# Improving QA/QC feedback on NEC Directive reporting obligations



### **Reporting obligation under NECD**

#### **A. Emission Inventories**

- **B. IIR**
- **C. Adjustments**
- **D. National gridded data of emissions**
- **E.** Large point sources
- **F. Projections**
- **G. National Air Pollution Control Programmes**
- **H.** Policies and Measures
- I. Network of impact monitoring sites
- J. Monitoring of air pollutants impact



# QA/QC goals

• Improve sending feedback to Member States

• Facilitate resubmissions process

• **Support** NECD Review process

• Shorten publication process of NECD related products



### **Reporting recommendations**

- Good practices to avoid simple errors
- Some examples:
  - Country code: missing or wrong format
  - Date: missing or wrong format
  - Sheet name: creative renaming

ANNEX 1: National sector emissions: Main pollutants, particulate ma									
NFR 2014-2									
COUNTRY:	(as ISO2 code)								
DATE:	(as DD.MM.YYYY)								
YEAR:	(as YYYY, year of emissions and activity data)								
Version:	(as v1.0 for the initial submission)								



#### Reporting recommendations for submissions under NECD and LRTAP

The present document is meant to help Member States reporting their NECD/LRTAP files in the most efficient way.

This is a short list of very simple rules that entail no additional work, but simplify the job of performing QA/QC on submitted data.

Most of them concern naming of files and columns, or filling in key cells in worksheet headers

#### 1 Inventory and adjustment data

#### Obligations

Data to be submitted under NECD

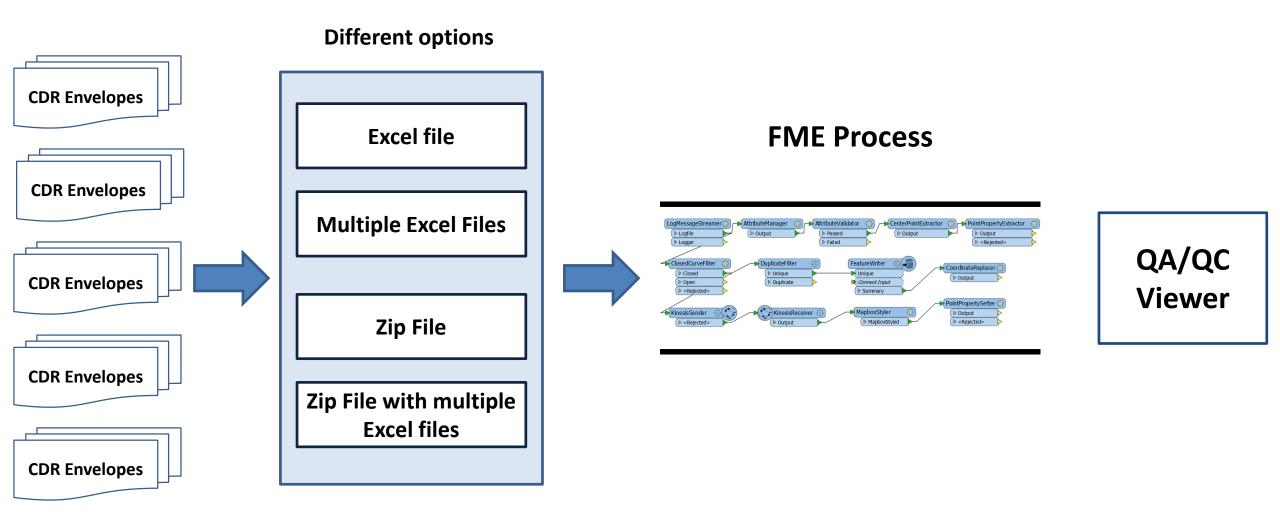
- Emission inventory should be submitted under obligation
- http://rod.eionet.europa.eu/obligations/748
- Adjustment should be submitted under obligation: https://cod.alogat.com/abligations/1111
- https://rod.elonet.europa.eu/obligations/771
- Data to be submitted under LRTAP - Inventory data for LRTAP should be submitted under obligation:
  - https://rod.eionet.europa.eu/obligations/357
  - Adjustment should be submitted under obligation: https://rod.aionet.europa.eu/obligations/773

