Daniel Montalvo, European Environment Agency

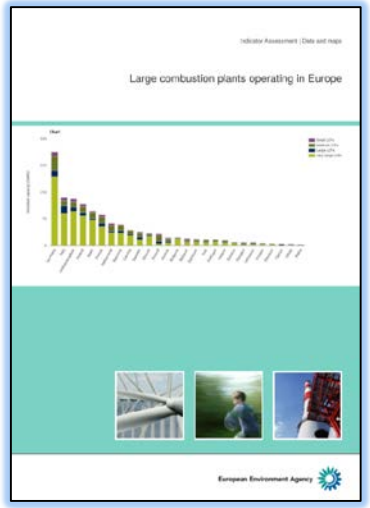
Implementation of the LCP Directive
Reporting of emissions

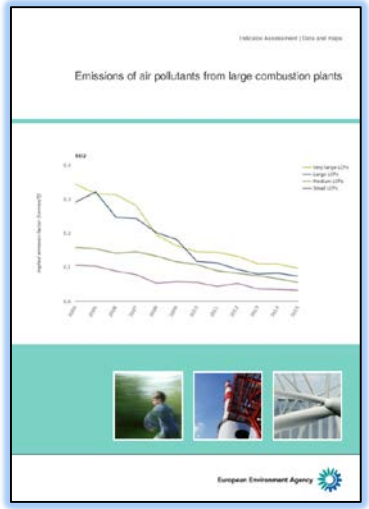
What does the LCP Directive deliver to our citizens?

What's the EU policy

- The EU regulated them since 1980's
- The period 2004-2015, where they were regulated by:
  - The LCP Directive – minimum requirements
  - The IPPC Directive – aiming at a higher standard through the concept of Best Available Techniques (BAT)
- As from 2016, this policy has been superseded by:
  - The Industrial Emissions Directive (IED)
  - A new document on BAT (BREF)

EEA recent publications on the matter





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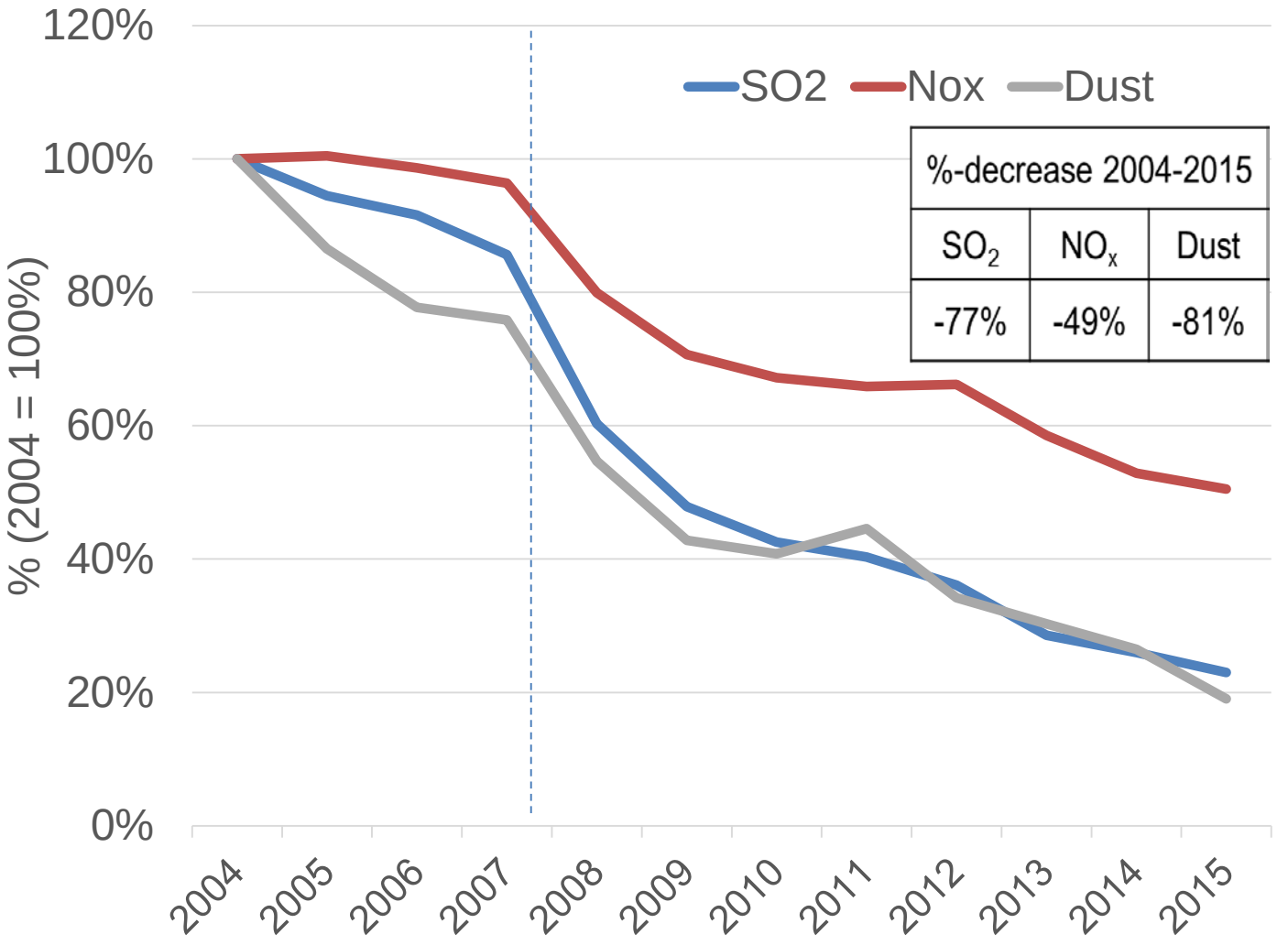
Indexed evolution of SO_2, NO_x and dust from LCPs (EU-28)

- Significant transformation of environmental performance of 'LCP sector'
- How did this happen?
- Is the evolution similar across countries / regions?
- What were the key drivers?



