

Transition to e-Reporting: *Overview and current status*

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*FAIRMODE plenary Meeting
Baveno, Italy, 11-12 of February 2014*



Air quality reporting in transition:

- what is changing and how?
- where to find more information about AQ e-Reporting?
- how has it been implemented by now?



Air quality reporting in transition:

- how has it been?

Council Decision 97/101/EC of 27 January 1997 establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States

Commission Decision 2004/461/EC of 29 April 2004 laying down a questionnaire to be used for annual reporting on ambient air quality assessment under Council Directives 96/62/EC and 1999/30/EC and under Directives 2000/69/EC and 2002/3/EC of the European Parliament and of the Council (notified under document number C(2004) 1714), (Text with EEA relevance) (OJ L156, 30.04.2004, pp.78-125)

...

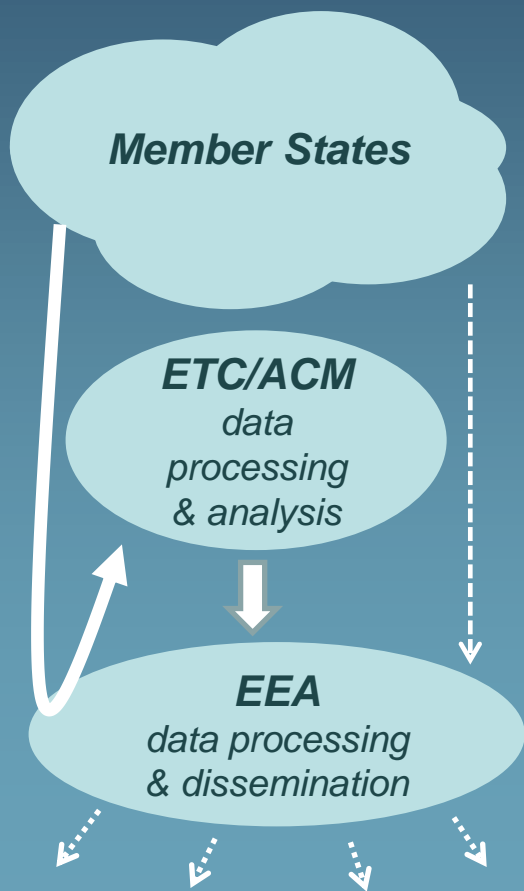
- how is it going to be?

COMMISSION IMPLEMENTING DECISION of 12 December 2011 laying down rules for Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council as regards the reciprocal exchange of information and reporting on ambient air quality, notified under document C(2011) 9068)(2011/850/EU)

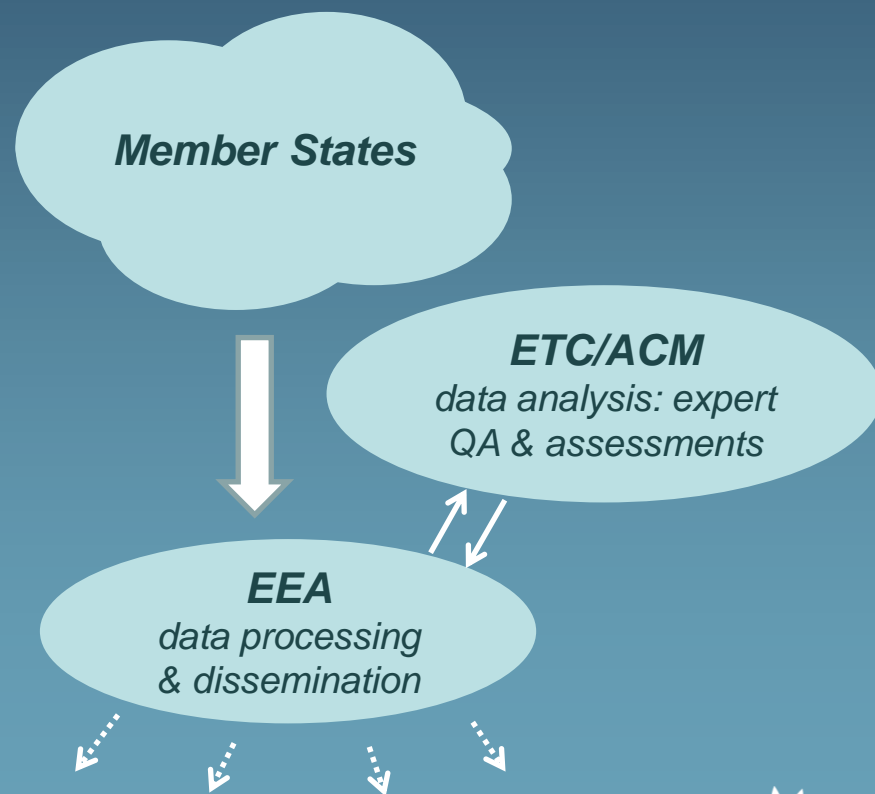


Air quality reporting in transition:

- how has it been?

