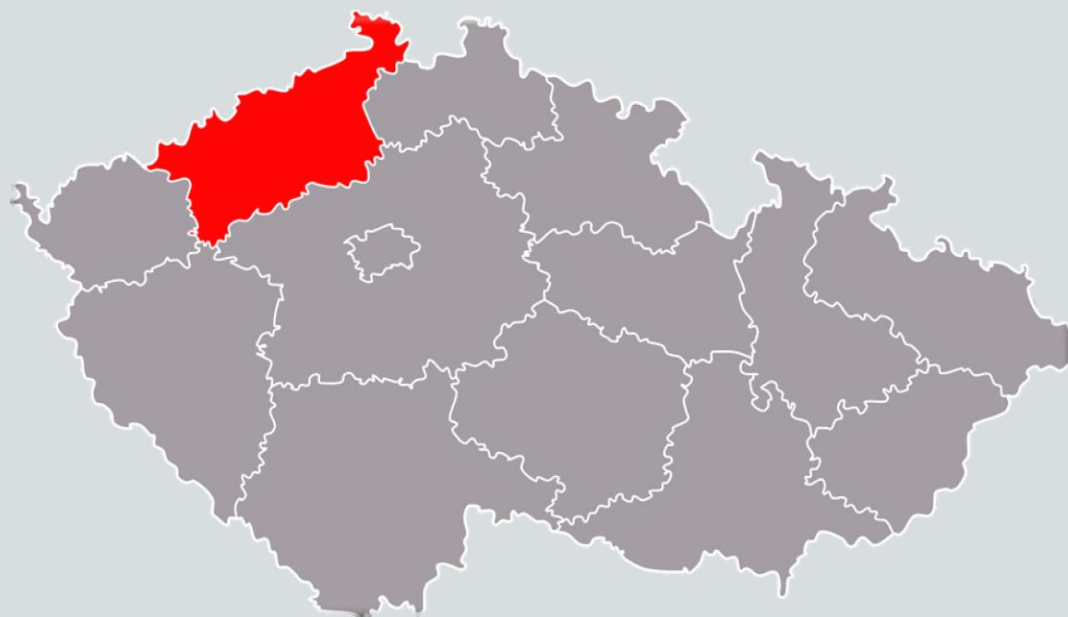


Air quality and main pollution sources in Usti Region



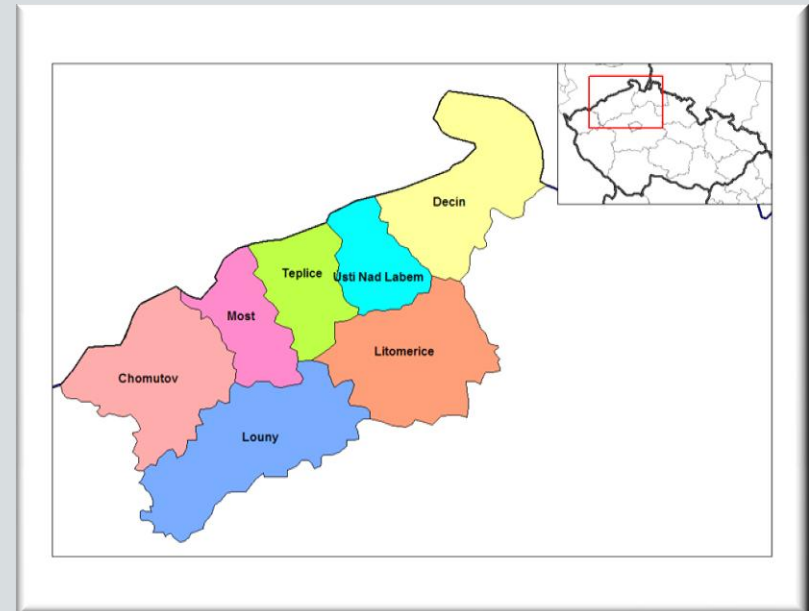
CZ

Content

- Introduction – Usti region specifics
- Emission sources
- Emission statistics and registration
- Emission sources classification and identification
- Air pollution system and monitoring
- Conclusion

The Usti Region

- Administrative unit of the Czech Republic
- Located in the north-western part of historical region of Bohemia
- Capital: Usti nad Labem
- Divided into 7 districts
- Population: about 850 000
- Area: 5 335 km² (533 500 ha)