%-decrease 2004-2015		
SO_2	NO_x	Dust
-77%	-49%	-81%

Country grouping

Figure 2.1 Groups of countries based on average SO_2 IEF

Group 1
('LOW'): low implied emission factor

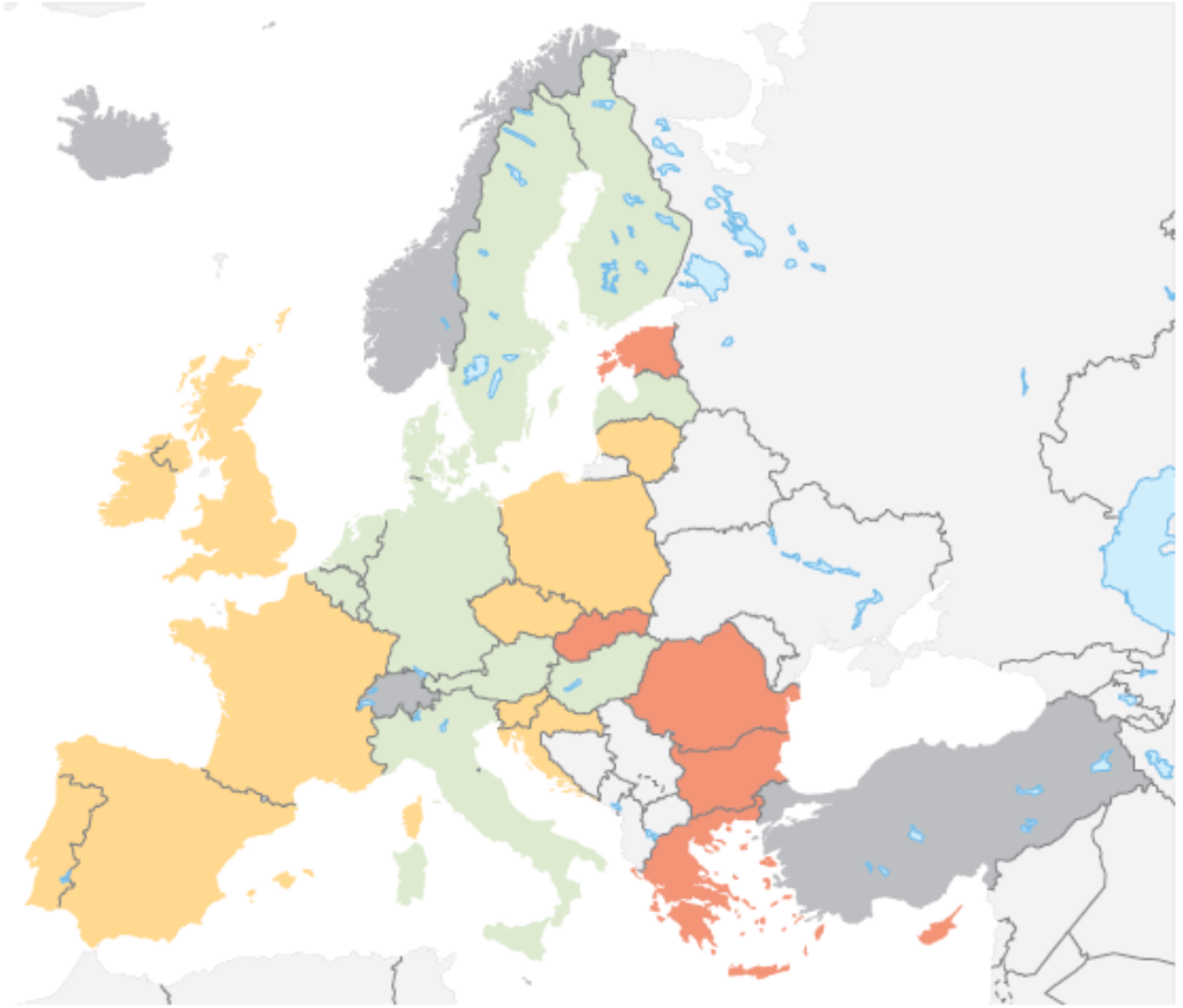
Austria, Belgium, Germany, Denmark, Finland, Hungary, Italy, Luxembourg, Latvia, Netherlands, Sweden

Group 2
('MEDIUM'): medium implied emission factor

Czechia, Spain, France, Croatia, Ireland, Lithuania, Malta, Poland, Portugal, Slovenia, United Kingdom