#### Files

- The system will harvest Member State's Excel files, including als and also.
- Zipped files of those types will also be processed. A zip may contain multiple files.
  A zip file may contain inventory files only, adjustment files only or both inventory and
- adjustment files. Inventory files must contain the text 'annex\_i' in the file name. The use of capital or
- small letters is allowed. Proposed adjustment files must contain the text 'annex, iii' in the file name. The use of capital or small letters is allowed. Approved adjustment files must contain the text
- 'annex\_vii' in the file name. The use of capital or small letters is allowed.
- The inventory file contains:
- All inventory files should follow the structure provided by the template.
- No other worksheets should be included in the file (e.g.: adjustment file). In particular: a The sample template worksheet should be removed or filled in (e.g.: no empty worksheet).
- Auxiliary sheets used for calculations or internal notes should be removed.
  Worksheets should respect the provided format:
- No extra rows should be added or removed before memo items
  No extra rows should be added or removed
- No columns should be added or removed.
  Data should only be typed in the headers (B4:B7), the NFR area (E14:AL144) and
- bata should only be typed in the neaders (b4057), the new area (c14041344) a the memo-item area (E148:ALXxx).
- Worksheet headers must be properly filled in: All four fields should be filled in (Country, Date, Year, Version)



### Building a QA/QC viewer





# QA/QC content

- List of checks provide immediate feedback on submissions
- Time series completeness
- PAHs checks
- TSP/PM10/PM2.5 checks
- Notation keys analysis
- Graphic support



### **QA/QC** Reporting Overview

ReportingOverview National totals PAH TSP-PM-BC TSP-PM Rates TSP-PM Graph NE Analysis NA NO Checks InventoryDB Time series Time series Activity Data Excel sources Files released

