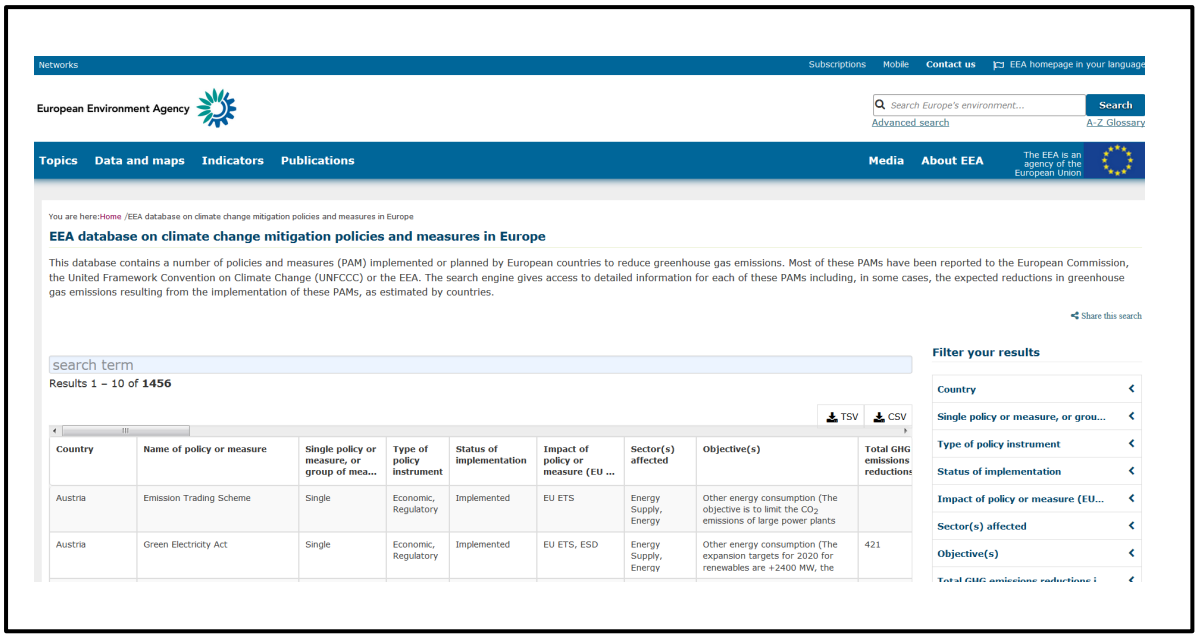
Benchmark of the EEA database on climate mitigation policies and measures



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Screenshot of the EEA database on climate change mitigation policies and measures in Europe

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Executive summary

The Paris Agreement sets a global and ambitious objective to keep global temperature rise this century well below 2 degrees Celsius. This will require effective policies and measures by countries to curb emission levels away from business as usual.

In the Monitoring Mechanism Regulation the EU asks countries to report on their national mitigation policies and measures on a biennial basis (with the possibility to report important changes annually voluntary).

This information is important as it increases transparency on the actions taken by Member States to achieve EU and international emission reduction objectives, but could also be used as a basis to evaluate effectiveness, efficiency, relevance and coherence of the policies and measures. Information reported by countries on policies and measures is made available to the public via the EEA PaM dataviewer (http://pam.apps.eea.europa.eu/). Additionally there are multiple other databases and information sources that aggregate climate mitigation, renewable energy and/or energy efficiency policies and measures (see Box 1).

Box 1. Information sources included in the benchmark study.

