The Styrian Air Quality Management Plan 2011

Maribor
18./19.9.2013

Dr. Thomas Pongratz
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PM$_{10}$-Concentrations in PMInter region

![Graph showing PM$_{10}$ concentrations over time with various stations and a limit value.](image-url)
**PM$_{10}$-Concentrations in PMInter region**

**PM$_{10}$-Exceedance days**

<table>
<thead>
<tr>
<th>Station</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>Deutschlandsberg</td>
<td>16</td>
<td>16</td>
<td>16</td>
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<tr>
<td>Leibnitz</td>
<td>46</td>
<td>42</td>
<td>34</td>
<td>60</td>
<td>76</td>
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<tr>
<td>Fürstenfeld</td>
<td>26</td>
<td>14</td>
<td>22</td>
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<td>41</td>
<td>32</td>
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</table>

**PM$_{10}$ Annual mean value**

<table>
<thead>
<tr>
<th>Station</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deutschlandsberg</td>
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<td>21</td>
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<td>23</td>
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<td>20</td>
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<tr>
<td>Leibnitz</td>
<td>30</td>
<td>29</td>
<td>28</td>
<td>30</td>
<td>35</td>
<td>30</td>
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<tr>
<td>Fürstenfeld</td>
<td>26</td>
<td>24</td>
<td>25</td>
<td>28</td>
<td>29</td>
<td>27</td>
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</table>
History of AQMP in Styria

⇒ Fine Dust Programme 2004
62 measures
– Traffic
– Industry
– Diffuse emissions
– Agriculture
– Domestic heating
History of AQMP in Styria

Fine Dust Programme 2004

1. Evaluation of the Fine Dust Programme 2006
History of AQMP in Styria

- Fine Dust Programme 2004
- 1. Evaluation of the Fine Dust Programme 2006
- Fine Dust Programme 2008
- 14 additional measures
Trend of PM-Pollution in Styria

annual mean value in µg/m³

Deutschlandsberg
Kapfenberg
Leoben
Graz Nord
Voitsberg
Graz Süd
Graz Mitte
Air Quality Management Plan 2011

Tasks

⇒ Evaluation of AQMP 2008 (PM10)
⇒ New AQMP 2011, additional pollutants: NO\textsubscript{2}, Benzo(a)pyren
⇒ 10 key measures
⇒ 5 additional/side measures
⇒ 30 furthermore measures
Air Quality Management Plan 2011

Working Groups/Topics

- Domestic Heating
- Traffic – Mobility, Public Transport
- Traffic – Exhaust emissions
- Industry
- Winter road services
- Agriculture
- Spatial planning
- Legislation
AQMP 2011: Domestic Heating

Measures – Main Points

⇒ District heating: Legislation, financial support
⇒ Changing to low emission fuels
⇒ Old stoves: Legislation, financial support
AQMP 2011: Domestic Heating

Legislation

Steiermärkische Feuerungsanlagen-VO

§ 3a Zweitheizungsverbot (use of stoves, fired with solid fuels on high polluted days is forbidden, if there is another possibillity for heating

Sachprogramm Luft

Basis for the connection to the network of district heating (in Graz there are two areas fixed - about 100 objects - where peope have to connect to district heating system, 11 additional areas are planned)
Bonfires are forbidden in Graz.

One bonfire (Easter Saturday and the 21st of June) per community is allowed in Grazer and Leibnitzer Feld.

Other communities: Bonfires at Easter Saturday and the 21st of June are allowed.
AQMP 2011: Domestic Heating

Activities in 2011/2012

- Expansion of lines (new areas)
- additional connections of households
- Replacement of old stoves (low emission fuels)

Activities in 2013/2014

- Support of district heating systems in Graz will be continued
- Support of district heating systems south of Graz and in the greater Leibnitz area
  - In cooperation with the communities and the provider
  - Additional information campaigns
  - Funding: appr. € 2 Mio.
AQMP 2011: Traffic - Public Transport

Measures

- Provide the level of service (suburban trains, busses)
- Provide the financial support for public transport
- Expansion of the service (if possible - Busses, trains, trams)
- Park & Ride Areas
- Marketing, public relations
- Additional measures (charges for parking areas, support for biking)
AQMP 2011: Traffic - Public Transport

Activities in 2011/2012

- New public service vehicles (busses) for Graz and suburban bus services
  € 765,000,--