#### Reporting overview. This includes adjustment reports

Burger      Burger<	keporting o	verview.	THISTIC	luues	aujustinen	creport	.5						
Aistria    14.2.03    15.3.203    ys.3.203    y	Member state	Submission Date	resubmissio.	Resubmission	Annex II Submitted	Annex VII Submitted	Weblink	Pollutants	Matter	0 6	Additional Heavy Metals	PO Ps	ctivity
Burgaria      15 2 2019      no      no      no      no      http://cdr.einerte      1990-2017	Austria	14.2.2019	15.3.2019	yes			http://cdr.eionet.e.	1990-2017	1990, 1995, 2000-2017	1990-2017		1990-2017	1990-2017
Creatia      16 2 2019      15 3 2019      yes      no      Inttp://cfr.elonet.a      1990-2017      19	Belgium	15.2.2019	15.3.2019	yes	по	по	http://cdr.eionet.e.	1990-2017	2000-2017	1990-2017	1990-2017	1990-2017	
Cyprus      15.2 2019      15.3 2019      yes      no      no      http://chr.elonete      1990-2017 <td>Bulgaria</td> <td>15.2.2019</td> <td></td> <td>no</td> <td>по</td> <td>по</td> <td>http://cdr.eionet.e.</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td></td>	Bulgaria	15.2.2019		no	по	по	http://cdr.eionet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	
Cacchia      16 2 2019      15 3 2019      yes      no      no      http://drieinete      1990-2017      1990-2007      1990-2007      1990-2007      1990-2007      1990-2007      1990-2007      1990-2007      1990-2007      1990-2007      1990-2007      1990-2007      1990-2017 <td>Croatia</td> <td>16.2.2019</td> <td>15.3.2019</td> <td>yes</td> <td>по</td> <td>по</td> <td>http://cdr.eionet.e.</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td>	Croatia	16.2.2019	15.3.2019	yes	по	по	http://cdr.eionet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017
Denmark      15.2 2019      no      no      no      no      http://cdr.elonet.e      1980-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017	Cyprus	15.2.2019	15.3.2019	yes	по	по	http://cdr.eionet.e.	1990-2017	2000-2017	1990-2017	1990-2017	1990-2017	
Estania      13 2 2019      13 3 2019      yes      no      no      http://cdr.einete.      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2017      1990-2007      1990-2017      1990-2017      1990-2017 </td <td>Czechia</td> <td>16.2.2019</td> <td>15.3.2019</td> <td>yes</td> <td>no</td> <td>no</td> <td>http://cdr.eionet.e.</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td></td>	Czechia	16.2.2019	15.3.2019	yes	no	no	http://cdr.eionet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	
Finland      15 2 2019      13.3 2019      yes      no      yes      http://tdr.eioneta      1990-2000, 2002-2017      1990-2000, 2002-2017      1990-2000, 2002-2017      1990-2000, 2002-2017      1990-2000, 2002-2017      1990-2000, 2002-2017      1990-2000, 2002-2017      1990-2007      1990-2007      1990-2017	Denmark	15.2.2019		no	no	no	http://cdr.eionet.e.	1980-2017	1980-2017	1980-2017	1980-2017	1980-2017	1980-2017
France      15 2 2019      15 2 2019      yes      no      no      http://cdr.elonet.e      1980-2017      1980-2017      1980-2017      1980-2017      1980-2017      1980-2017      1980-2017      1980-2017      1980-2017      1980-2017      1990-2017 </td <td>Estonia</td> <td>13.2.2019</td> <td>13.3.2019</td> <td>yes</td> <td>no</td> <td>no</td> <td>http://cdr.eionet.e.</td> <td>1990-2017</td> <td>2000-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td></td>	Estonia	13.2.2019	13.3.2019	yes	no	no	http://cdr.eionet.e.	1990-2017	2000-2017	1990-2017	1990-2017	1990-2017	
Germany      12 2 2019      12 3 2019      yes      no      no      http://dr.elonet.      1990-2017 <td>Finland</td> <td>15.2.2019</td> <td>13.3.2019</td> <td>yes</td> <td>no</td> <td>yes</td> <td>http://cdr.eionet.e.</td> <td>1990-2000, 2002-2017</td> <td>1990-2000, 2002-2017</td> <td>1990-2000, 2002-2017</td> <td></td> <td>1990-2000, 2002-2017</td> <td>1990-2000, 2002-2017</td>	Finland	15.2.2019	13.3.2019	yes	no	yes	http://cdr.eionet.e.	1990-2000, 2002-2017	1990-2000, 2002-2017	1990-2000, 2002-2017		1990-2000, 2002-2017	1990-2000, 2002-2017
Greece      no      no <th< td=""><td>France</td><td>15.2.2019</td><td>15.2.2019</td><td>yes</td><td>no</td><td>no</td><td>http://cdr.eionet.e.</td><td>1980-2017</td><td>1980-2017</td><td>1980-2017</td><td>1980-2017</td><td>1980-2017</td><td></td></th<>	France	15.2.2019	15.2.2019	yes	no	no	http://cdr.eionet.e.	1980-2017	1980-2017	1980-2017	1980-2017	1980-2017	