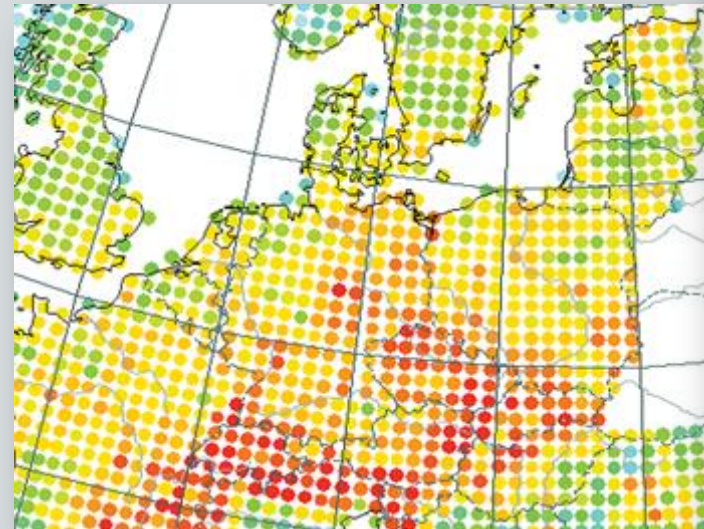
The Usti Region

Nature conservation area, national park: 4
total area of 140,846 ha, 26.4% of the region

SCI - Sites of community importance : 98
54,048 hectares, 10.1% of the region

Bird Area (SPA Special Protection Areas): 5
83,787 hectares, 15.7% of the region

Natural monuments and nature reserves: 143
total area of 4813 hectares, 0.75% of the region



Types of protected areas overlap – shares can not be added together
Various forms of territorial protection os on more than one third of the total area

Krajský úřad Ústeckého kraje

Regional Authority of Usti Region

Emission situation

EMISSION SITUATION

Emission sources

The Usti Region is defined as a zone with low air quality

High population density (circa 160/km²)

