



Fifteen session of intergovernmental meeting of Male

National Center for Air and Climate

October 16

8 Megacities with Major Air Pollution Problems



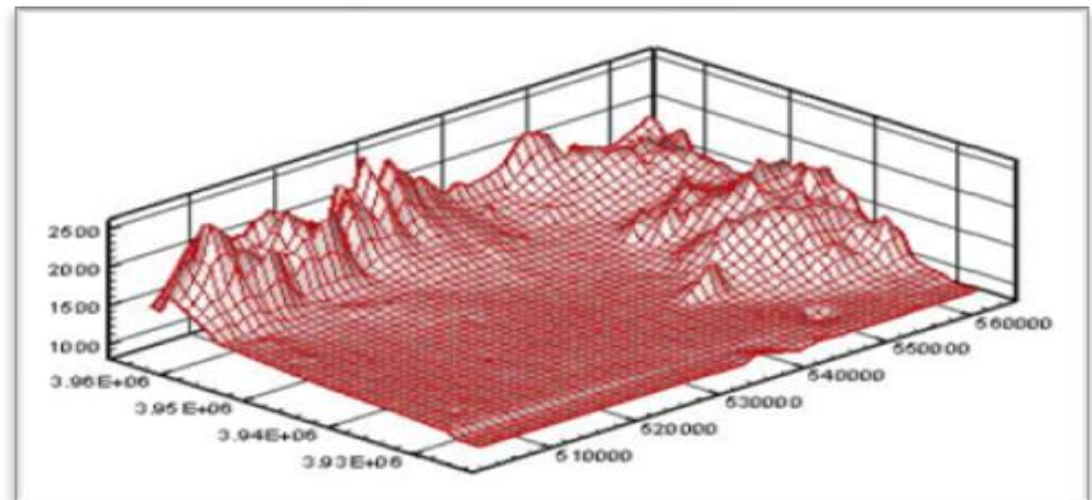
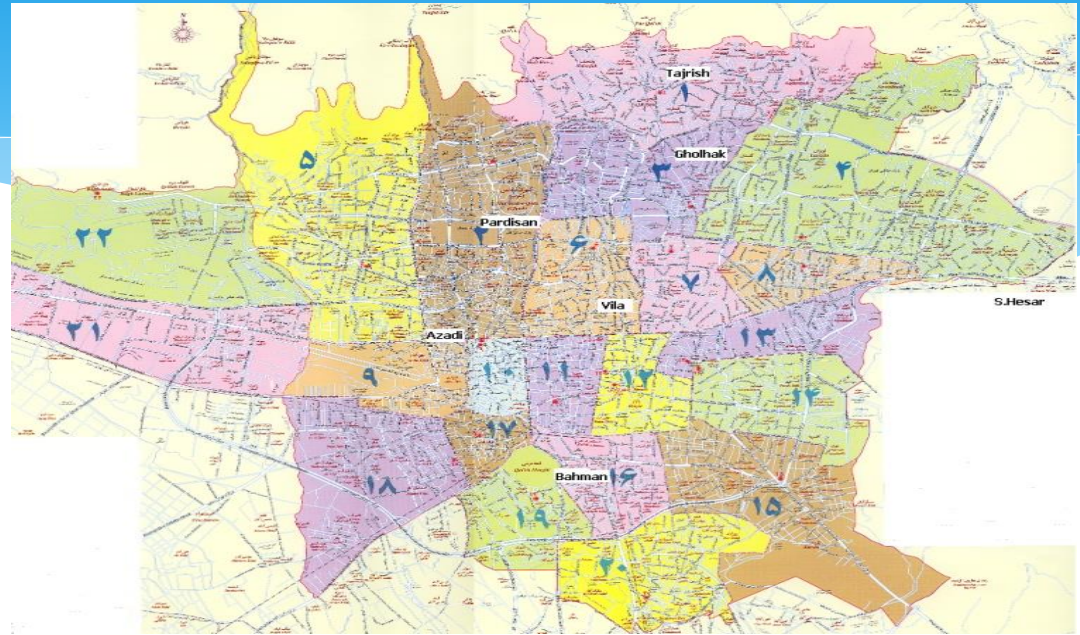
Tehran Characteristics