Hungary      18.2 2019      18.3 2019      yes      no      no      http://cdr.elonet.e      1990-2017<	Germany	12.2.2019	12.3.2019	yes	no	no	http://cdr.eionet.e.	1990-2017	1995-2017	1990-2017	1990-2017	1990-2017	
Ireland      15.2 2019      no	Greece				no	no							
Italy    1.3.2019    1.4.3.2019    yes    no    no    http://cdr.eionete    1990-2016    1990-2016    1990-2017    1990-	Hungary	18.2.2019	18.3.2019	yes	no	no	http://cdr.eionet.e.	1990-2017	2000-2017	1990-2017	1990-2017	1990-2017	1990-2017
Latvia      15.2.2019      15.3.2019      yes      no      no      http://cdr.eionet.e      1990-2017 </td <td>Ireland</td> <td>15.2.2019</td> <td></td> <td>no</td> <td>no</td> <td>no</td> <td>http://cdr.eionet.e.</td> <td>1987, 1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>2011-2017</td>	Ireland	15.2.2019		no	no	no	http://cdr.eionet.e.	1987, 1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	2011-2017
Lithuania    14.2 2019    15.2 2019    yes    no    no    http://cdr.eionet.e    1990-2017	Italy	1.3.2019	14.3.2019	yes	no	no	http://cdr.eionet.e.	1990-2016	1990-2016	1990-2016	1990-2016	1990-2016	
Luxembourg      16.2.2019      26.3.2019      yes      no      no      http://dr.elonete      1990-2017      1990-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      1990-2017	Latvia	15.2.2019	15.3.2019	yes	no	no	http://cdr.eionet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017
Malta      18.2.2019      no      no      no      no      http://dr.elonet.e      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      2000-2017      1990-2017	Lithuania	14.2.2019	15.2.2019	yes	no	no	http://cdr.eionet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017
Netherlands      14.2 2019      4.4.2019      yes      no	Luxembourg	16.2.2019	26.3.2019	yes	no	no	http://cdr.eionet.e.	1990-2017	1990-2017	1990-2017		1990-2017	1990-2017
Poland      14.2.2019      15.3.2019      yes      no      no      http://cdr.elonet.e.      1990-2017<	Malta	18.2.2019		no	no	no	http://cdr.eionet.e.	2000-2017	2000-2017	2000-2017	2000-2017	2000-2017	
Portugal      15.2.2019      15.3.2019      yes      no      no      http://cdr.elonet.e.      1990-2017      1990-201	Netherlands	14.2.2019	4.4.2019	yes	no	no	http://cdr.elonet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017
Romania      14.2.2019      15.3.2019      yes      no      no      http://cdr.elonet.e.      1995-2017      1995-2017      1995-2017      1995-2017        Slovakia      15.2.2019      15.3.2019      yes      no      no      http://cdr.elonet.e.            1995-2017      1995-2017      1995-2017      1995-2017      1995-2017      1995-2017      1995-2017      1995-2017      1995-2017      1990-2017	Poland	14.2.2019	15.3.2019	yes	no	no	http://cdr.elonet.e.	1990-2017	1990-2017	1990-2017		1990-2017	
Slovakia      15.2.2019      15.3.2019      yes      no      no      http://cdr.elonet.e.        Slovania      5.2.2019      no      no      no      no      http://cdr.elonet.e.      1990-2017      1990-201	Portugal	15.2.2019	15.3.2019	yes	no	no	http://cdr.elonet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017
Slovenia      5.2.2019      no      no      no      no      http://cdr.elonet.e.      1990-2017	Romania	14.2.2019	15.3.2019	yes	no	no	http://cdr.elonet.e.	1995-2017	1995-2017	1995-2017	1995-2017	1995-2017	
Spain      13.2.2019      no      no      no      http://cdr.elonet.e.      1990-2017      1990-2017      1990-2017      1990-2017        Sweden      6.2.2019      6.2.2019      yes      no      no      http://cdr.elonet.e.      1990-2017      1990-20	Slovakia	15.2.2019	15.3.2019	yes	no	no	http://cdr.elonet.e.						
Sweden      6.2.2019      6.2.2019      yes      no      no      http://cdr.elonet.e.      1990-2017 <td>Slovenia</td> <td>5.2.2019</td> <td></td> <td>no</td> <td>no</td> <td>no</td> <td>http://cdr.elonet.e.</td> <td>1990-2017</td> <td>2000-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td> <td>1990-2017</td>	Slovenia	5.2.2019		no	no	no	http://cdr.elonet.e.	1990-2017	2000-2017	1990-2017	1990-2017	1990-2017	1990-2017
	Spain	13.2.2019		no	no	no	http://cdr.elonet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	
United Kingdom 15.2.2019 no no no http://cdr.eionet.e. 1990-2017 1990-2017 1990-2017 1990-2017 1990-2017 1990-2017	Sweden	6.2.2019	6.2.2019	yes	no	no	http://cdr.elonet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017
	United Kingdom	15.2.2019		no	no	no	http://cdr.eionet.e.	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017	1990-2017