– Significant human activity

- **Traffic**

- **Local heating**

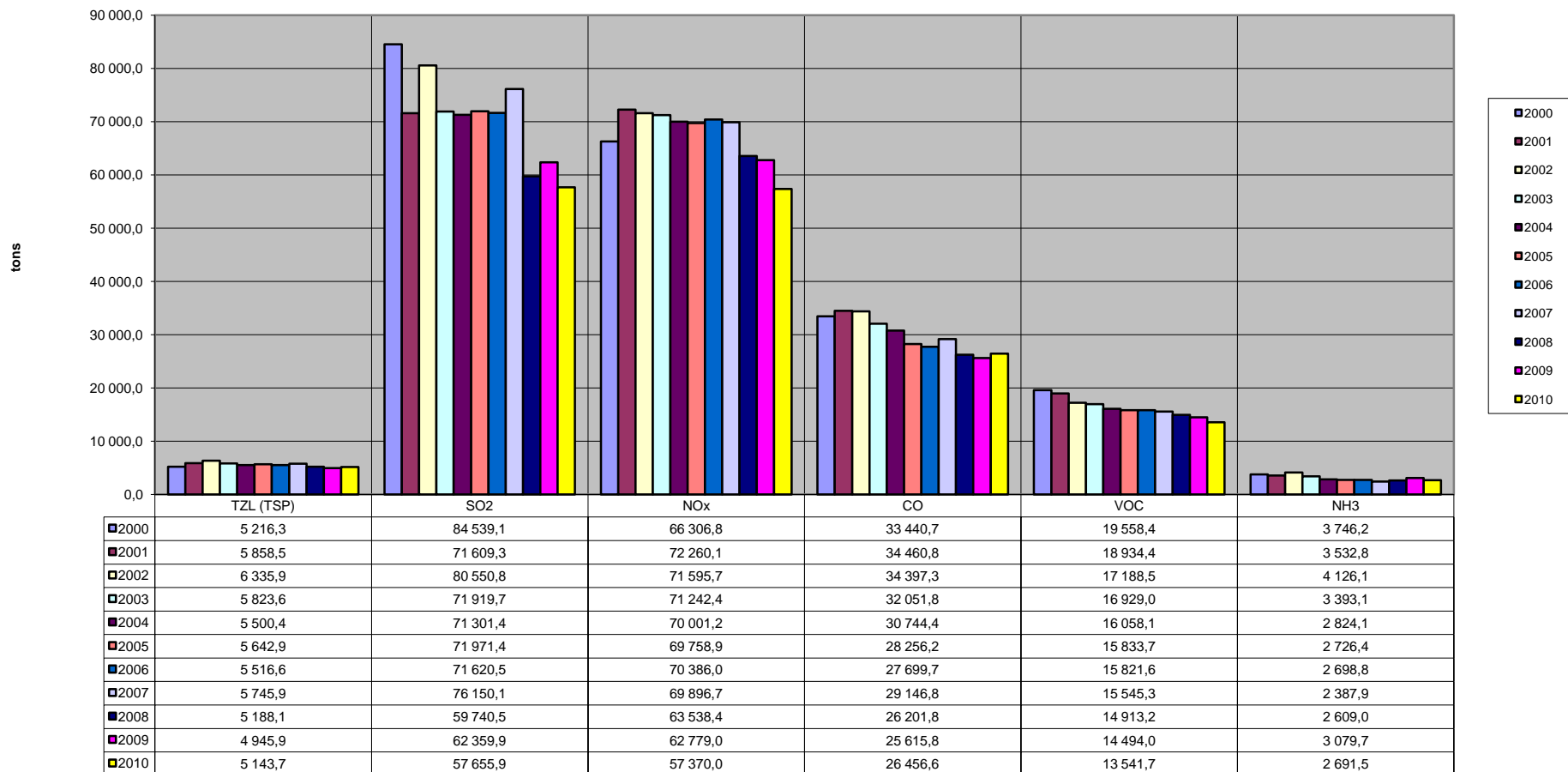
– small power sources less than 0.2 MW

- **High industrialization**

– Power industry, chemical industry, mechanical engineering, glass-making industry



Total emissions of basic air pollutants between 2000 and 2010



Emission sources classification

- REZZO – Register of Emissions and Air Pollution
- Air pollution sources are divided into several categories within REZZO databases for emission inventory in accordance with legislation

| | | |
|------|--|----------------|
| I. | Extra large and large pollution sources | REZZO 1 |
| II. | Medium-sized pollution sources | REZZO 2 |
| III. | Small pollution sources | REZZO 3 |
| IV. | Mobile emission sources | REZZO 4 |

Basic pollutants share in 2010 in Usti Region in accordance with REZZO 1 - 4

| REZZO | SO ₂ | NO _x | TSP |
|------------------------|-----------------|-----------------|----------------|
| REZZO1 | 55 300 | 50 000 | 2 000 |
| REZZO2 | 200 | 220 | 130 |
| REZZO3 | 2 100 | 450 | 1 200 |
| REZZO4 | 60 | 6 700 | 1 800 |
| total emissions | 57 660 t | 57 370 t | 5 130 t |
| REZZO 1 (%) | 96 % | 87 % | 39 % |

- Distributions of CO, VOC and NH₃ sources between groups was almost unchanged

| | | |
|------|--|----------------|
| I. | Extra large and large pollution sources | REZZO 1 |
| II. | Medium-sized pollution sources | REZZO 2 |
| III. | Small pollution sources | REZZO 3 |
| IV. | Mobile emission sources | REZZO 4 |

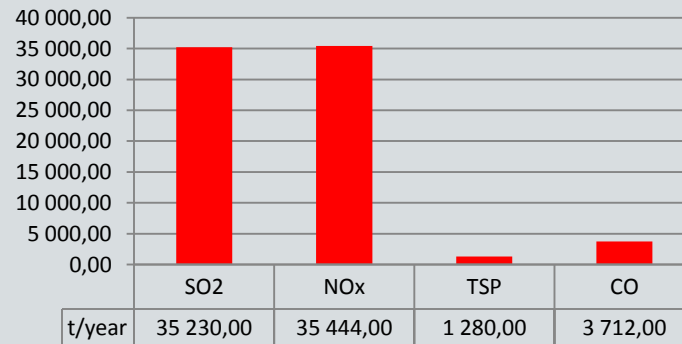
Emissions sources identification

- REZZO 1 - most significant sources of pollution (SO_2 , NO_x , TSP) include coal-fired steam power plants (Power stations Prunéřov I, Prunéřov II, Tušimice, Počerady and Ledvice)



- location of coal-fired power plants operated by ČEZ a.s.