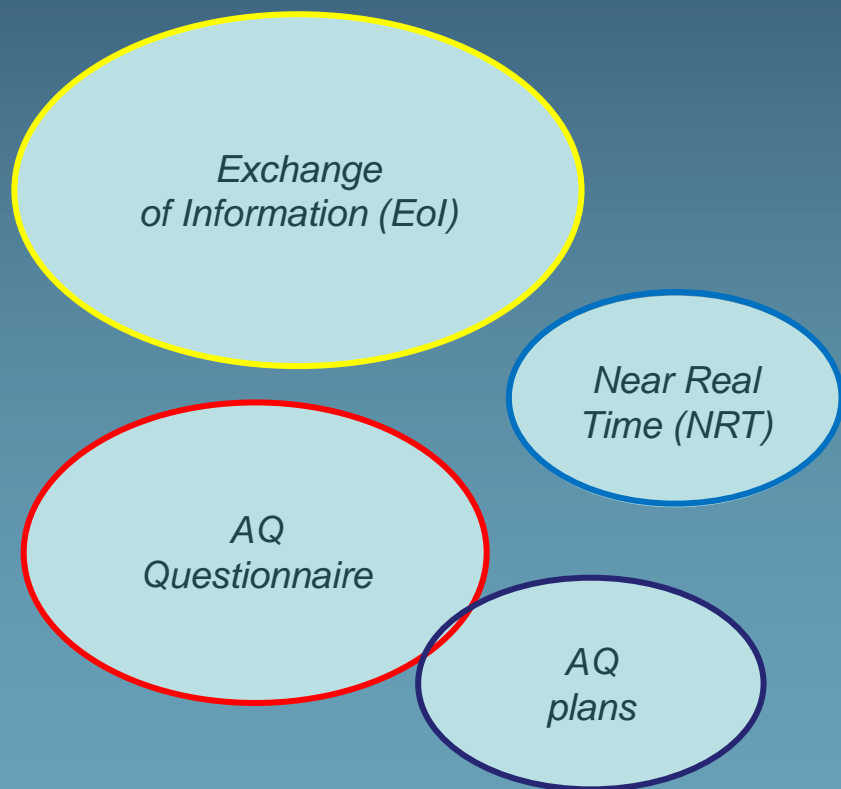


- how is it going to be?

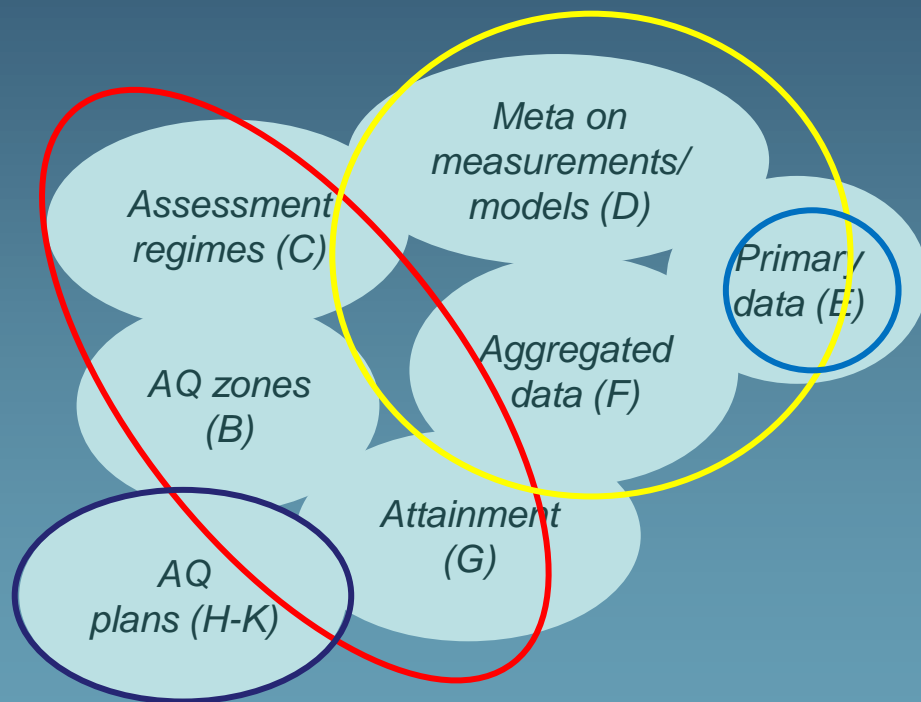


Air quality reporting in transition:

- how has it been?