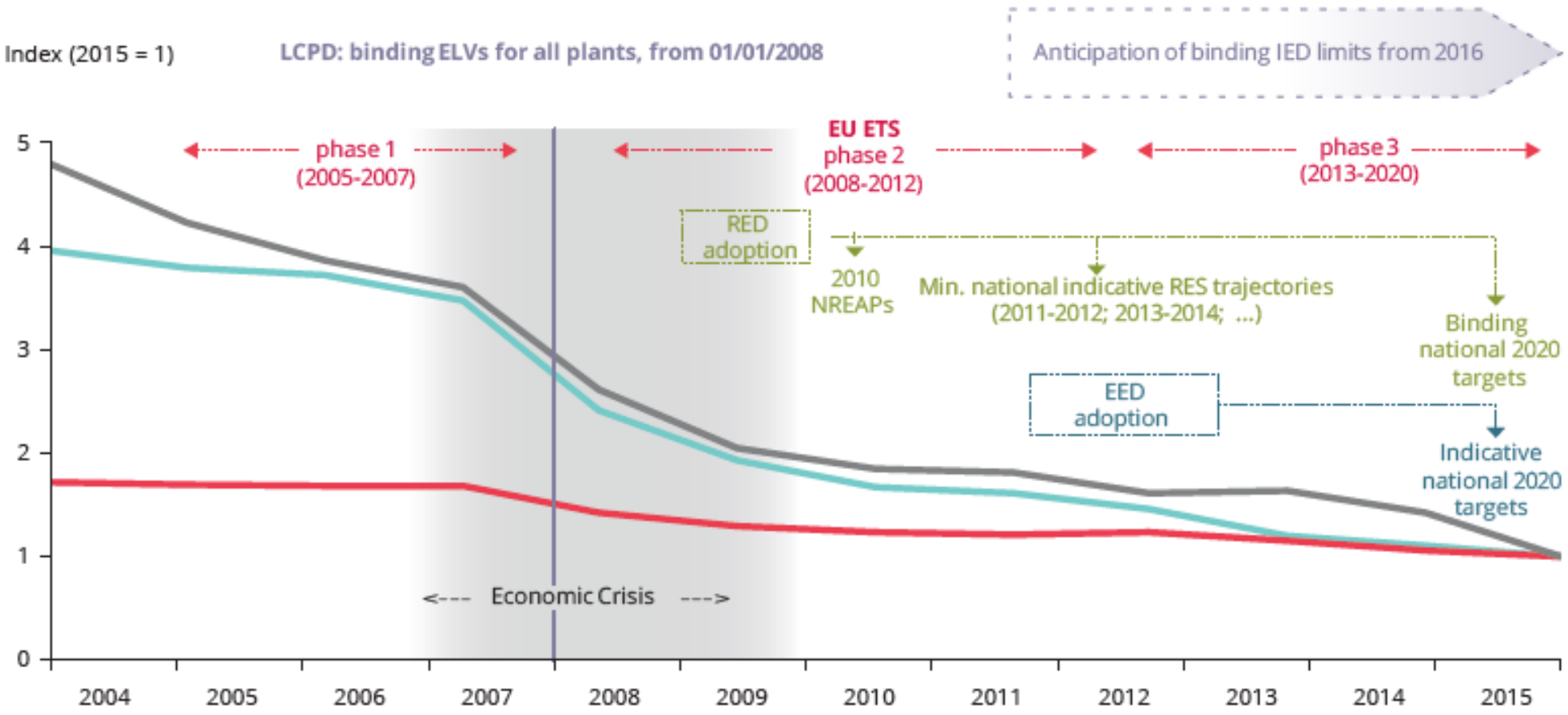
Group 3
('HIGH'): high implied emission factor

Bulgaria, Cyprus, Estonia, Greece, Romania, Slovakia



The stories behind the data

Figure 4.7 **Trends and main drivers of key air pollutant emissions from LCPs, 2004-2015**

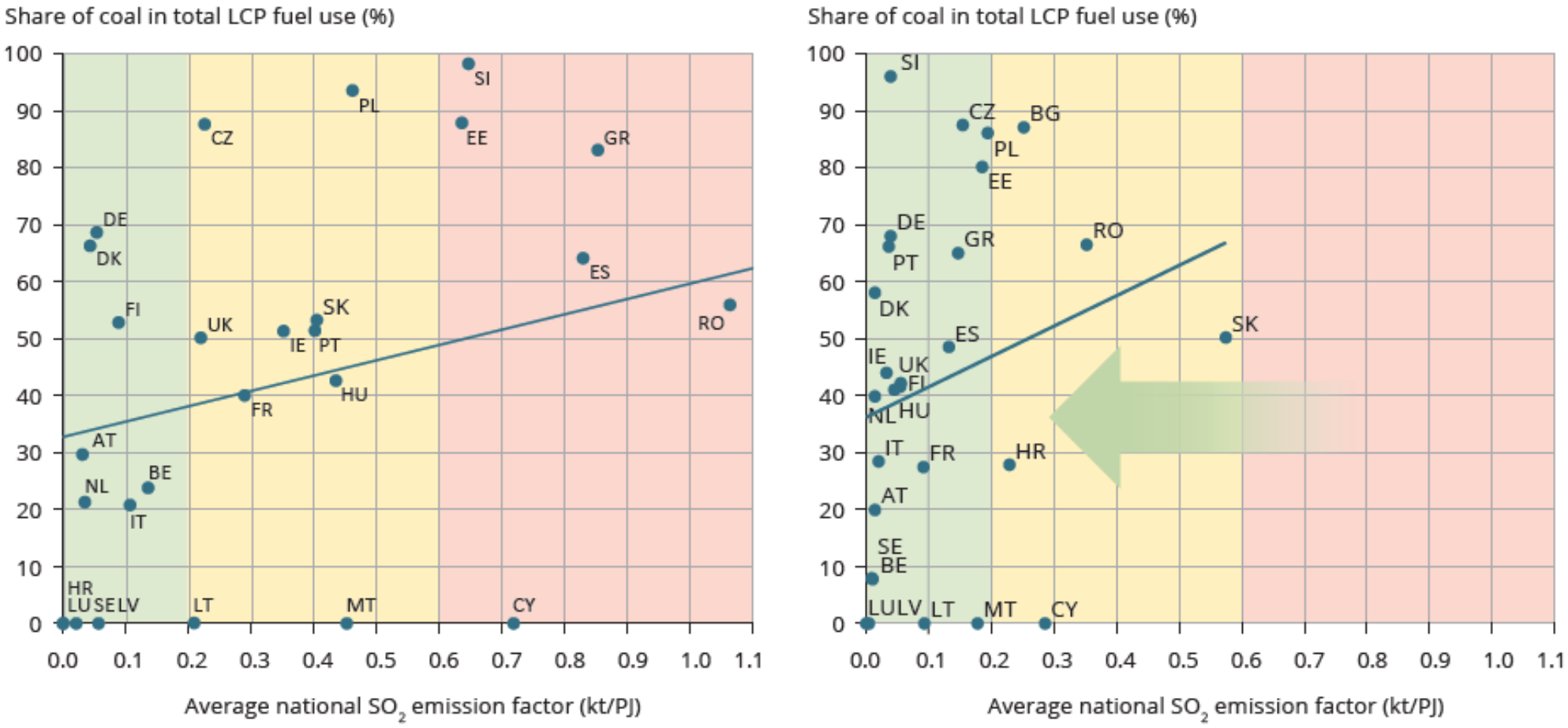


Note: NREAP, National renewable energy action plan; RES, renewable energy sources.