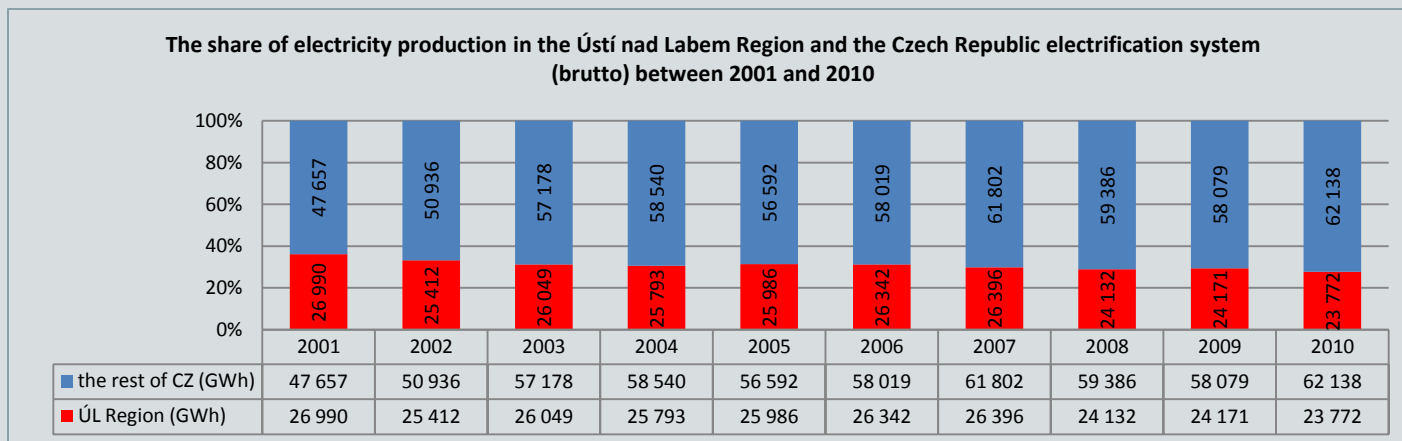
ČEZ a.s. – total emissions of basic air pollutants in 2010 (5 power plants)



| | | | | |
|---------|------|------|------|------|
| share | | | | |
| REZZO 1 | 64 % | 71 % | 65 % | 39 % |

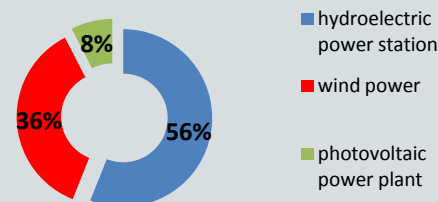
Electricity sources comparison

- In the Usti Region are operated most important sources of electricity in the Czech Republic



98 % of the total electricity production is from non-renewable energy sources
2 % renewable sources

Share of renewable sources in the Usti Region in 2010



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Air pollution

AIR POLLUTION

Air pollution system in CZ

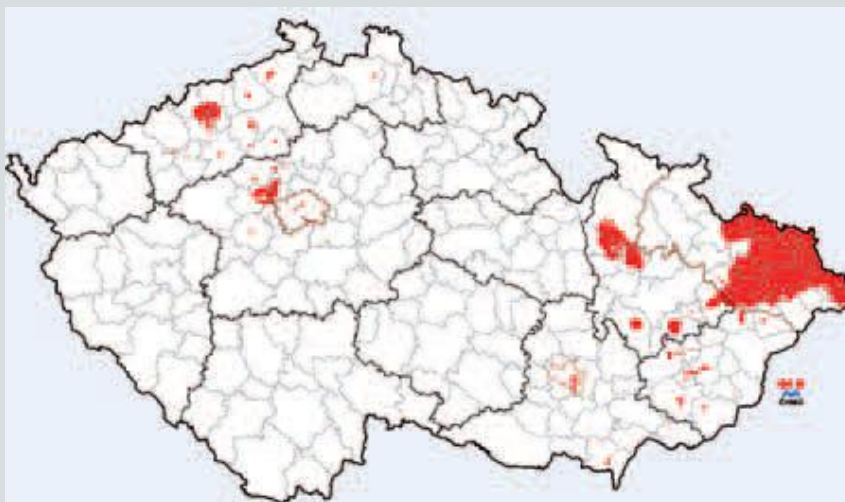
- Pollutant concentrations data are passed to the ISKO (Air Quality Information System)
http://portal.chmi.cz/files/portal/docs/uoco/web_generator/actual_hour_data_CZ.html
- Limit values for the protection of human health (basic pollutants)
 - SO₂ (24-hour concentration, 1-hour concentration)
 - CO (max. 8-hour concentration)
 - PM₁₀ (24-hour concentration, 1- year concentration)
 - NO_x (1-hour concentration, 1-year concentration)
- Acquired data from the measurements are processed and applied for OZKO definition (Zone with deteriorated air quality)