- how is it going to be?



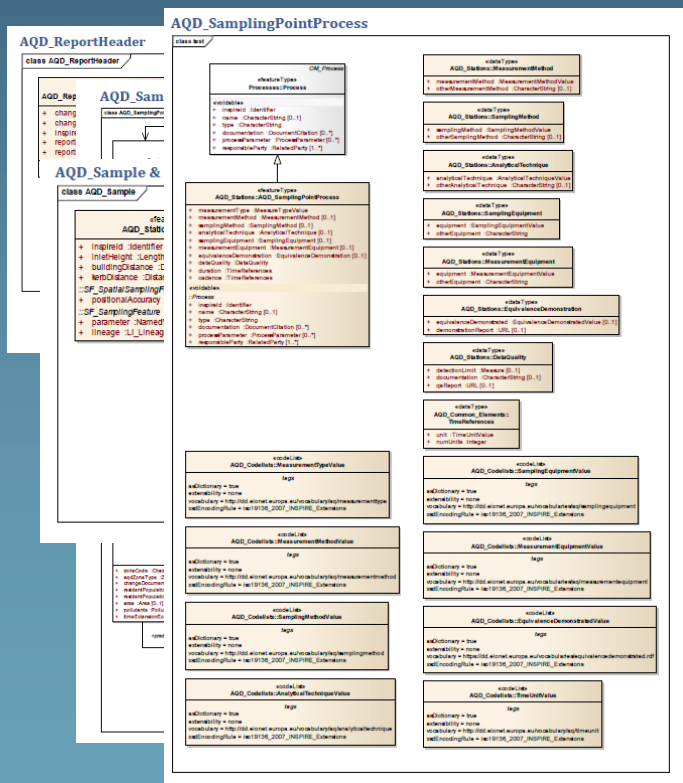
Air quality reporting in transition:



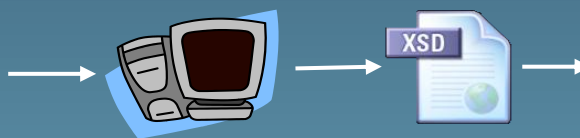
... the work on the data model was a struggle...

Air quality reporting in transition:

UML class diagrams model the real world



Software converts UML to XSD



XSD & data combined to generate XML report



XML report sent to Eionet CDR



Air quality reporting in transition:

→ Consequences and opportunities:

- replacing old rules for regulatory and informative reporting on air quality to the Commission
- AQ e-Reporting schema → common data model/format, upgrading standards for air quality data encoding & sharing
- AQ data flows interconnected → streamlining duplication and reinforcing internal consistency in reporting data flows
- first steps towards INSPIRE for Air Quality, improved and extended data services (both at the EEA and national)



Air quality reporting in transition:

the e-Reporting [timeline](#)

for more information visit:

<http://www.eionet.europa.eu/aqportal>



Transition to e-Reporting: overview and current status

Country	<u>Zones (B)</u>	<u>Assessment regimes (C)</u>	<u>Assessment methods (D)</u>
Austria	√	√	√
Belgium	√	√	√
Bulgaria	√	√	√
Croatia	√	√	√
Cyprus	√	√	√
Czech Rep.	√	√	√
Denmark	√	√	√
Estonia	√	√	√
Finland	√	√	√
France	√	√	√
Germany	√	√	√
Greece	√	√	√
Hungary	√	√	√
Ireland	√	√	√
Italy	√	x	x
Latvia	√	√	√
Lithuania	√	√	√
Luxembourg	√	√	√
Malta	√	√	√
Netherlands	√	√	√
Poland	√	√	√
Portugal	√	√	x
Romania	√	√	x
Slovakia	√	√	√
Slovenia	√	√	√
Spain	√	√	√
Sweden	√	√	√
United Kingdom	√	√	√
Gibraltar	√	√	√
Iceland	√	√	x
Liechtenstein	x	x	x
Norway	√	√	√
Switzerland	x	x	√
Turkey	x	x	x
Albania	x	x	x
FYROM	x	x	x
Kosovo	x	x	x
Montenegro	x	x	x
Serbia	x	x	x
Bosnia and Herzegovina	x	x	x