Name	Description
EEA PaM database	EU countries, reporting in the context of the Monitoring Mechanism Regulation. Biennial reporting.
National energy efficiency action plans	EU countries, reporting in the context of the Energy Efficiency Directive.
National renewable energy action plans	EU countries, reporting in the context of the Renewable Energy Directive.
OECD database on policy instruments for the Environment	OECD, based on voluntary contributions of countries.
RES Legal	EU funded project.
National programs under the NEC Directive	EU countries, reporting for EU NEC Directive.
EUR'Observ'ER	EU funded project.
Odyssee/MURE database	EU funded project, information from National organisations.
FAO Lex	FAO, information mostly from the official gazettes.
EUR Lex	Website of Official Journal of the European Union.
IEA policy databases on renewable energy, energy efficiency and climate mitigation actions	IEA, based on voluntary reporting by countries.
Low Carbon Development Strategies	EU countries, reporting in the context of the Monitoring Mechanism Regulation.
National Communications and Biennial Reports	EU countries, reporting for the UNFCCC. Biennial reporting (BR) or every four year (NC).
Covenant of Mayors	Municipalities, voluntary reporting by signatories.

These information sources however differ from one another in a number of respects. This study establishes a benchmark of existing sources of information on climate related policies and measures and assesses in particular the performance of the EEA PaM database and data viewer in supporting policy evaluation.

Box 2. Approach & methodology.

Relevant information sources on policies and measures were first identified. Secondly, meta-information on these sources (such as: method of information collection, temporal and geographical scope, attributes of policies and measures included, information on the status of the policy over time, etc.) was collected and scored using predefined assessment criteria. These criteria were coverage and scope; comprehensiveness; suitability for evaluating effectiveness, efficiency, coherence and relevance; reliability; timeliness and accessibility.

The performance of these sources are compared with that of the EEA PaM database, for facilitating public access to relevant information on national policies and measure in Europe and, supporting the evaluation of the relevance, efficiency, effectiveness, coherence. Finally, the information sources are also used to identify best practices.

How information sources scored

The selected information sources score all relatively good on **coverage and scope**. Almost all information sources focus on EU Member States and 6 include all European countries in the European Economic Area. All selected information sources focus on national and/or EU policies and measures, apart from the Covenant of Mayors that only includes actions at local level. If regional governments have a significant responsibility in energy and/or climate policy, regional policies are included. Information sources have a good coverage of energy consumption, supply and transport, but there is a lack of information sources that also cover LULUCF, waste and agriculture.

Comprehensiveness of the information sources is high, and very comparable across information sources. The National Communication and Biennial Report of countries to the UNFCCC score highest because of detailed descriptions of national policies and measures and national circumstances.

In the selection of information sources, some considered climate policies and measures, whereas others considered renewable energy or energy efficiency only. This affected how information sources could be used in **policy evaluation**. For the evaluation of **effectiveness** (assessing to what extent the policy or measure resulted in concrete actions and changes, for example on greenhouse gas emissions) some information sources provided quantitative information. The EEA PaM database scores relatively high because of both ex-post and ex-ante impact on greenhouse gas emissions and inclusion of indicators, although reporting for individual policies and measures could be very incomplete. While some quantitative information on the effect or impact of the policy or measure could be found, information on cost-**efficiency** is very scarcely available. Only a limited number of information sources provided some quantitative information, but very incomplete. The OECD database provides the most extensive and consistent ex-post information on certain aspects of costs, but only for a limited number of instrument types and policies. Evaluation of both **relevance** (assessing if the objective of the policy and measure is still relevant to address the needs) and **coherence** (investigating if the policy is coherent with other national or EU policies and measures) is difficult based on the selected information sources. Relevance requires a good understanding of the needs that are being addressed and of national circumstances. These aspects are typically covered more extensively in reports, such as the National Communication.