Zone with deteriorated air quality between
2006 and 2010

| Year | CZ | Usti Region |
|------|-------|----------------|
| 2006 | 28,5% | 42,3% |
| 2007 | 6,3% | 4,1% |
| 2008 | 2,8% | 1,1% |
| 2009 | 4,4% | 4,0% |
| 2010 | 21,2% | 53,4% |

Zone with deteriorated air quality with regard to health protection

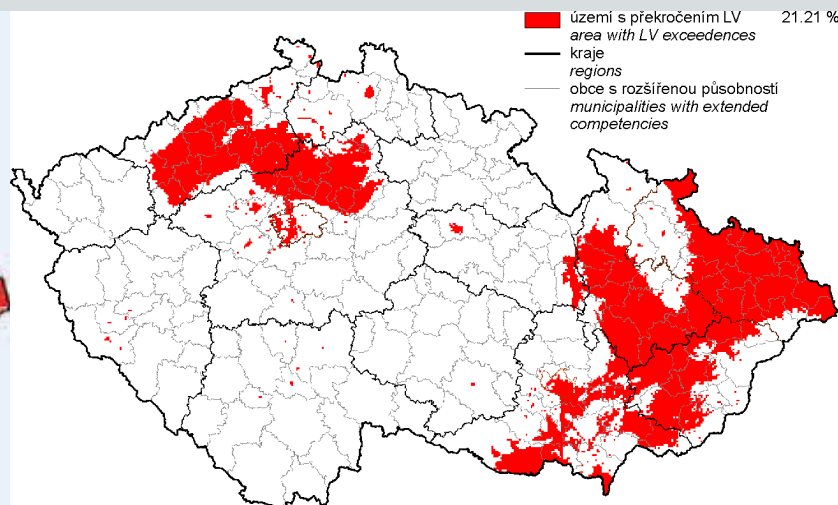
OZKO 2009



OZKO 2010

Exceeded value limit for:

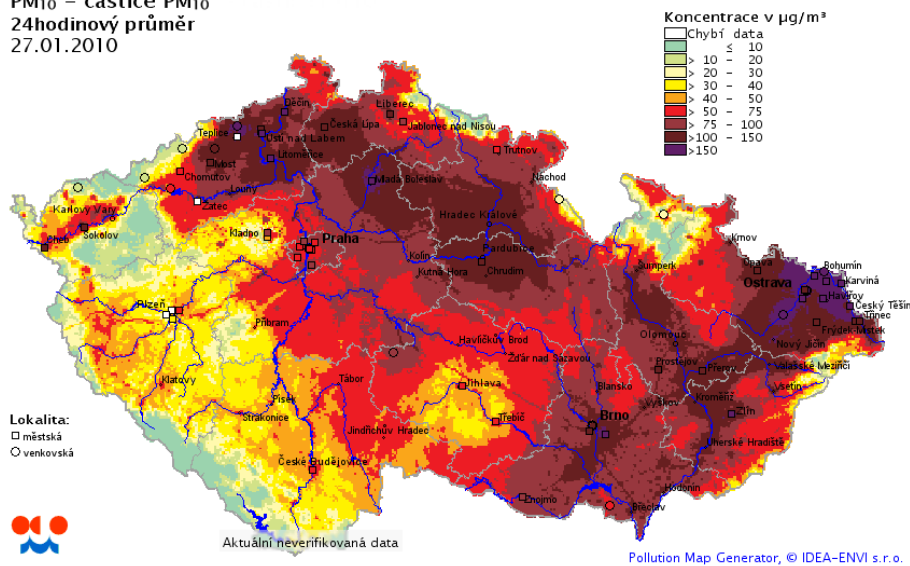
- PM₁₀ (24-hour concentration)
- NO₂ (1-year concentration)
- Benzo(a)pyrene (1-year concentration)