e-Reporting data delivery status, 5th February 2014

Data set B: 28 MS + 3

Data set C: 27 MS + 3

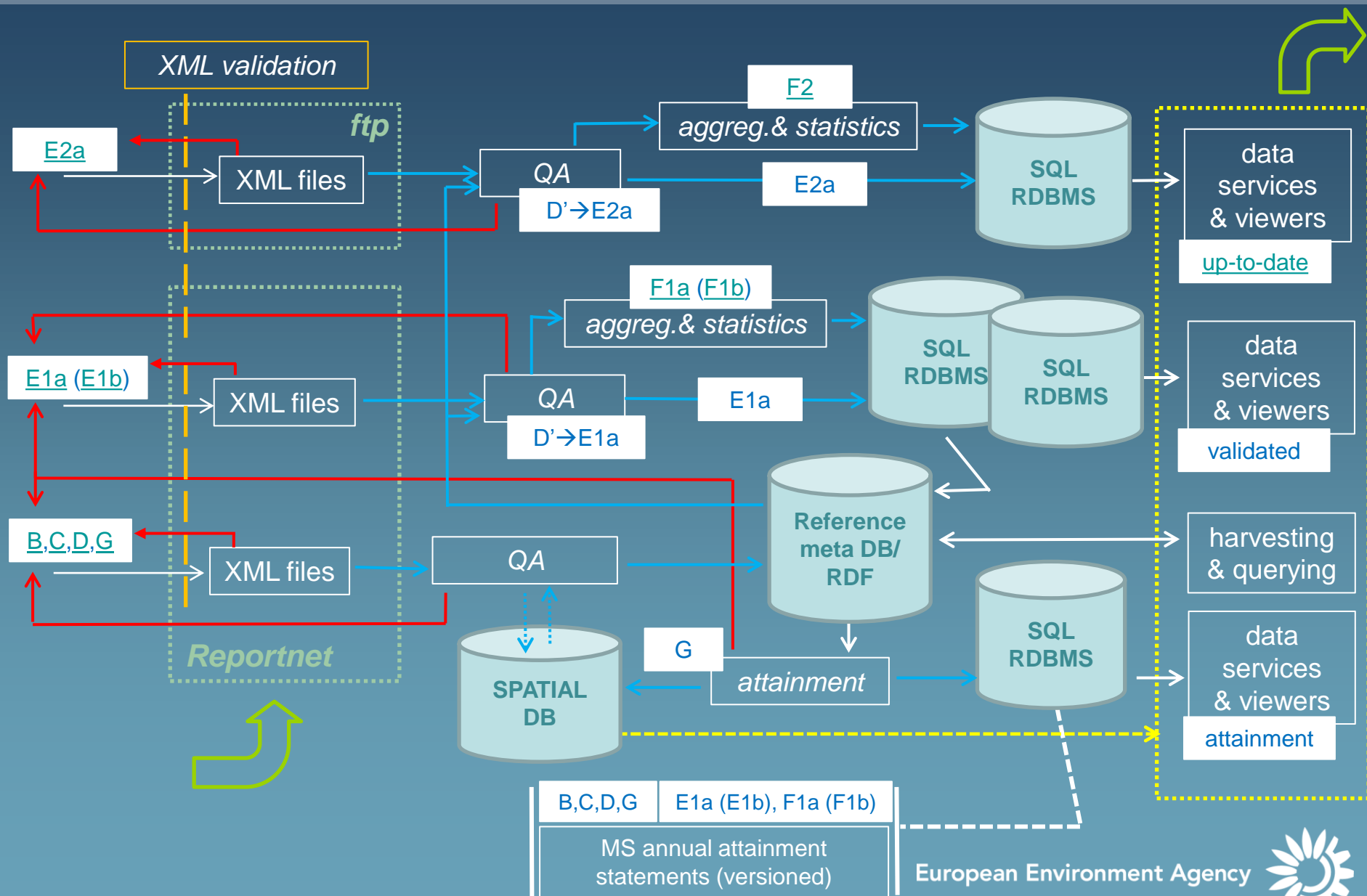
Data set D: 25 MS + 3

QA checks in progress..



Air Quality e-Reporting (B-G) process flows at the EEA

v.03022013



Transition to e-Reporting: *AQ models – plans and opportunities*

Artur Gsella (EEA), Tony Bush (ETC/ACM)

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Air quality models in e-Reporting:

- draft timetable
- background and data model for modelling as an assessment method
- opportunities and open questions → discussion



Draft timetable for the e-Reporting of modelling results

(EEA e-Reporting development plan)

- **Consensus** how to report modelling data (generic list of model input parameters, data quality reports, common format for modelling results, possible updates of the data model & AQ-XSD...): **2014**
- Capacity building - **MS ready to report** modelling results in agreed formats: **2015**
- **EEA ready** to ingest the data from models, store it and use it for assessments and analysis: **2015 - 2016**



Background to modelling as an assessment method

- Modelling techniques **may supplement** fixed measurements or **may be sufficient** in assessing the ambient air quality (allowing reduction of the number of sampling points) as set out by: [Articles 6, 7 and 10 of the AQD](#) & [Article 4 of 4DD](#)
- As for measurement based assessment methods, supplementary assessment methods need to be described in detail in data model
- Description (data model) allows methods to be identified and checked against the Data Quality Objectives of the AQD and 4DD
- Description of data from models forms part of data flow D - assessment method metadata
- Modelled and objective estimation data forms part of data flow E1b



