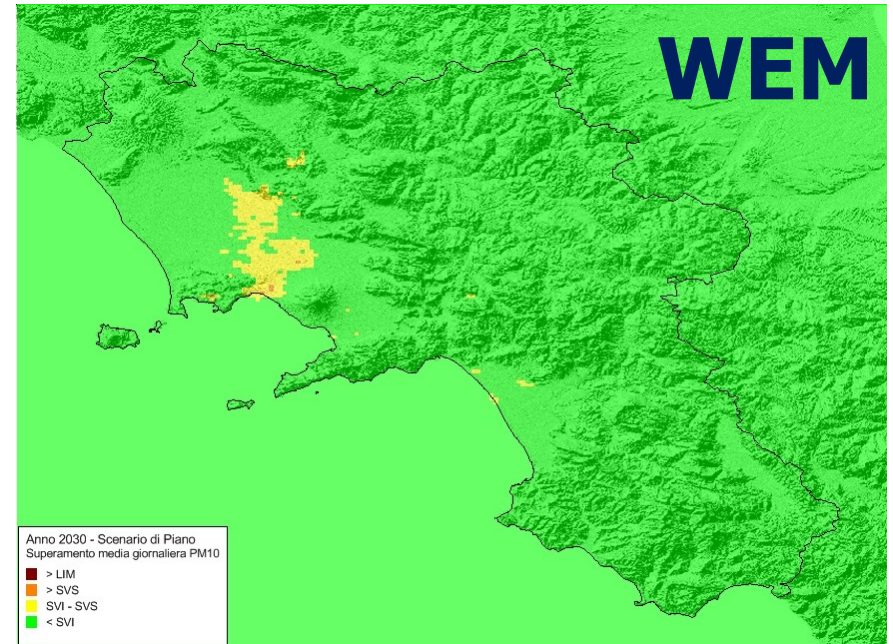


**LIM: limit value**  
**SVS: upper assessment threshold**  
**SVI: lower assessment threshold**

## Future Air quality : PM<sub>10</sub> daily average



**LIM: limit value**  
**SVS: upper assessment threshold**  
**SVI: lower assessment threshold**





## Strategic Environmental Assessment

- **Scoping: preparation of the preliminary report and consultation of the competent environmental subjects**
- **Plan preparation**
- **Analysis of the coherence of the plan with the objectives (internal coherence) and with other planning acts (external coherence) as national (vertical coherence) as regional (horizontal coherence)**
- **Evaluation of the impact of the plan on other air pollutants and on greenhouses gases**
- **Assessment of the expected effects of the plan on the environment and mitigation and compensation measures**
- **Preparation of monitoring plan**
- **Consultation of the competent environmental subjects on the draft plan and environmental report**
- **Adoption of the plan by regional administration**



## Team



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