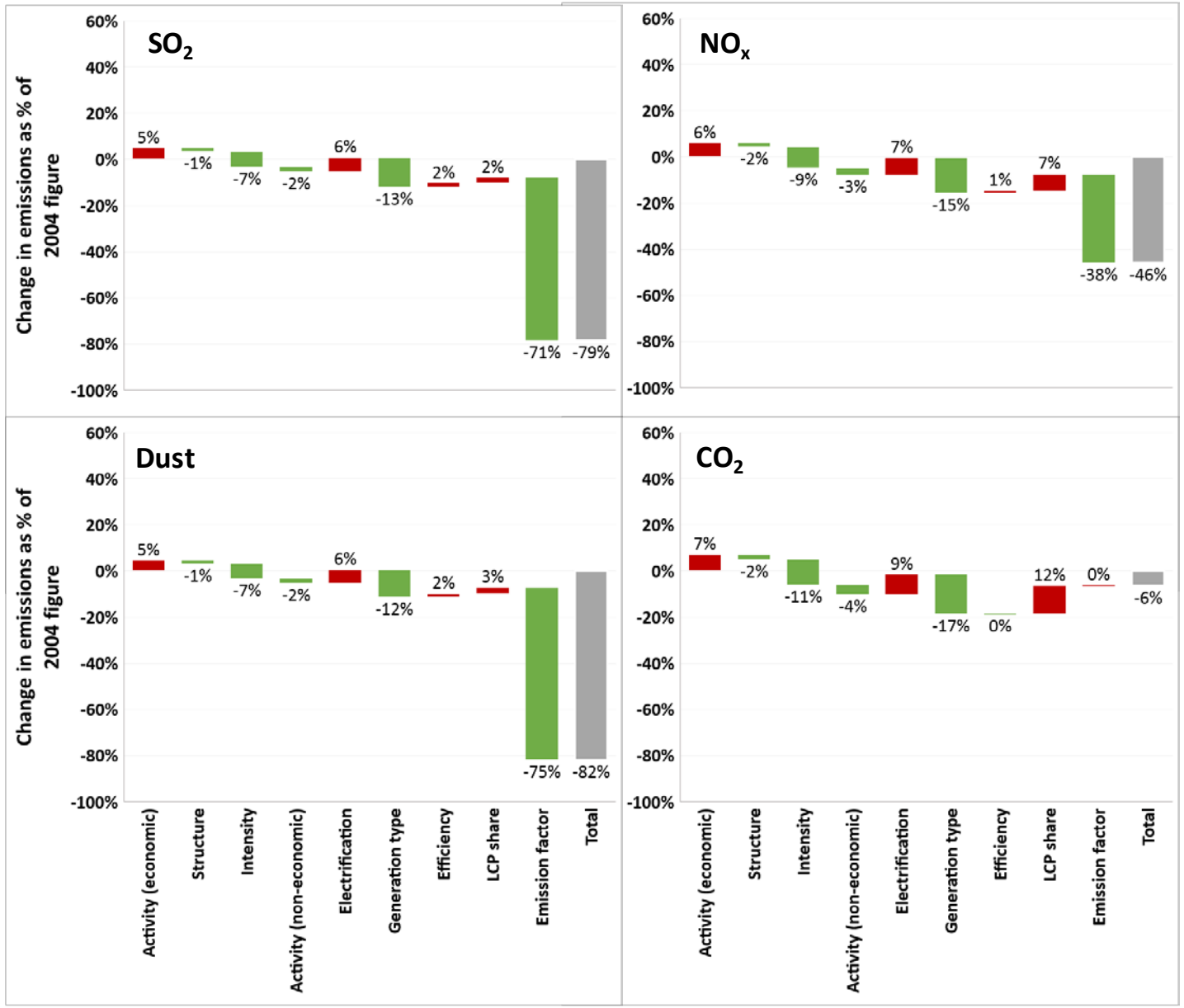
Source: EEA, 2018a; own analysis.

Bridging differences across countries – the EU at work

Figure 3.1 National average SO_2 IEF versus share of coal use, in 2004 (left) and 2015 (right)



The policy is behind the changes



Decomposition analysis

Decomposition analysis is a statistical technique used to break down the various driving factors of a phenomenon and attribute a relative weight to each of these driving factors.

Decomposition analysis is widely accepted in policy analysis, where its use is increasing.

From the various statistical routines that can be used, this report uses the Logarithmic Mean Divisia Index (LMDI), which is a decomposition method based on the Shapley/Sun approach. It can be used to decompose an aggregate number into more than two underlying factors.

By identifying the individual contribution of the drivers to the overall changes observed, decomposition analysis in this report helps isolate the impact of those factors that were most likely driven by legislation.