Speaking about...

data model for... model data

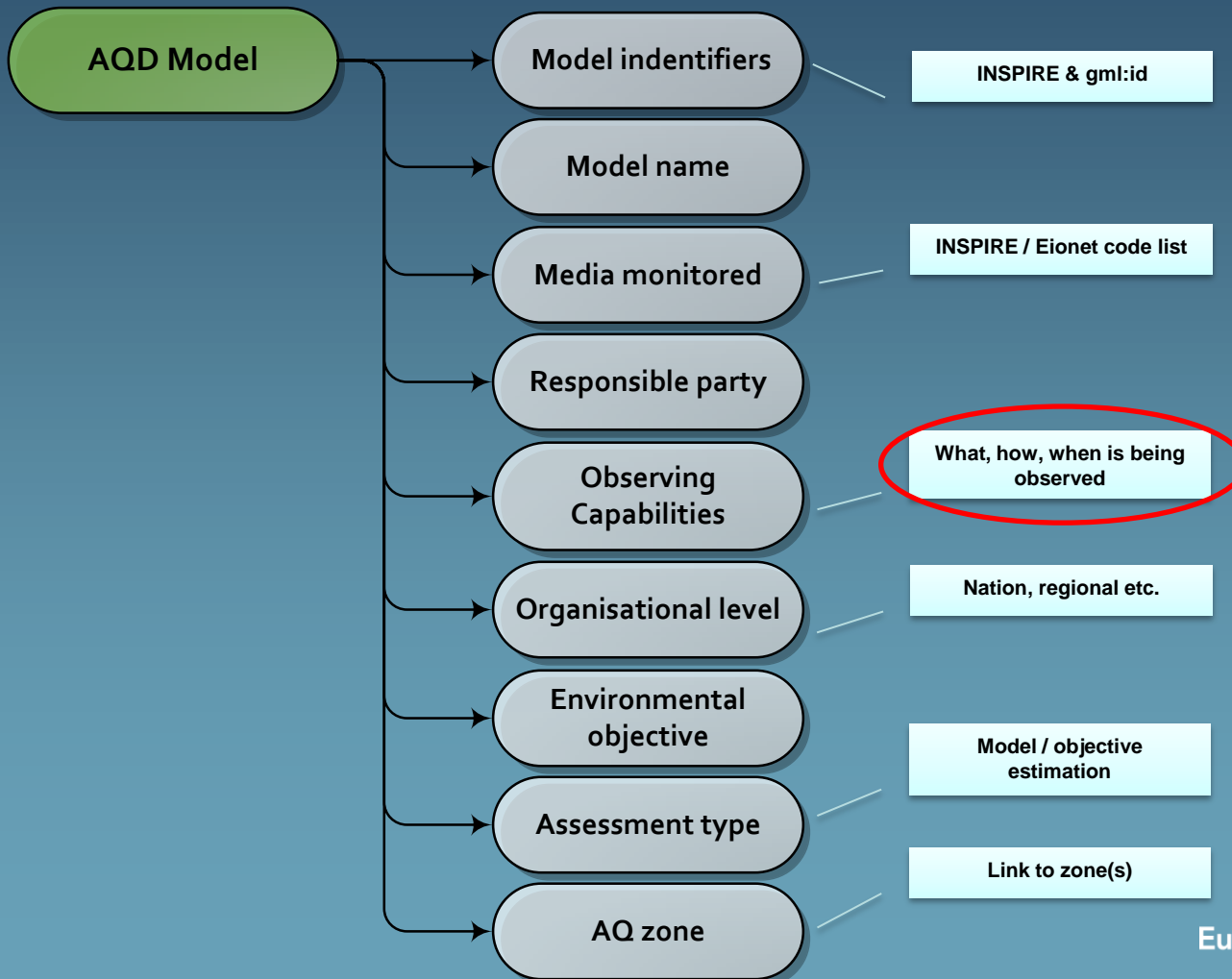
data modelling for... modelling data

model of data for... data of model