-Area

-Topography

-Industrial zone

-capacity of
transportation



Major Naturally Caused Pollution Episodes

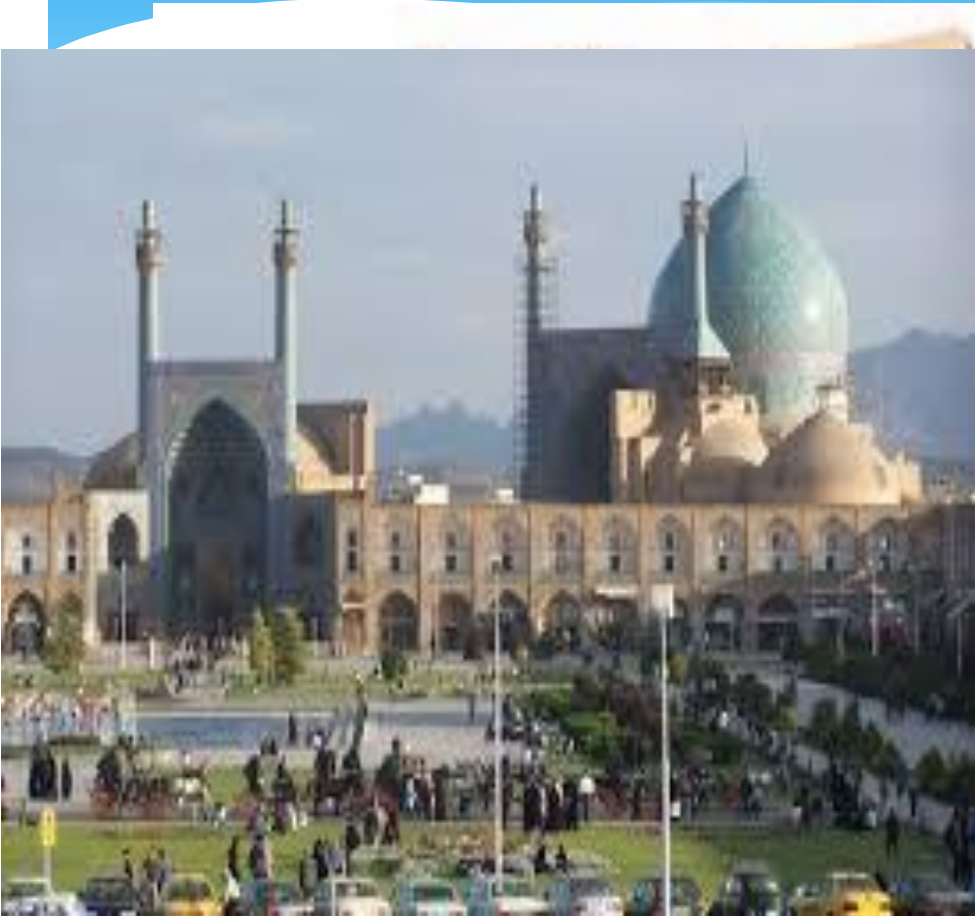
○ Inversion Episodes

Several episodes in cold season



Tehran view from mountains

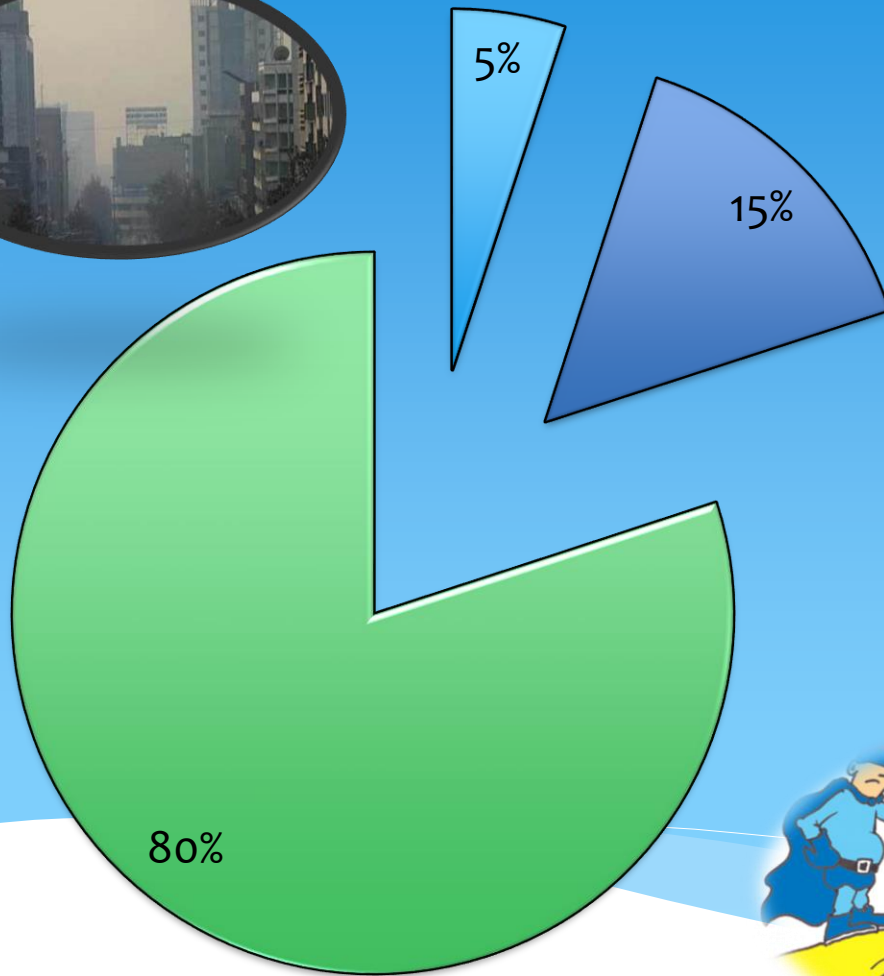
Some facts about Isfahan



Air Pollution in Isfahan



Contribution of various sources of air pollution in Tehran



- Domestic and commercial
- Industry
- Transportation



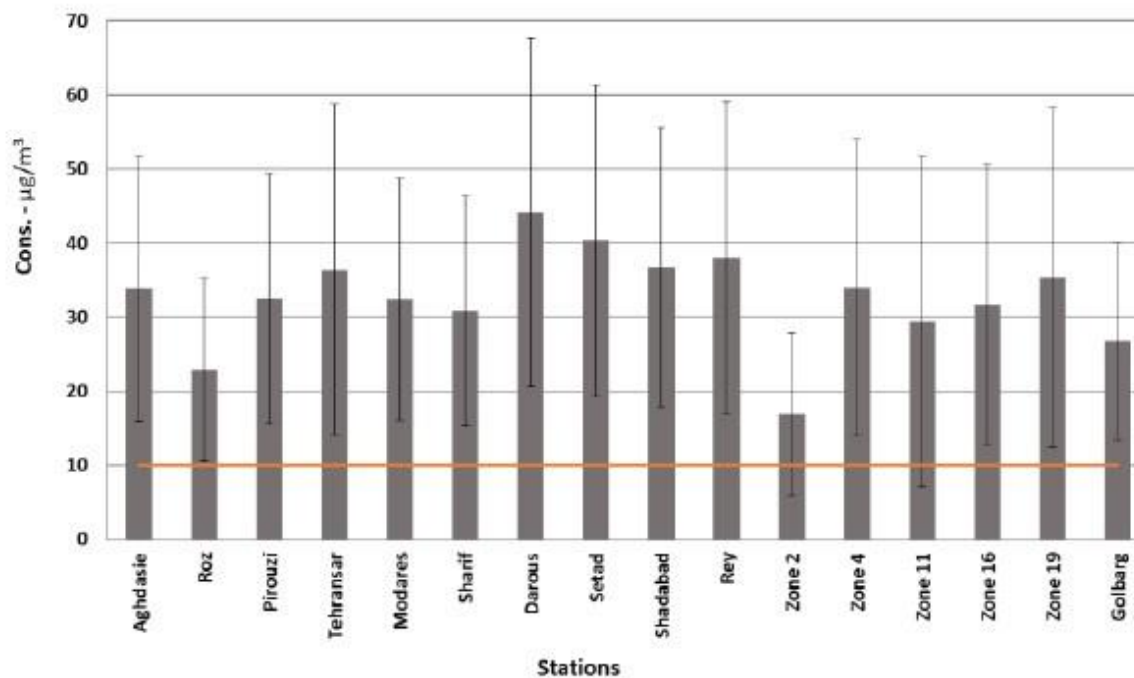
Challenges

- * More than 150 days of Tehran city is Unhealthy
- * The main pollutant Parameter of mega cities is particulate 2.5 micron
- * Vehicles have the main role in pollution of cities
- * High consumption fuel in all economical section
- * Using old technology in industrial process
- * Lack of control system in power plant
- * Provinces dealing with dust phenomena

A comparison of Tehran air quality based on AQI, March 2013- Jan 2014 and March 2012- Jan 2013