Factors

- **Overall economic activity**
- **Economic structure**
- **Sectoral energy intensity**
- **Generation type**
- **Sectoral degree of electrification**
- **Generation efficiency**
- **Share of fuel used in electricity production by LCPs**
- **Emission factor**

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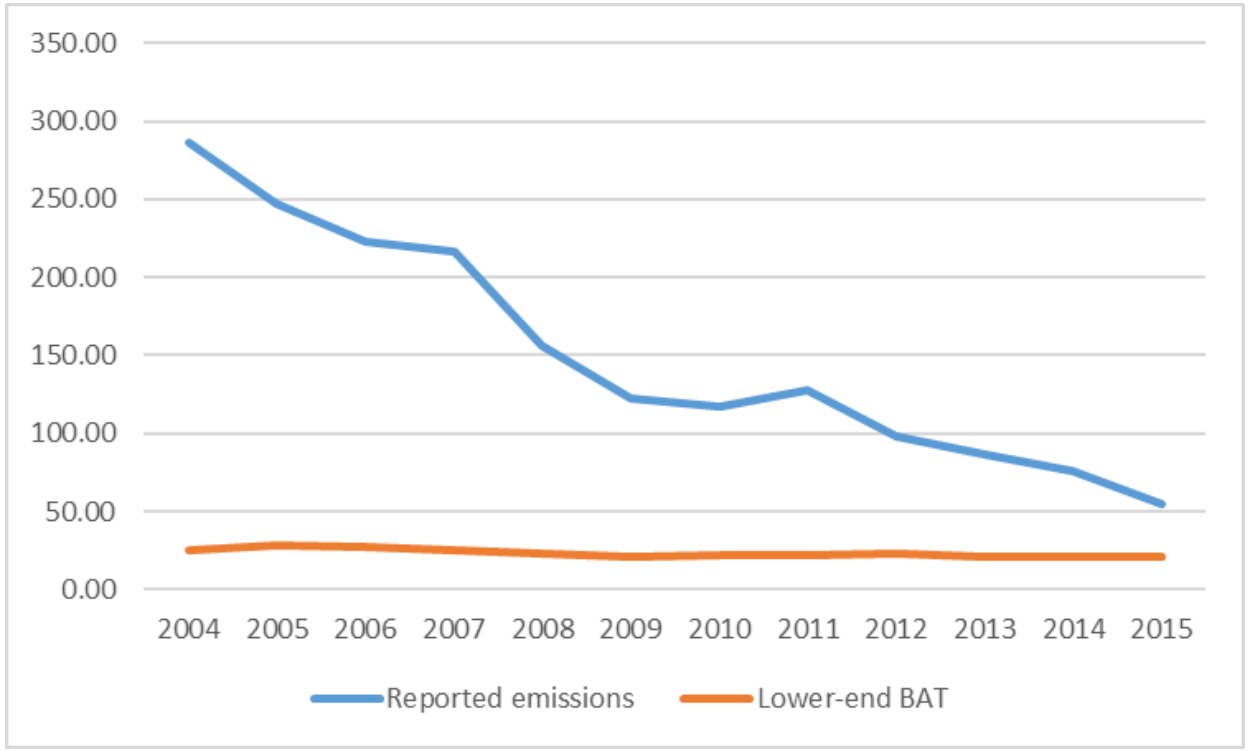
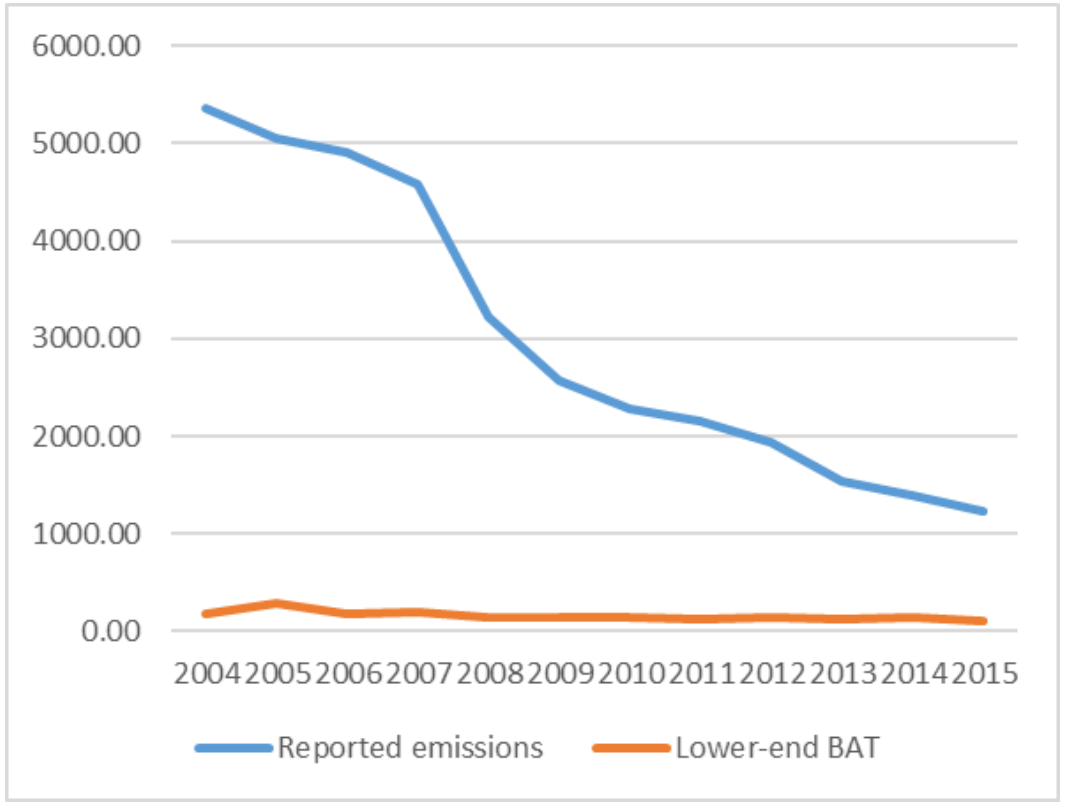
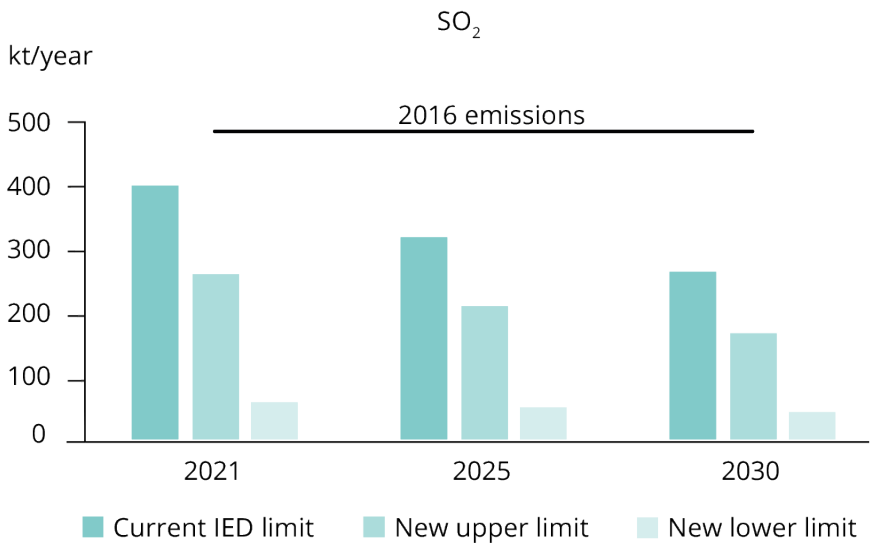
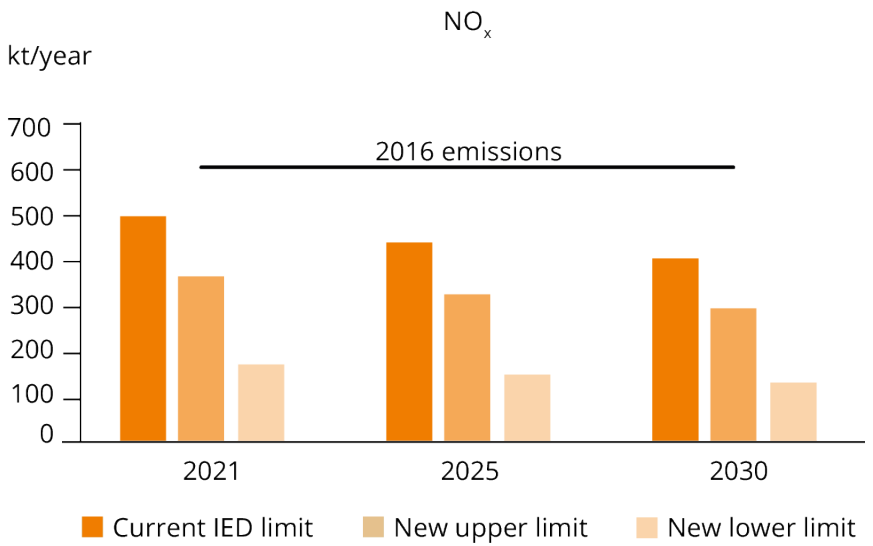
LCPs: Minimum requirements vs BAT implementation (IPPCD)