Example of adverse weather conditions

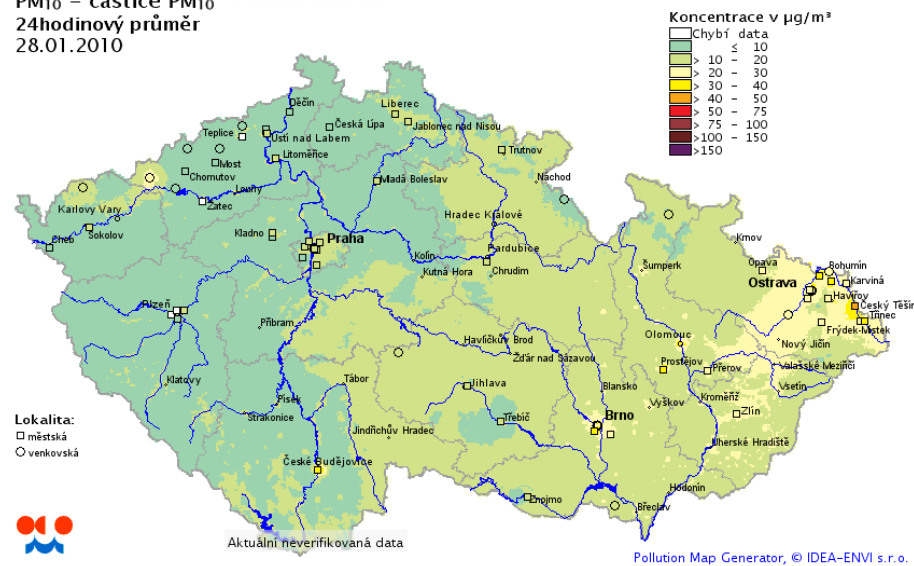
The worst inversion level in last 10 years (PM₁₀ – 24-hours concentration)

PM₁₀ – částice PM₁₀
24hodinový průměr
27.01.2010



1/27/2010

PM₁₀ – částice PM₁₀
24hodinový průměr
28.01.2010



1/28/2010

CONCLUSION

Air quality improvement

- **In terms of industry operations:**
 - Reduce emission of pollutants
 - PM₁₀
 - NO_x
 - SO₂
 - Benzo(a)pyrene
 - VOC
- **In terms of Regional Authority of Usti Region**
 - Review of the binding conditions of the integrated permit
 - Tightening operation, technical and organizational measures
 - Fees for air pollution
 - Support the transition to an environmentally favorable method of heating (local heating)
 - Public information and education



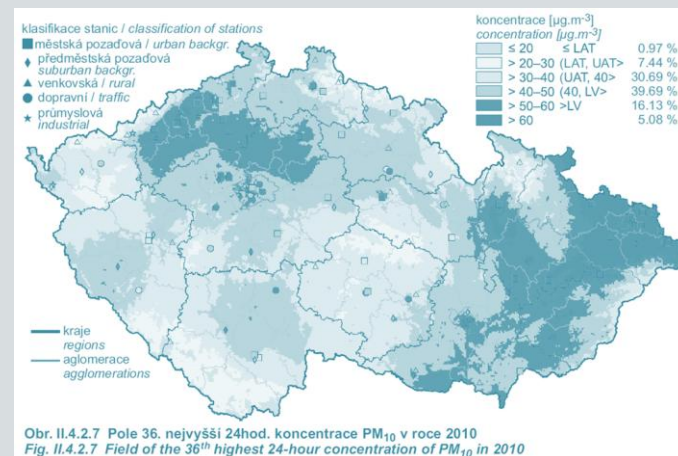
Air quality improvement

- Pollutants measures originated from energetic sources REZZO 1 (extra large and large pollution sources) and REZZO 3 (small pollution sources)
- Informational measures and technical assistance
- Measures to reduce emissions from another technological pollution sources
- Measures to reduce emission and air pollution from automobile traffic
- Measures to reduce dustiness

For better and more effective application of these measures is necessary to define the sources of air pollution that have real impact on air quality within the region.

Dispersion study

- Determination of air pollution sources share (REZZO - extra large, large, medium-sized, small pollution sources and mobile emission sources, specific sources) on air quality in the Usti Region
- Modelling the dispersion of pollutants will be implemented throughout the territory of the Usti Region
- Uniform database (input data) for the purposes of administrative activities in the field of air protection



Uniform and transparent database for decision-making in air protection

Krajský úřad Ústeckého kraje

Regional Authority of Usti Region

Veronika Vitkova



THANK YOU FOR YOUR ATTENTION