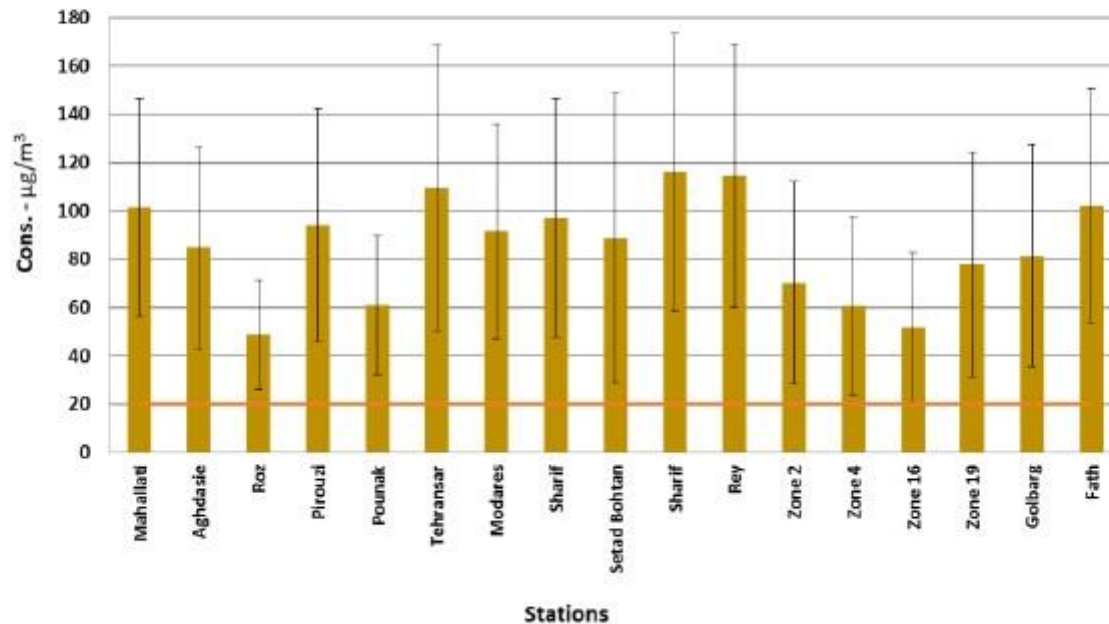
PM2.5 annual average of Tehran air quality monitoring stations, March 2013-Feb 2014



غلظت متوسط سالیانه PM10 در تعدادی از ایستگاه های پایش آلودگی

هوای تهران در سال ۱۳۹۲

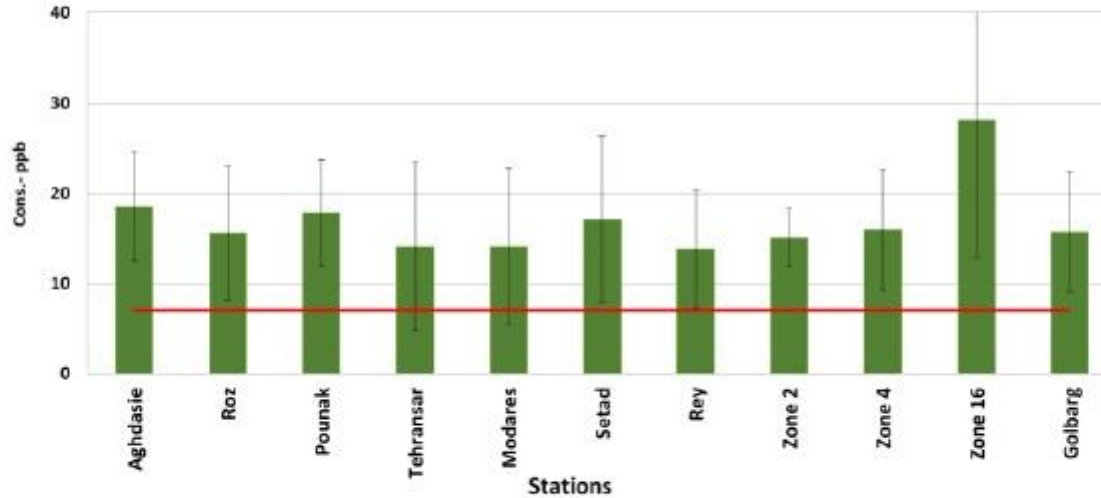
PM10 annual average of Tehran air quality monitoring stations, March 2013-Feb 2014