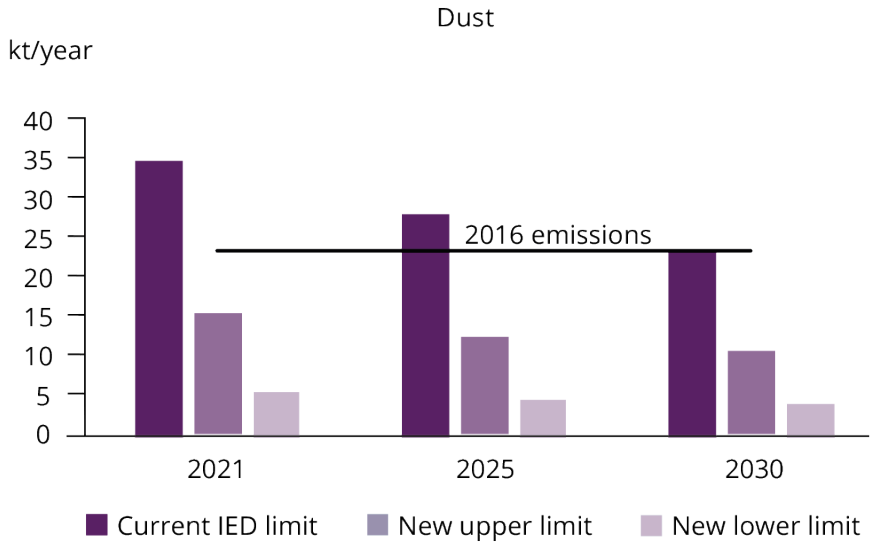




IED ELVs vs BAT-AELs LCP BREF 2017: what we can achieve







Notes: kt/year: kilotonnes per year;
IED: Industrial Emissions Directive 2010/75/EC.

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The starting point for the Energy Community Treaty

- For context, EU Implied emission factors:
  - SO2 typical range: 0.02 - 0.09.
  - NOx typical range: 0.05 - 0.08;
  - Dust typical range: 0.001 – 0.002.

Row Labels	Sum of Total energy	Sum of SO2 (t)	Sum of NOx (t)	Sum of Dust (t)	IEF SO2	IEF NOx	IEF Dust
BA	105947.03	236959.98	20852.88	2493.56	2.236589	0.196824	0.023536
GE	17353.59527	0	659.11	0	0	0.037981	0
ME	15048.92	64475	7786	282	4.284361	0.517379	0.018739
MK	32861	53854.93	4737.49	3585.92	1.638871	0.144168	0.109124
RS	260253.1	339333.7	37684.9	6920.4	1.30386	0.144801	0.026591

Reminder: reporting LCP Directive data under the Energy Community Treaty

What are combustion plants?

- LCPs are combustion plants at big scale, firing fuels with capacities greater than 50 MWh
- **Coals, gas, liquid fuels, biomass**

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What are NOT combustion plants?