Reporting Year affects the whole report

2019

European Environment Agency



### **PAHs Check**

						Member state				
years	Problem detected	Austria	Belgium	Bulgaria	Finland	Germany	Italy	Malta	Romania	Slovenia
1990	PAH: sum does not match			×		×				
	PAH: total but no parts	×	×		×		×			
1991	PAH: sum does not match			×		×				
	PAH: total but no parts	×	×		×		×			
1992	PAH: sum does not match			×		×				
	PAH: total but no parts	×	×		×		×			
1993	PAH: sum does not match			×		×				
	PAH: total but no parts	×	×		×		×			
1994	PAH: sum does not match			×		×				
	PAH: total but no parts	×	×		×		×			
1995	PAH: sum does not match			×		×			×	
	PAH: total but no parts	×	×		×		×			
1996	PAH: sum does not match			×		×			×	
	PAH: total but no parts	×	×		×		×			
1997	PAH: sum does not match			×		×			×	
	PAH: total but no parts	×	×		×		×			
1998	PAH: sum does not match			×		×			×	
	PAH: total but no parts	×	×		×		×			
1999	PAH: sum does not match			×		×			×	
	PAH: total but no parts	×	×		×		×			
2000	PAH: sum does not match					×			×	
	PAH: total but no parts	×	×		×		×			
2001	PAH: sum does not match					×			×	
	PAH: total but no parts	×	×				×			
2002	PAH: sum does not match					×			×	
	PAH: total but no parts	×	×		×		×			
2003	PAH: sum does not match					×			×	
	PAH: total but no parts	×	×		×		×			
2004	PAH: sum does not match					×			×	
	PAH: total but no parts	×	×		×		×			



### TSP/PM10, PM10/PM2.5 and PM2.5/BC

			Problem	detected	
Member state	NFR Code	BC>PM2.5	PM2.5>PM10	PM2.5>TSP	PM10>TSP
Belgium	1A4ai				2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2
Bulgaria	1A2a				2017
	1A2d			2014	2014
Croatia	1Alc				1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1
	1A4ai				1990, 1991, 1992, 1994, 1995, 1996, 1997, 1998, 1
	1A4ci				1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1
	2A1			1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1	1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1
Denmark	181a	1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1			
Finland	1A2a				2012
France	182c			2017	2017
Germany	1A2a				2008, 2009, 2012, 2013
Lithuania	1A1c				1990, 1991, 1992, 1993, 2002, 2004, 2005, 2006, 2
	1A3bii	2015			
	1A3dii		1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1		
	1A4ai		2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2	2005, 2006, 2007, 2008, 2009, 2010	
	SC1bii	2007, 2008, 2009, 2010, 2015, 2016, 2017			2017
Luxembourg	1A4ai			1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1	1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1
Malta	1A2gviii	2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2			
	1A3bi		2001, 2002, 2003	2001, 2002, 2003	
	1A3bii		2000		
	1A3biii		2000, 2001, 2002, 2003, 2004	2000, 2001, 2002, 2003, 2004	
	1A4ai	2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2			2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2
	1A4ciii			2010	2010
	383				2017
	3B4giv				2015
	5C1bv	2009, 2012, 2013, 2014, 2015, 2016			