غلظت متوسط سالیانه SO_2 در تعدادی از ایستگاه های پایش آلودگی

هوای تهران در سال ۱۳۹۲

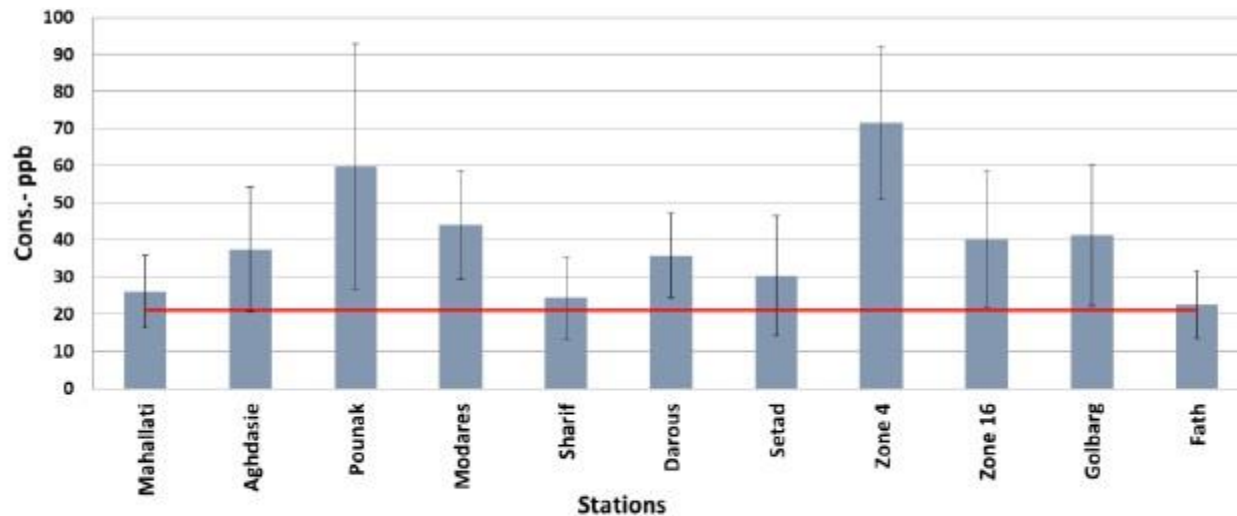
SO_2 annual average of Tehran air quality monitoring stations, March 2013-Feb 2014



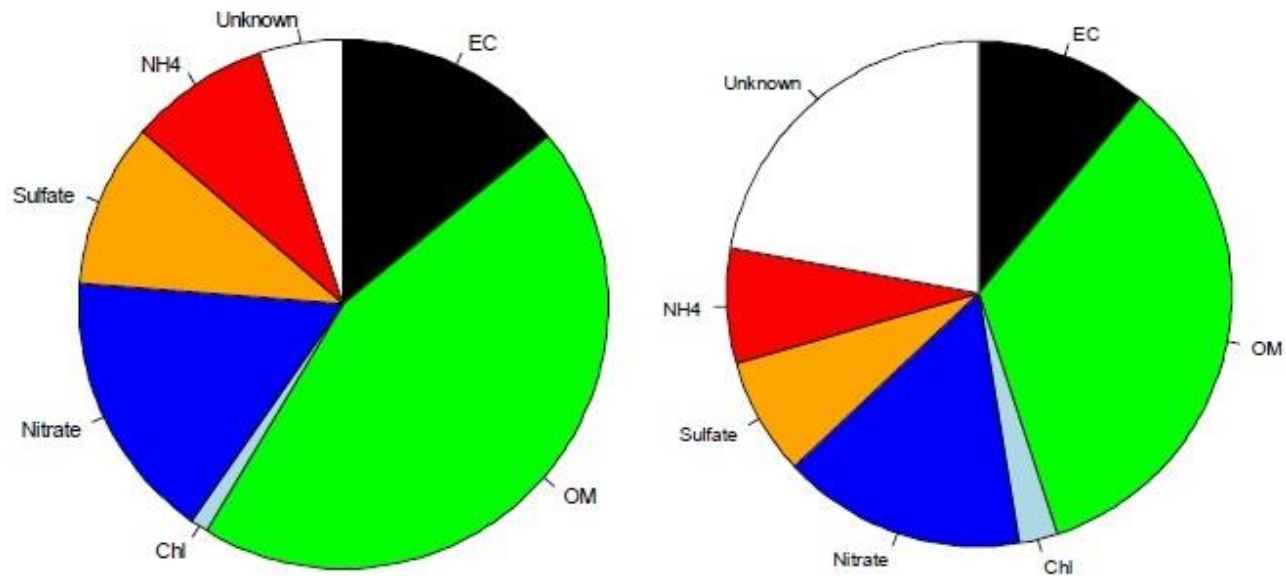
غلظت متوسط سالیانه NO_2 در تعدادی از ایستگاه های پایش آلودگی