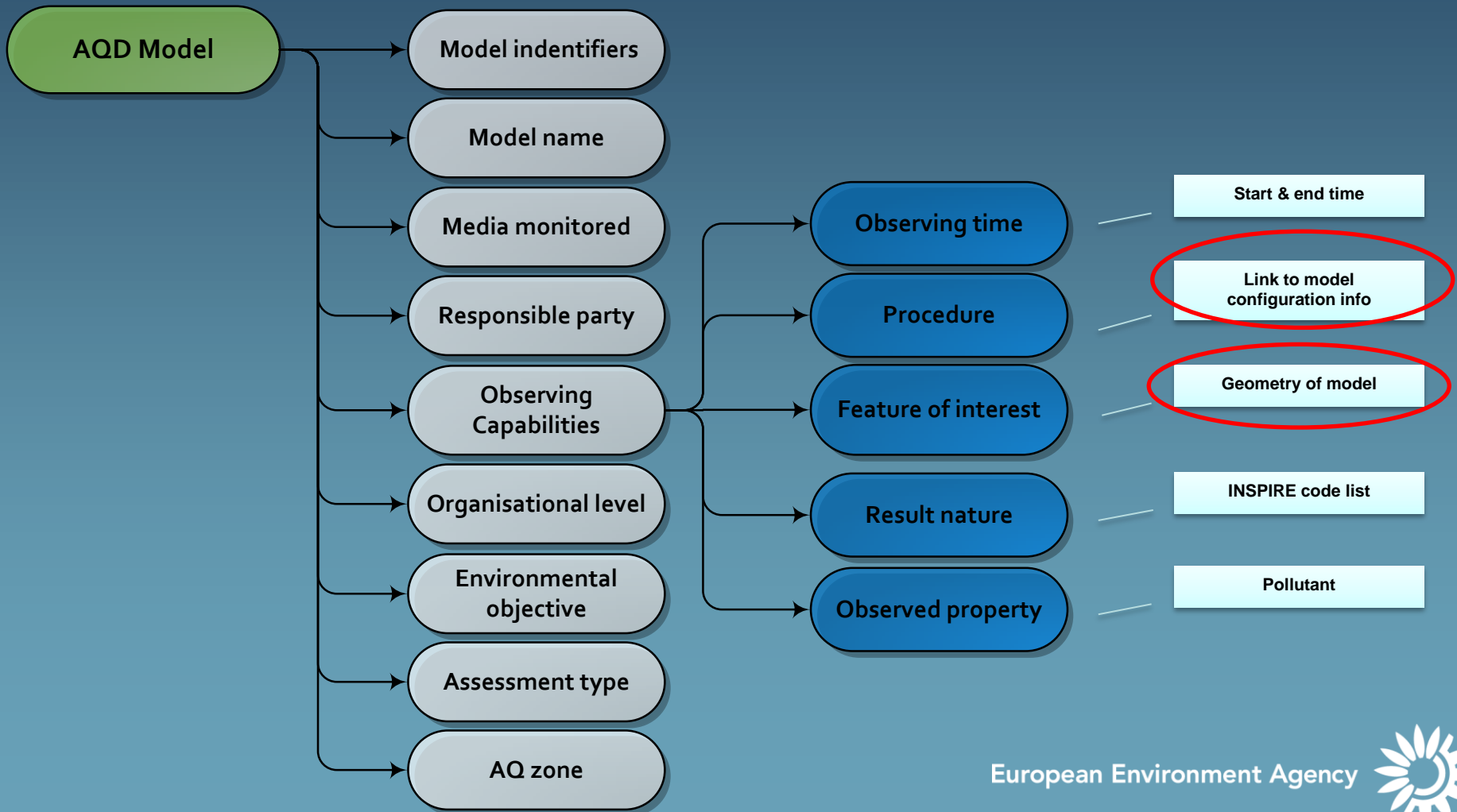
Meta-data setup for models (data flow D: assessment methods)

source: *Modelling and objective estimation data model*, by Tony Bush (ETC/ACM, Nov 2013)



