Emissions Trading of NOx from Industrial Installations in the Netherlands

- Why and how: Basic Elements - Expected Results
- Monitoring, Compliance & Reporting per Company
- Enforcement & general legislative framework
- NOx emissions trading & aspects of local air quality
- ENAP project and its objectives

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Scouting Future NEC-Emissions

- SO2
- NOx
- NH3
- VOS
NO$_x$ major policy problem

Policy considerations 1990 for industrial installations:

- Every 5 year revision of emission limit values for new combustion plants, and “normal” replacement will do the trick

Reductions achieved from 1985 - 2000

- Major switches to gas, better combustion processes (low NO$_x$ burners), and limited abatement at the stack. All abatement very situation specific

However, successes 1985 – 2000 not to be repeated

- Periodic revisions of emission limit values extremely difficult
- No major replacements of existing industrial installations
- Average age of installations $>>$ 30 year, quickly increasing
- Emission reductions at existing installations differ greatly, creating problems of defining just and equal treatment between installations
Industrial NOx Emissions 1980-2010

- All industry
- Other industrial sectors
- Steel & aluminium
- Chemical industry
- Refineries
- Power industry

Kilo tons: 0, 20, 40, 60, 80, 100, 120, 140, 160, 180


Target
Industrial NOx Emissions 1980-2020

- All industry
- Other industrial sectors
- Steel & aluminium
- Chemical industry
- Refineries
- Power industry
NO$_x$ Emission Trading: Why?

- National/EU NO$_x$ emission targets out of reach with traditional types of regulation
- Command & Control not fit for Complex Situations
- Environmental objectives increasingly a matter of fair “distribution” of costs and efforts
- Present Instruments & Legislation increasingly less capable of achieving “equal” and “just” distribution
Emission Trading: Which System?

- **Cap & Trade**
  - US Acid Rain Programme (SO₂ - 1995-)
  - US Reclaim Programme (NOₓ and SO₂ 1994-)
  - Ozone Transport Commission (OTC) NOx Budget Program (NOx 1995-)
  - EU-wide trading in Greenhouse gases (2005-)

- **In the Netherlands:**
  - **Dynamic Cap: Performance Standard Rate (PSR)**
    - Existing environmental policy with incentives to pro-active companies
    - More in line with National and EU legislation
    - Support by Industry & Business Community
      - existing practices
      - perception of equal justice
Performance Standard Rate (PSR) 2010

2010 NO$_x$ Target:

\[
\frac{55 \text{ Ktonnes}}{1100 \text{ PJ}} = 50 \text{ g/GJ}
\]

Projected 2010 Fossil Fuel Use
Evaluation in 2006 of progress in reduction achieved in 2005 and assessment of production & fossil fuel use - energy projections
PSR: dynamic cap requires adjustment mechanism towards 2010 target

1995: 122 Kton
2005: 75.5 Kton
2010: 55 Kton
After evaluation adjustment possible of PSR decrease over 2007 – 2010
PSR basis for allocation per facility

Fossil fuel use $\times$ PSR (GJ) = NO$_x$ Allocation

$20 \text{ GJ} \times \frac{60}{\text{GJ}} = 1200$
How does it work?

Allocation against
Actual NO$_x$ emission

Emission surplus
to be sold - saved

Emission below Allocation

1000

Facility’s Allocation

1200

Emission shortage
to be bought or lend

1400

Emission above Allocation
Monitoring of NOx emissions

Government’s policy objectives: “Rightly Responsible”
Companies to take responsibility in environmental performance

Companies:

- Draft their own monitoring protocol on basis of “General Requirements NOx monitoring”
- Seek approval protocol from Emission Authority
- Monitor emissions in line with requirements in approved monitoring protocol
- Draft annual report of last year’s emissions
- Annual report to be independently verified on correctness
- Submit verified annual report before 1 April to Emission Authority for approval
Environmental Management Act to provide:

- General legislative structure for acquiring credits and requirements to comply with PSR based allocation. Transfer of credits optional
- CO\textsubscript{2} and NO\textsubscript{x} emissions trading, options for other substances
- National Emission Authority charged with supervising, enforcement, monitoring, reporting, compliance

Decree on NO\textsubscript{x} trading detailing requirements on:

- PSR declining levels from 2004 to 2010
- Devaluation options and procedures to guarantee 2010 target
- NO\textsubscript{x} monitoring and reporting procedures and requirements

Every new future system of emission trading such as CO\textsubscript{2}:

- New decree on basis of Environmental Management Act
NOx emissions trading and Air Quality Aspects

- In response to questions and reservations of European Commission:
  - Assess Dutch system of NOx emissions trading in view of policy objective to achieve in 2010 targets of ambient air quality
  - Investigate whether emissions trading may result in significant higher NO2 concentrations locally in comparison to other options for industrial NOx emissions reductions planned for 2010
Conclusions of the Study

- Legal Air Quality Emission Limit Value not exceeded in 2010
- Major reductions of industrial NO\textsubscript{x} emissions and their contributions to the overall NO\textsubscript{2} ground level concentration between 2000 and 2010
- Contribution from facilities in NO\textsubscript{x} emissions trading to overall NO\textsubscript{2} ground level concentration amounts 1-5 µg/m\textsuperscript{3} to NO\textsubscript{2} = 10-20\% percent to NO\textsubscript{2} background level in 2010
- NO\textsubscript{2} concentrations in ET-scenario do not differ significantly from the other two scenarios used in the study
- Air quality aspects may be relevant in one or two locations and at close range to the emission sources
- Emission trading must retain the possibility of setting specific requirements in the permit to lower contribution from specific industrial sources to NO\textsubscript{2} ambient concentrations
Advantages Emissions Trading

- Allows “fair & equal” and direct distribution of National Emissions Targets into targets for installations
- Limits therefore the administrative burden for governments/environmental administrations
- Forces to much better monitoring structure, procedures and performance
- Allows companies to fully integrate environmental investments, costs and monitoring into company operational and administrative structure
- Forces government/environmental administrations to improve administrative structures and operational performance
ENAP

Exploring New Approaches for regulating industrial installations

- A two year project with three workshops
- Aims at a European dialogue on new promising instruments that may supplement or replace existing instruments
- Links up with The Sixth Community Environment Action Programme and the Dutch Discussion Paper “Rightly Responsible”
Goals of ENAP

- Better understanding of promising new approaches and instruments
- A clear view of how these instruments can be further developed
- A vision on future regulatory innovations needed
- An agenda for further debate and decision making by all the relevant stakeholders in Europe
- A comprehensive and conclusive report
Areas of interest to be covered in three succeeding workshops:

- **21/22 November 2002 Workshop 1**: national or regional systems of emissions trading of NEC substances in particular of NOx and SO2

- **June 12/13 2003 Workshop 2**: connecting permitting, inspection and enforcement with company environmental management systems

- **November 2003 Workshop 3**: regulating sectors of industry, industrial estates or companies consisting of several installations or sites
General appreciation of advantages and understanding of emissions trading

Emissions Trading in complex relationship with permit approach of IPPC

Approach by the Netherlands seen as a creative but temporary solution

Need for further experimenting with Emissions Trading to explore possibilities and constraints

Netherlands should be allowed to explore emissions trading and path the way ahead
Final Observations

- Emissions trading promising instrument for cost effective emission reductions in industry
- NOx emissions trading learning opportunity: Challenge: integration with CO2 emissions trading
- Short term: Design Dutch NOx emissions trading compatible with EU legislation
- Longer term: Flexibility in IPPC for NOx emissions trading as alternative instrument for member states; other EU legislation to be amended accordingly
- Through ENAP and other Gremia NL will call attention for this aspiration
Studies, Reports, Information

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