هوای تهران در سال ۱۳۹۲

NO_2 annual average of Tehran air quality monitoring stations, March 2013-Feb 2014



The result of Chemical analysis PM2.5 Tehran- Aghdasie Station-Winter 2014



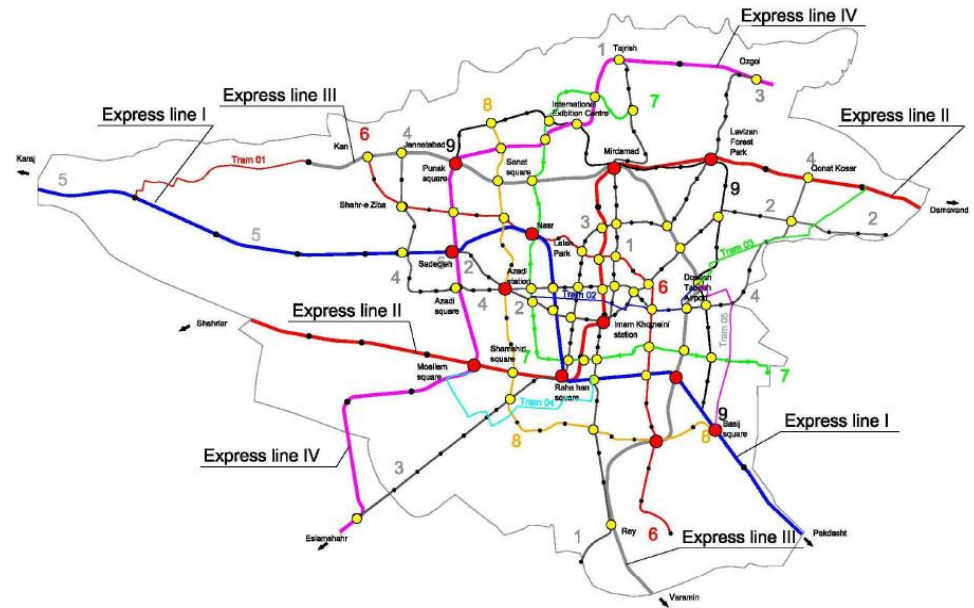
Seven goals of the first Air Quality Action Plan in Tehran

- 1. New vehicles**
- 2. Old vehicles**
- 3. Public Transportation**
- 4. Improving the quality of fuel**
- 5. Inspection and maintenance of Vehicle**
- 6. Traffic management**
- 7. Training and public awareness**