### Ratio TSP/PM10, PM10/PM2.5 and PM2.5/BC

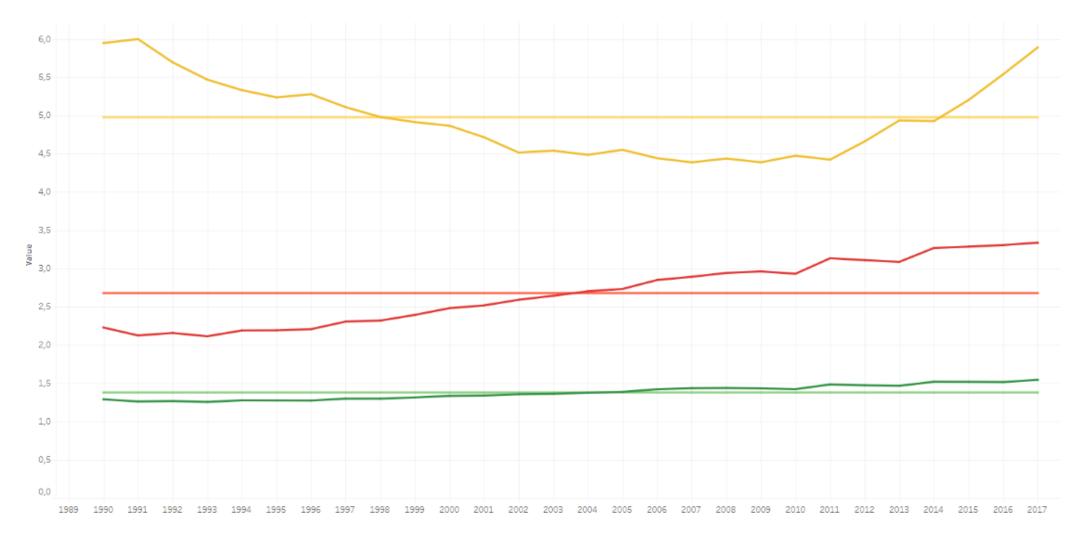
Member state	Average	Deviant ratio	1990	1991	1992	1993	1994	1995	1996	2000	2001	2002	Year 2003	2004	2005	2006	2007	2011	2012	2014	2015	2016	2017
Belgium	5,38	PM2.5/BC																					7,28
Bulgaria	9,163	PM2.5/BC					12,52	12,53															
Czechia	9,663	PM2.5/BC	15,64	14,34	13,38	13,60		12,57	13,41														
Estonia	1,567	TSP/PM10								2,19	2,14												
EU28	1,916	TSP/PM10	2,71																				
Germany	5,599	PM2.5/BC																					7,45
Ireland	5,834	PM2.5/BC	8,04	7,83																			
Italy	5,191	PM2.5/BC																				7,11	
Latvia	1,563	TSP/PM10												2,14							2,05		
Lithuania	1,314	PM10/PM2.5																				1,73	
	3,787	PM2.5/BC	5,57	6,03		4,98																	
Malta	1,768	TSP/PM10								3,26	2,79	2,81	2,90	2,90				<b>A</b> 1,23	<b>A</b> 1,23	<b>A</b> 1,23			
	2,653	PM2.5/BC													3,59	3,66	3,53					<b>A</b> 1,68	<b>A</b> 1,64