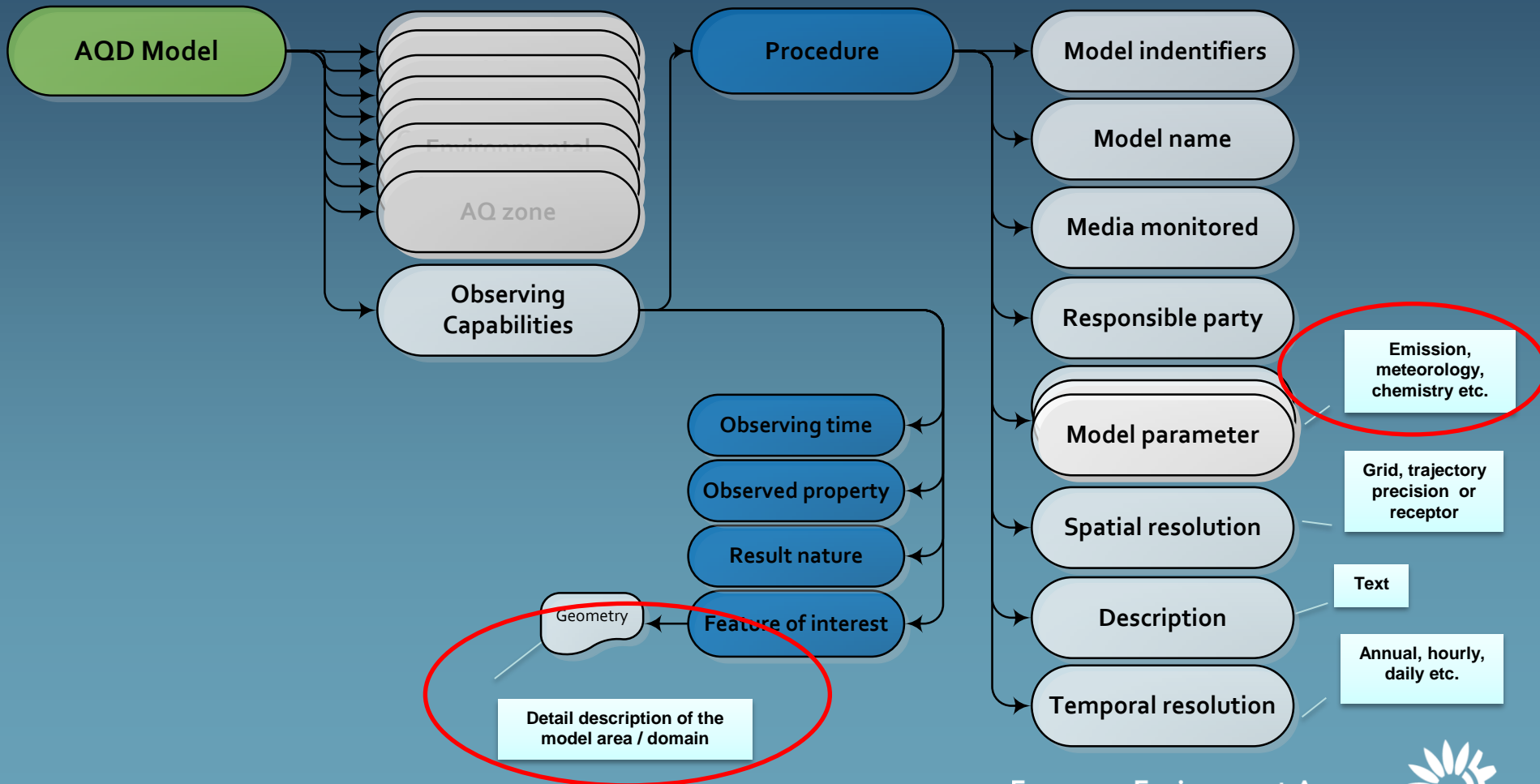
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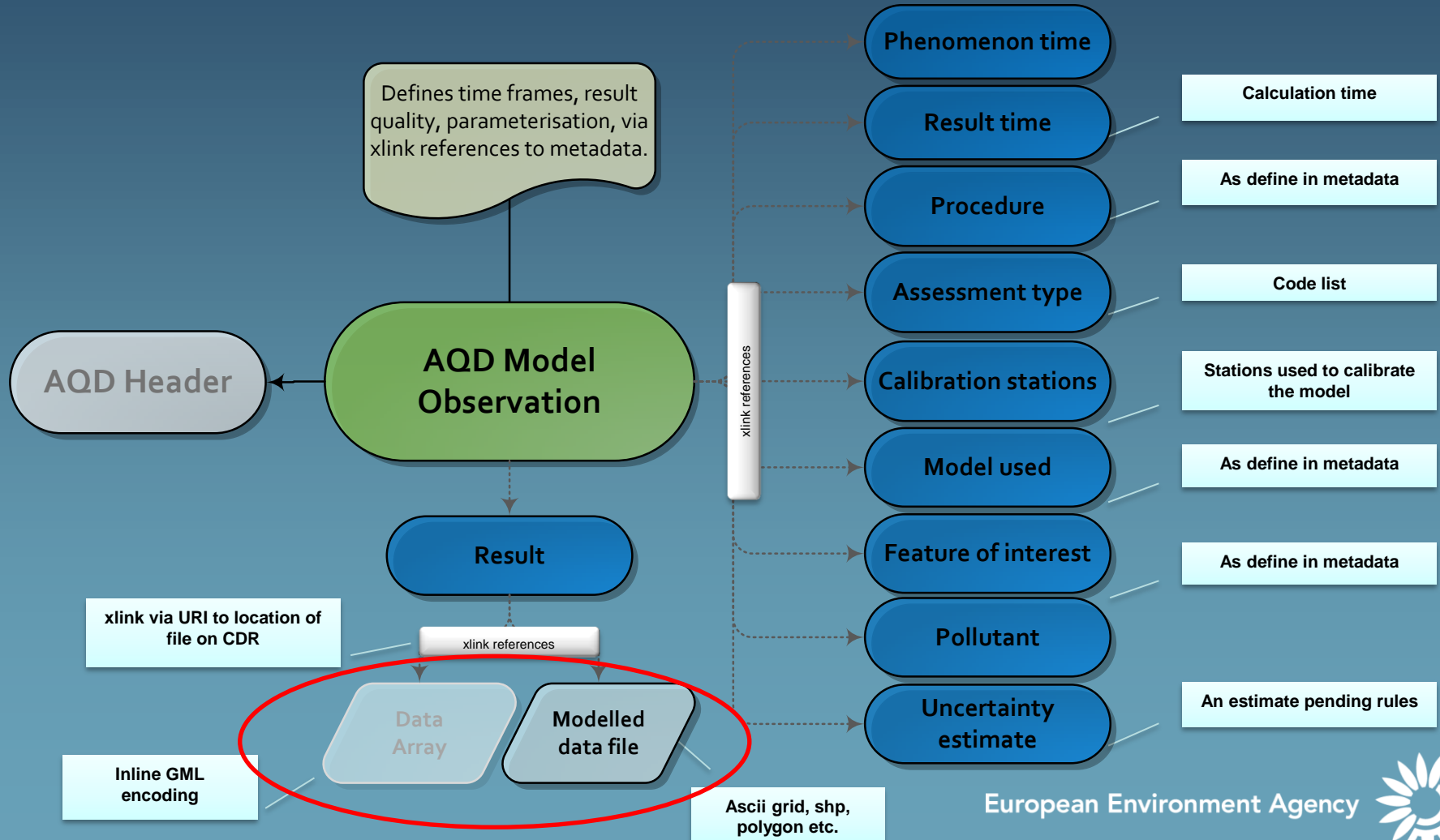
Meta-data setup for models (data flow D: assessment methods)