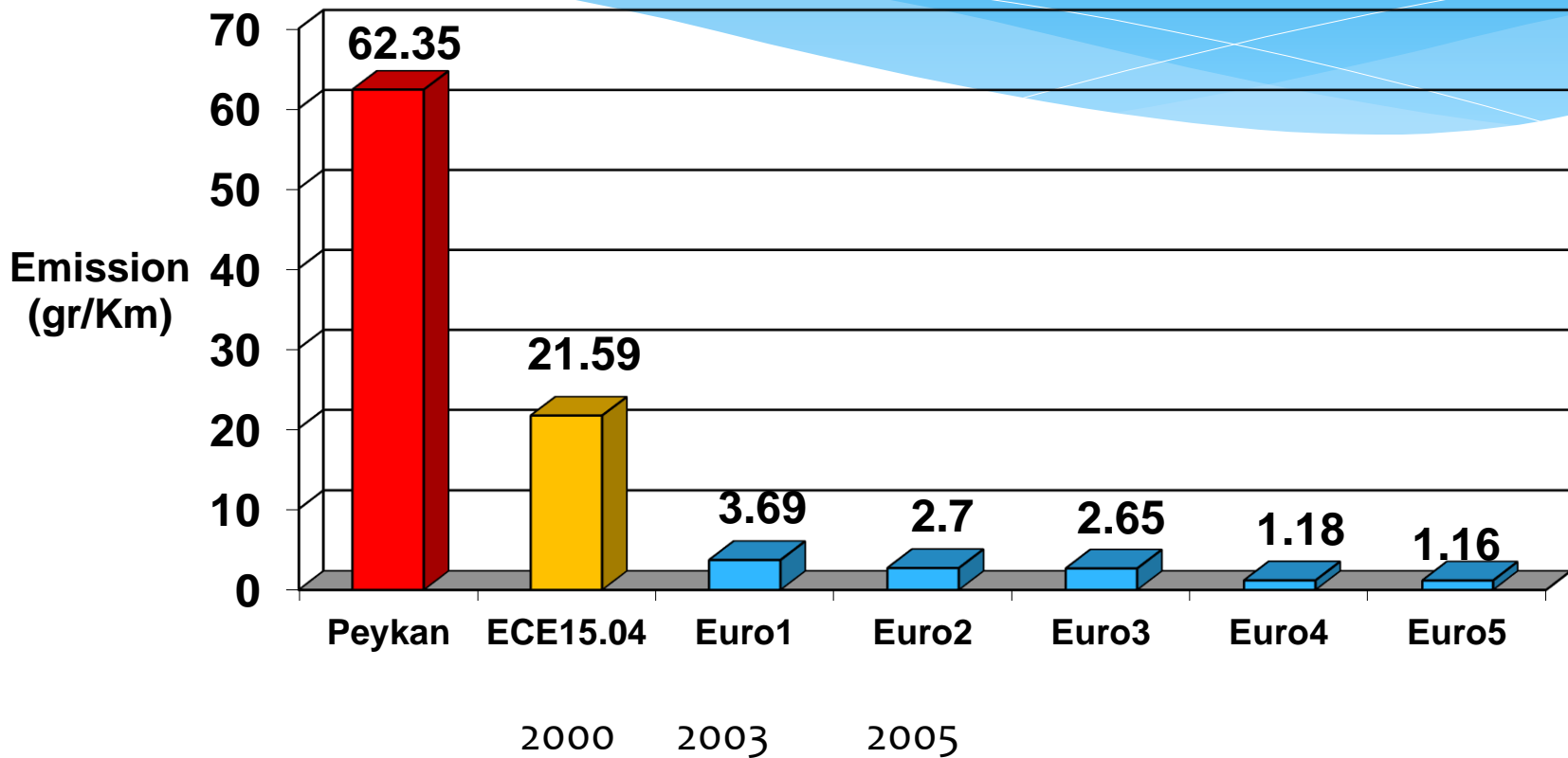
Iranian Standards

- * Clean air action plan
- * Ambient Air quality Standard
- * Industrial exhaust standard by the type of industry and production process
- * Exhaust emission standard for vehicle
- * Fuel Standard

Public transportation in Tehran



Vehicle Emissions (CO+HC+NOx)



Ful Euro 4 Standard

EU REFERENCE TEST FUELS

These specifications apply to reference fuel used during certification/type approval.

UNLEADED GASOLINE FUEL

Values for Euro 3 and Euro 4 are part of European Directive 98/69/EC and 2002/80/EC. For implementation timing see pages 10-11

| Parameter | Unit | ECE, EC 93,96 | Euro 3 | Euro 4 |
|-----------------|---------|---------------|---------------------------|---------------------------|
| Octane | RON/MON | 95/85 | 95/85 | 95/85 |
| RVP | kPa | 56-64 | 56-60 ¹⁾ | 56-60 ¹⁾ |
| Density at 15°C | kg/l | 0,748-0,762 | 0,748-0,762 ¹⁾ | 0,740-0,754 ¹⁾ |
| T 10 | °C | 42-58 | | |
| T 50 | °C | 90-110 | | |
| T 90 | °C | 155-180 | | |
| Dist. at 100°C | % vol | | 49-57 | 50-58 |
| at 150°C | % vol | | 81-87 | 83-89 |
| FBP | °C | 190-215 | 190-215 | 190-210 |
| Aromatics | % vol | 45 | 28-40 | 29-35 |
| Olefins | % vol | 20 | ≤ 10 | ≤ 10 |
| Benzene | % vol | 5 | ≤ 1 | ≤ 1 |
| Oxygen | % mass | | ≤ 2,3 | ≤ 1 |

| Parameter | Unit | ECE, EC 93,96 | Euro 3 | Euro 4 |
|------------|------|---------------|--------|--------|
| Sulfur | ppm | 400 | 100 | 10 |
| Lead | g/l | 0,005 | 0,005 | 0,005 |
| Phosphorus | g/l | 0,0013 | 0,0013 | 0,0013 |