(Creative Commons) Guillaume Baviere

- When using waste partially or totally as an energy input

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Reporting Data on Fuels (categories)

- Reporting fuel input for each plant:

Coal	Lignite	Biomass	Peat
Natural Gas	Liquid Fuels	Other Solid Fuels	Other Gases

- All values are net calorific value

Other Solid and Gaseous Fuels (subcategories)

- Other solid fuels

Id	Label	Status	Status Modified	Notation
Coke	Coke	Valid	17.05.2017	Coke
Other	Other	Valid	17.05.2017	Other
PatentFuels	PatentFuels	Valid	17.05.2017	PatentFuels
Tar	Tar	Valid	17.05.2017	Tar

- Other gas fuels

Id	Label	Status	Status Modified	Notation
BlastFurnaceGas	BlastFurnaceGas	Valid	17.05.2017	BlastFurnaceGas
CokeOvenGas	CokeOvenGas	Valid	17.05.2017	CokeOvenGas
FurnaceGas	FurnaceGas	Valid	17.05.2017	FurnaceGas
LPG	LPG	Valid	17.05.2017	LPG
Other	Other	Valid	17.05.2017	Other
OxygenSteel	OxygenSteel	Valid	17.05.2017	OxygenSteel
RefineryGas	RefineryGas	Valid	17.05.2017	RefineryGas

Reporting Data on Fuels (example)

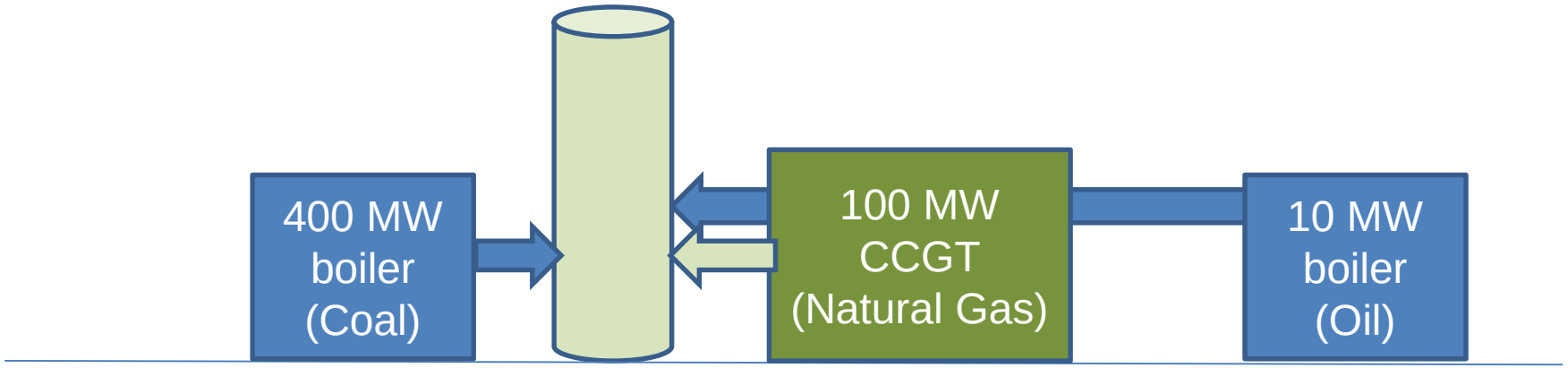
- Report fuel use for each of the 3 units which are part of a single LCP ‘plant’ even though oil boiler < 15 MW.

Annual Fuel Inputs by Fuel Type

Coal: 12,500 TJ

Natural Gas: 2,500 TJ

Oil: 150 TJ



Reporting Data on Operating Hours

- Total operational hours of the plant over a year when any emissions are being generated
- Maximum possible operational hours = 8,760 hours (365 days)
- Generally exclude periods of start-up and shut-down, but must normally have clear definition of start-up and shut-down

Reporting data on pollutant emissions

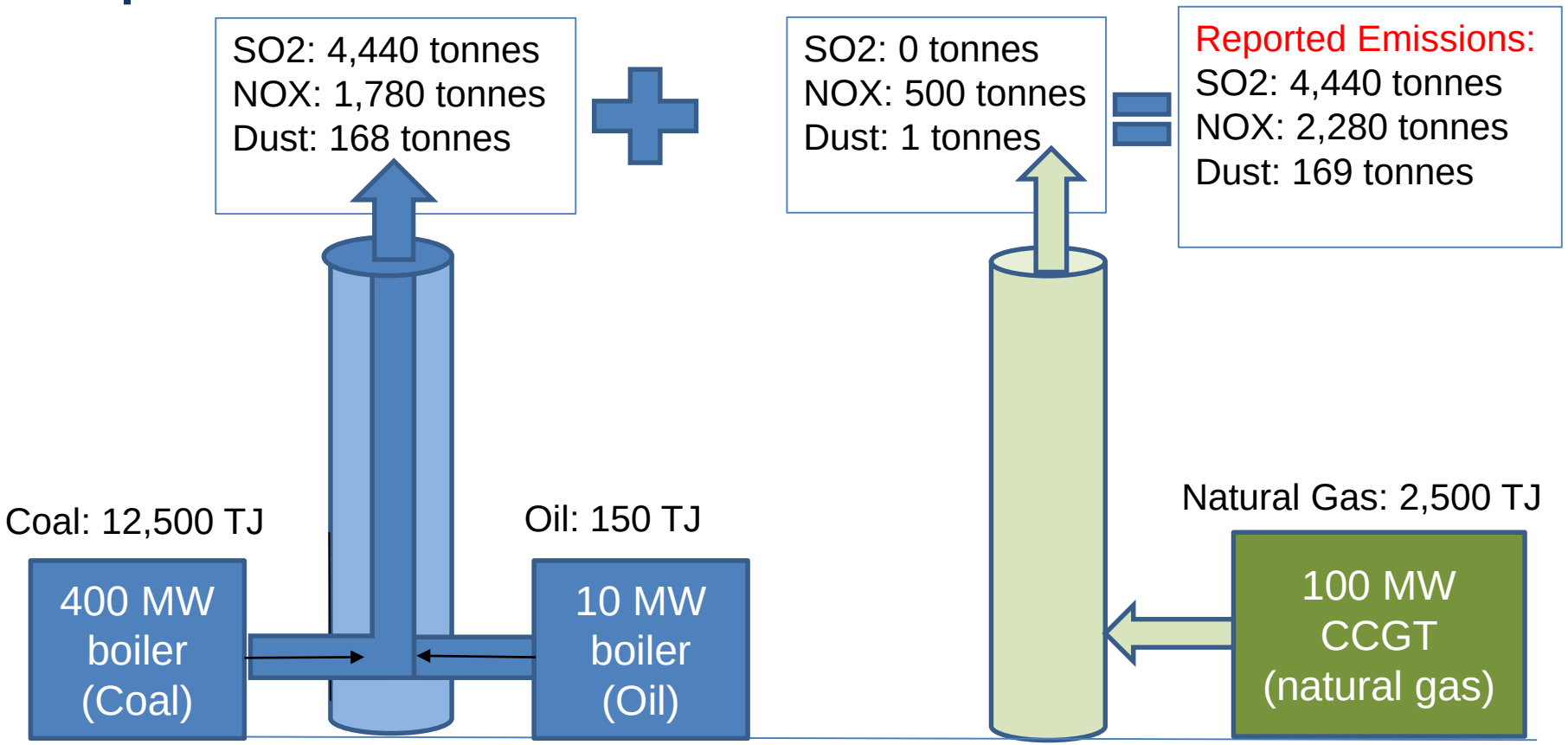
- Sulphur dioxide (Tonnes)
- Oxides of nitrogen (Tonnes)
- Dust (Tonnes)