#### Ratio TSP:PM10 and PM10:PM2.5 not consistent

The ratios reported deviate more than 30% from the mean for that country

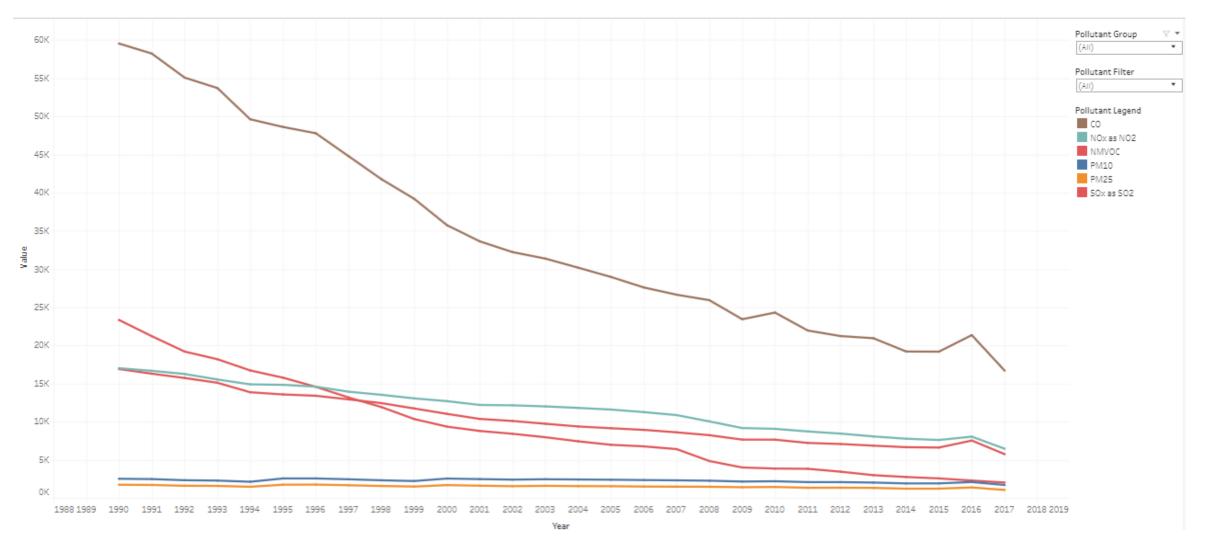


### Ratios for TSP/PM10, PM10/PM2.5 and PM2.5/BC



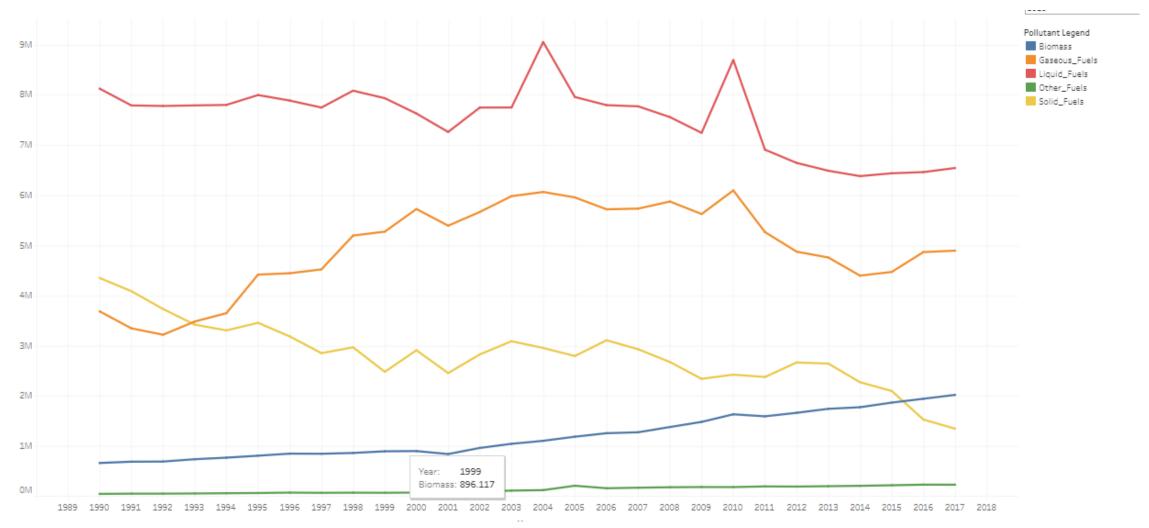


#### **Pollutant Timeseries**





### **Activity Data Timeseries**





#### **Quick access to submissions**

#### 2019: Excel files reported by country Click on a cell and find the "Open excel file" link

Member state	2017	2016	2015	2014	2013	2012	2011	2010	2009
Austria	http://c								
Belgium	http://c								
Bulgaria	http://c								
Croatia	http://c								
Cyprus	http://c								
Czechia	http://c								
Denmark	http://c								
Estonia	http://c								
Finland	http://c								
France	http://c								
Germany	http://c								
Hungary	http://c								
Ireland	http://c								
Italy		http://c							
Latvia	http://c								
Lithuania	http://c								
Luxembourg	http://c								
Malta	http://c								
Netherlands	http://c								
Poland	http://c								
Portugal	http://c								