¹⁾ Different values for cold temperature test fuel: RVP: 56-95 kPa,
Density at 15°C: 748-775 kg/m³

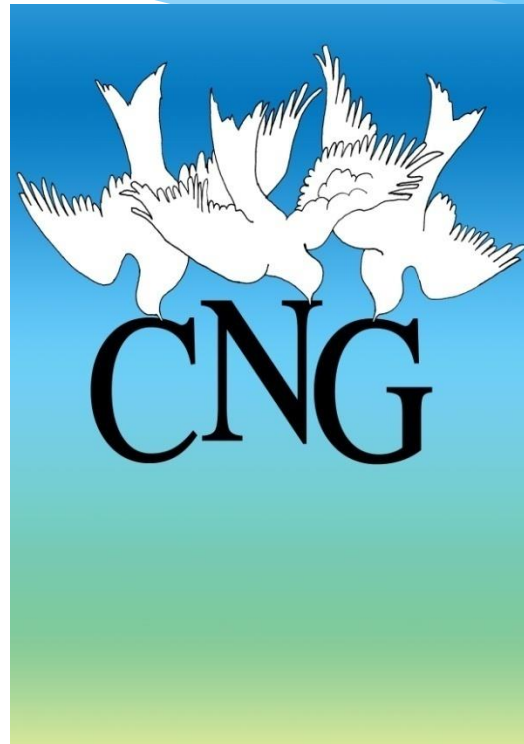
DIESEL FUEL

| Parameter | Unit | ECE, EC 93,96 | Euro 3,4 |
|----------------------|--------------------|---------------|-----------------------|
| Cetane | | 49-53 | 52-54 |
| Density at 15°C | kg/l | 0,835-0,845 | 0,833-0,837 |
| Distillation T 50 | °C | ≥ 245 | ≥ 245 |
| T 95 | °C | 320-340 | 345-350 |
| FBP | °C | ≤ 370 | ≤ 370 |
| Flash point | °C | ≥ 55 | ≥ 55 |
| Viscosity at 40°C | mm ² /s | 2,5-3,5 | 2,5-3,5 ²⁾ |
| Polycyclic aromatics | % mass | | 3-6,0 |
| Sulfur | ppm | ≤ 3000 | ≤ 300 ³⁾ |

²⁾ For Euro 4: 2,3-3,3

³⁾ Mandatory diesel sulfur level for Euro 4: ≤ 10 ppm

CNG buses and Taxi



Main Tasks for the next 5 years

- Developing of public transport system to 75%
- Upgrade the Vehicles standard to Euro5
- Continuing phasing out the old vehicles
- Utilize Renewable Energy
- Development of electrical and hybrid vehicles
- Improvement of control system in industries
- Improvement of monitoring system
- Review of law and regulations
- General education

| Implementing strategies to deal with the phenomenon of dust | |
|---|--|
| Department Of Environment | <ul style="list-style-type: none"> •Complete network monitoring of terrestrial and satellite •Reclamation wetlands •Monitoring on implementation programs |
| Meteorological Organization | <ul style="list-style-type: none"> •The development of forecasting and warning systems •Upgrading the information technology •Integrated early warning system for SDS |
| Forests, Rangelands and Watershed organization | <ul style="list-style-type: none"> •Implementation of Desertification and control of critical operations centers •Development of Forest (forest planting) |
| Oil ministry | <ul style="list-style-type: none"> •Established production centers indoor dust from petroleum activities •Water release in Horol Azim |
| Ministry of Health | <ul style="list-style-type: none"> •Health care and monitoring of exposure and inhalation of dust •Equipment, services and care diagnostic disease caused by inhaling dust •Development of awareness network and public education in dust phenomena occurrence time |
| Ministry of Power | <ul style="list-style-type: none"> •Enforcement of Law of limitation water removal from groundwater sources. •Determination water that need for wetlands |

Need for cooperation

- * Cooperation for preparing of emission inventory
- * Capacity building for modelization of air pollution
- * Strengthen of air pollution management
- * Solving some of the problems due to sanctions

A photograph of a city street lined with tall, leafless trees. In the foreground, a yellow bus is visible on the left, and several cars are parked or driving on the road. The background shows multi-story buildings. The text "Thank you" is overlaid in the center in a bold, orange font.

Thank you