Activities in 2013/2014

- Provide the level of service (suburban trains)
  ca. € 400,000,--/a
- New Park & Ride areas (e.g. Leoben, ca. € 1 Mio.)
- Improvement in regional Bus services
  (Hartberg-Fürstenfeld; Gratkorner Becken)
  ca. € 1,3 Mio. Hartberg-Fürstenfeld
  ca. € 250,000,--/a Gratkorner Becken
AQMP 2011: Traffic – Exhaust emissions

**Measures**

- **Environmental zones**
  - taxis in Graz
  - heavy duty vehicles in polluted areas
  - Off-road machines in pollutes areas

- **Heavy duty vehicles**
  - Measurements of Ad-Blue

- **Installation of phased traffic lights**
  - Some main roads in Graz
Ban of old heavy duty vehicles in polluted areas

- Euro 0: 1.6.2012
- Euro 1: 1.1.2013
- Euro 2: 1.1.2014

Affected vehicles in Styria (2010):
- EURO 0 = 817 LKW
- EURO I = 677 LKW
- EURO II = 1519 LKW

Ban of old taxis in Graz

- EURO 0,1,2: 1.3.2012
- EURO 3: 1.1.2013
AQMP 2011: Traffic – Motor emissions

Legislation

VBA-Verordnung IG-L Steiermark

Speed limits on motorways in case of high levels or high contributions from passenger cars

Effects of speed reduction

- NOx-Emissions -4.6%
- PM-Exhaust -3.7%
- Fuel consumption -2.7%
AQMP 2011: Winter service

Measures

„Differenzieter Winterdienst“ (effective removal of snow, salting in low concentration instead of sanding)

- Great success in Graz, the method should be used in other regions
- Sanding (gravel) should only be used in special cases (e.g. steep roads)
- New vehicles for winter road services
AQMP 2011: Industry, Construction sector

**Measures**

- **Reduction of emissions from construction sites**
  Guidelines for low emission construction sites

- **Inspection of industrial sites**
  legal compliance, use of best available technology

- **Ban of „Heizöl leicht“ (light fuel oil)**
AQMP 2011: Agriculture

Measures

Reduction of NH$_3$-Emissions

- storage of liquid manure in closed pits
- New stables: ventilation
  - Discussion about NH$_3$-scrubber and multi-phase feeding of fattening pigs
- application of liquid manure close to the ground
## AQMP 2011 - Budget – financial support

### 2011/2012

<table>
<thead>
<tr>
<th>measures</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>New public service vehicles for Graz</td>
<td>€ 765,000</td>
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<tr>
<td>„Differenzierter Winterdienst“</td>
<td>€ 250,000</td>
</tr>
<tr>
<td>District heating</td>
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</tr>
<tr>
<td>Expansion of lines (new areas)</td>
<td>€ 2,905,000</td>
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<tr>
<td>additional connections of households</td>
<td>€ 2,950,000</td>
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<tr>
<td>Replacement of old stoves (low emission fuels)</td>
<td>€ 578,000</td>
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<tr>
<td>Public transport</td>
<td>€ 537,000</td>
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<tr>
<td>Traffic bans of Taxis</td>
<td>€ 200,000</td>
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<tr>
<td>Ban of old heavy duty vehicles</td>
<td>€ 960,000</td>
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<tr>
<td><strong>Sum 2011 – 2012</strong></td>
<td><strong>EUR 9,145,500</strong></td>
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</table>
### AQMP 2011 - Budget – financial support

#### 2013/2014

<table>
<thead>
<tr>
<th>measures</th>
<th>Budget</th>
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<tbody>
<tr>
<td>District heating</td>
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<tr>
<td>Expansion of lines (new areas)</td>
<td>€ 2,940,000</td>
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<tr>
<td>additional connections to households &amp; buildings of the Styrian government</td>
<td>€ 800,000 € 1,000,000</td>
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<tr>
<td>Replacement of old stoves</td>
<td>€ 578,000</td>
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<tr>
<td>Public transport</td>
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<tr>
<td>suburban trains</td>
<td>€ 1,020,000</td>
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<tr>
<td>Park&amp; Ride</td>
<td>€ 2,400,000</td>
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<td>Bus services</td>
<td>€ 1,100,000</td>
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<td>Vehicles for winter road services</td>
<td>€ 680,000</td>
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<td>Ban of old heavy duty vehicles</td>
<td>€ 45,000</td>
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<tr>
<td><strong>Sum 2013 – 2014</strong></td>
<td><strong>€ 13,140,000</strong></td>
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</table>
Where PM10 comes from