Reporting Data on Pollutant Emissions

- Reported data typically based on measured emissions data from Automated Measurement Systems (AMS)
- N.B. Must not subtract measurement uncertainty from reported emissions
- LCP Directive requires that CEN standards are applied to measurements, including methods for calibration of AMS

Reporting Data on Emissions

Example: Total Plant Emissions

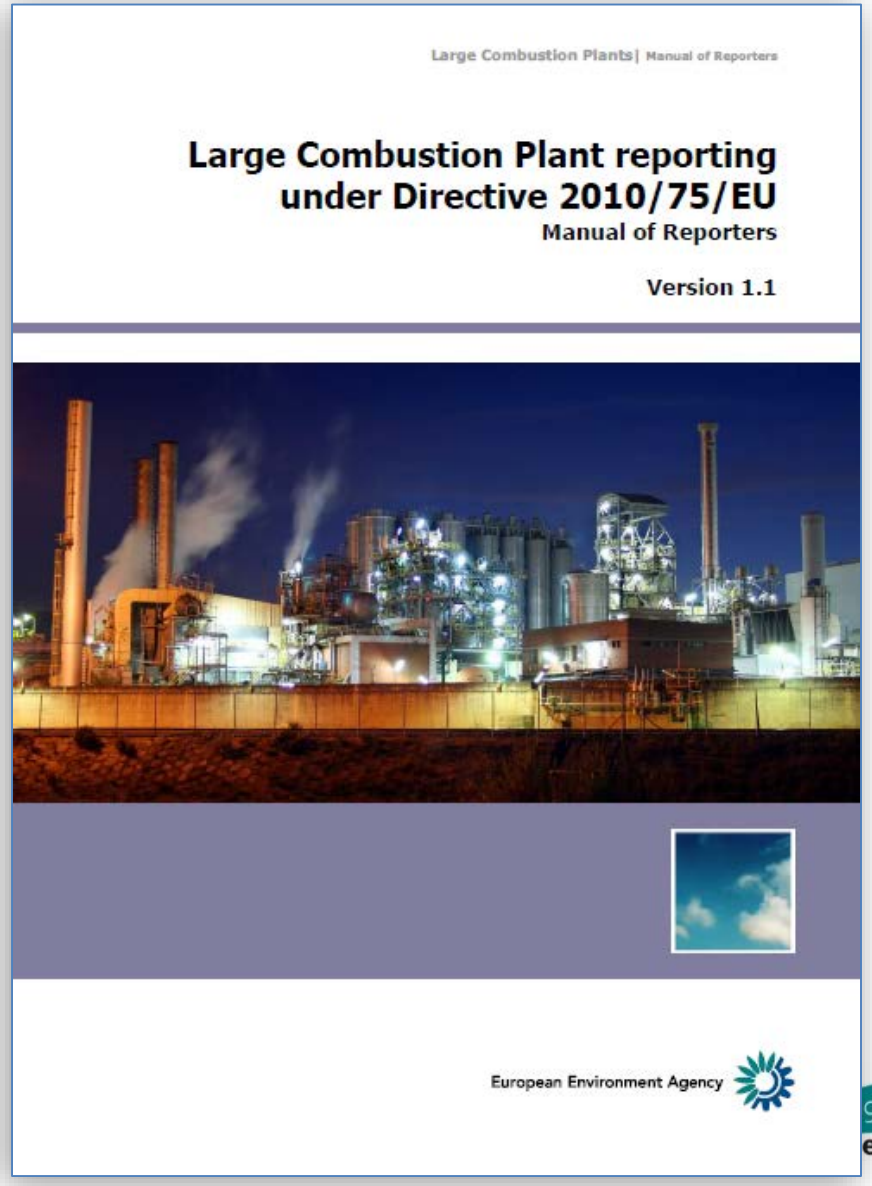


Other Information to be collected

- Location – Latitude and Longitude
- Reporting country and year
- Is the LCP part of a refinery?
- Details of competent authority
- Total number of reported plants
- Plant Name and address
- Unique plant identification code
- Derogations?

Reference materials

- CDR help section
- A yearly letter to reporters
- A Manual for Reporters



How to obtain credentials

- Official request from the country nominating reporter (email)
- Eionet account and appropriate permissions for the relevant data flow
- All correspondence automatically directed to nominated experts

Thank you !
Q&A

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