source: Modelling and objective estimation data model, by Tony Bush (ETC/ACM, Nov 2013)



Data setup for models (data flow E1b: primary modelling results)

source: *Modelling and objective estimation data model*, by Tony Bush (ETC/ACM, Nov 2013)



Opportunities...?

‘Let my dataset change your mind set’ (Hans Rosling)

- reduction of number of sampling points → **savings**
- **further harmonisation** of modelling for regulatory purposes
- **central data repository** of standardised modelling results
- increased **role of modelling** in AQ reporting



Obstacles...?

‘If anything can go wrong, it will’ (Murphy’s Law)

- MS may not be ready to deliver data from modelling → **why?**
- **data formats** not strict enough for the EEA’s systems to make use of the data
- other issues...?



Thank you!

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Objective estimation examples

Article 6 (4) of 2008/50/EC and Article 4 (4) of the 2004/107/EC allows for the sole use of modelling or objective estimation techniques for assessing levels shall be possible where pollutant levels are below the lower assessment threshold (LAT).

Possible use cases that may warrant exploration:

- Use of modelled datasets when measurements fail or DC rates aren't met
- Application of interpolation concentration fields, sometimes from indicative measurements, as a mean of objective estimation
- Application of a minimal measurement network at highest expect exposure location to track year on year trends in conjunction
- One-off, snap shot measurement campaigns or modelling activities which have established base line concentrations, trends in levels subsequent to this base year tracked using emissions inventory information

source: *Modelling and objective estimation data model, by Tony Bush (ETC/ACM, Nov 2013)*

Indicative measurement (assessment) examples

Article 6 of 2008/50/EC and Article 4 of the 2004/107/EC allows for the indicative measurements to support fixed measurements where levels are below the upper assessment threshold (UAT).

Possible use cases that may warrant exploration:

- Use of measurements with higher uncertainty in situations where collocated measurements techniques are available and the instrument with the lowest uncertainty fails
- Use of no reference methods to inform assessments
- Combination of short-term time series at similar locations to derive a long-term for use in assessments
- Use of modelled data to fill the data gaps arising from invalid data in an instrument time series

source: *Modelling and objective estimation data model, by Tony Bush (ETC/ACM, Nov 2013)*

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- Data flow B: air quality management zones
- Data flow C: assessment regimes for zones (sampling points within zones)
- **Data flow D: assessment methods: fixed measurements, air quality models, etc.**
- Data flow E1a: primary validated measurements
- **Data flow E1b: primary modelling results**
- Data flow E2: primary up-to-date measurements
- Data flow F1a: aggregated, validated measurements
- Data flow F1b: aggregated modelling results
- Data flow F2: aggregated, up-to-date measurements
- Data flow G: attainment (aggregation within zones, approved by MS)
- Data flow H: air quality plans
- Data flow I: source apportionment
- Data flow J: scenario for the attainment year
- Data flow K: measures