Romania	http://c								
Slovenia	http://c								
Spain	http://c								
Sweden	http://c								
United Kingdom	http://c								

# Access to all the envelopes and their contents

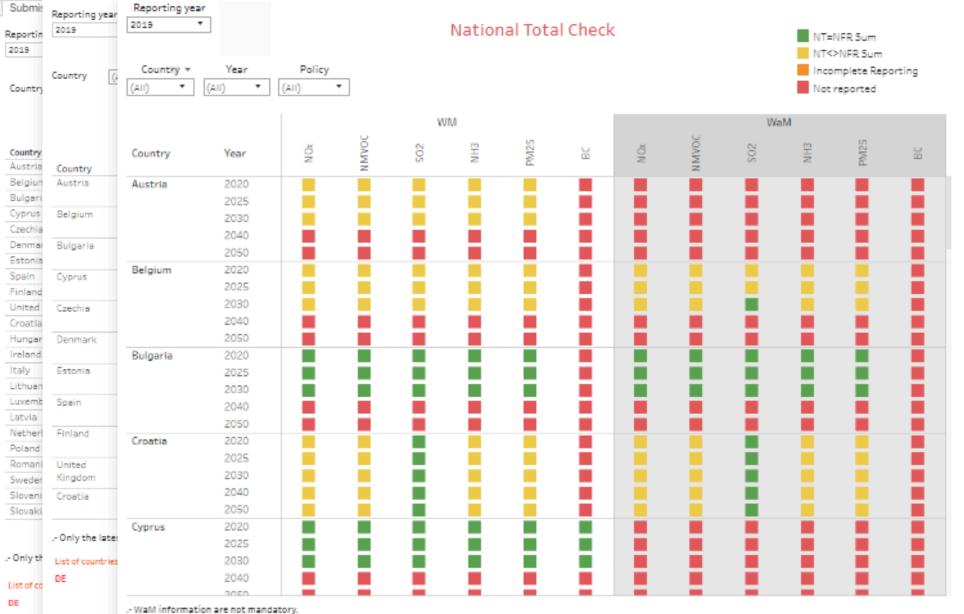
#### **Summary of reported files by MS**

#### 2019: Files released by

FileName	<u>=</u>	Released	Uploaded	FileUrl	
Denmark_NFR_Report_2019.xls		15.2.2019	12.2.2019	http://cdr.eione	⊳
DK-2019-Feb15_Cover_letter_CION.pdf		15.2.2019	15.2.2019	http://cdr.eione	⊳
DK-2019-Mar15_Projections_reporting.xls		15.3.2019	15.3.2019	http://cdr.eione	⊳



### **Projections QA/QC**





- Only the latest release for each country and year is used to collect data

#### **Reporting obligation under NECD – Next Steps**

#### **A. Emission Inventories**

- **B. IIR**
- **C. Adjustments**
- **D.** National gridded data of emissions
- **E.** Large point sources
- **F. Projections**
- **G. National Air Pollution Control Programmes**
- **H.** Policies and Measures
- I. Network of impact monitoring sites
- J. Monitoring of air pollutants impact