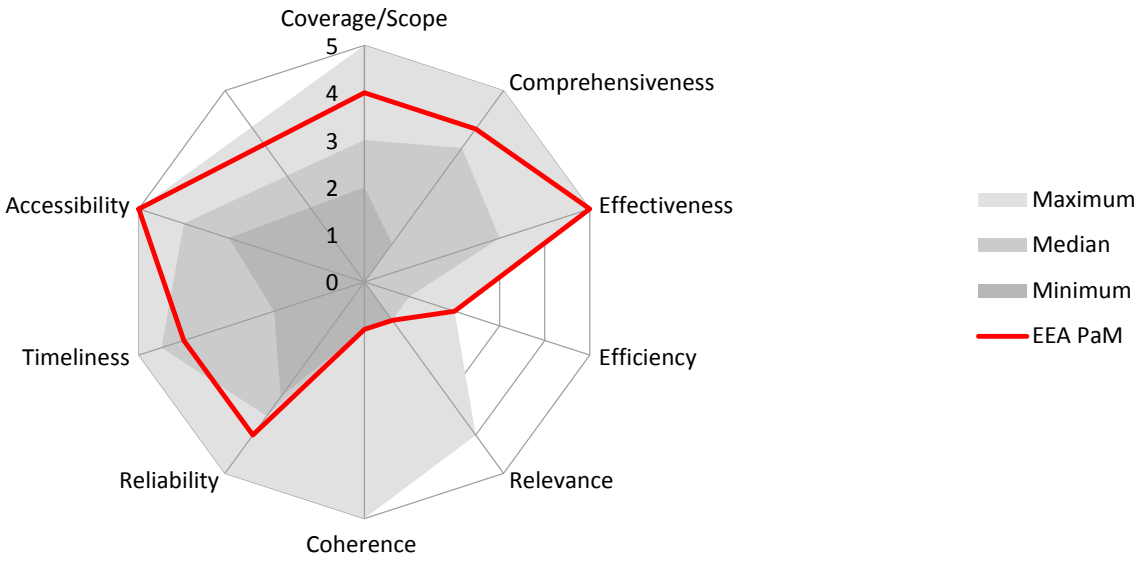
The **reliability** of the information sources was highest for those cases where EU countries reported information in context of an official reporting obligation to EU or UNFCCC and on a regular basis. Examples are the EEA PaM database, the national action plans on energy efficiency and renewable energy and the National Communication and Biennial Report to the UNFCCC. These are in some cases coupled to a quality assurance and control procedures to check reported information. **Timeliness** of updating the reported information ranged from a 4 year reporting cycle (for the National Communications) to information that is updated constantly (EUR Lex, for example). The EEA PaM database and dataviewer scored high on **accessibility**. Accessing, searching and downloading information from this database can be done relatively easily. Most information sources that are organised as a database scored high (such as the IEA and the MURE databases). Other information sources that are in report structure (such as the Low Carbon Development Strategies and the National Programs under the NEC Directive), scored lower.

The EEA PaM database scores high compared to other information sources

Overall, the EEA PaM database and dataviewer scores above the median for most of the criteria. The EEA PaM database covers all sectors (including waste, agriculture and LULUCF), so in this respect is a higher coverage than information sources that focus only on energy efficiency and renewable energy. However, while all EEA countries can report on their climate policies and measures for the EEA PaM database, in 2015 only EU Member States submitted information.

For evaluation purposes the EEA PaM databases also scores high for most evaluation criteria. However it is important to stress here that while the reporting requirements in the Monitoring Mechanism Regulation asks EU countries to report quantitative information on ex post and ex ante greenhouse gas emission savings, ex post and ex ante costs and benefits and indicators, this is not reported exhaustively for all policies and measures. Especially information on ex post effects and costs and benefits is very incomplete.

Figure 1 Average, minimum, maximum and EEA PaM database scores.



Policy databases for evaluation

This analysis shows that policy databases could be used for policy evaluation purposes. While databases are often similar in coverage/scope and in the comprehensiveness of the information that is provided for each policy or measure, there are some clear and distinct complementarities. Therefore combining information from different sources provides a more detailed and complete picture of effectiveness, efficiency, relevance or coherence. This however does not imply that based on these sources alone a detailed, balanced and unbiased evaluation can be done. For the evaluation of national policies and measures, the EEA PaM database is most complementary with the National Communication and Biennial Report (for relevance and coherence), the Odyssee/MURE database (for coherence), the OECD database on policy instruments for the Environment (for efficiency) and the national action plans on energy efficiency and renewable energy (both for effectiveness). This assumes that the policy or measure under evaluation is included in all these information sources. Due to differences in coverage and scope and differences in how policies and measures are grouped, this is not always the case.

Key message

The selected 11 sources overlap largely in the type of information that is provided for each policy and measure. Typically this covers the name, description, objective, targeted sector, and implementation status.

There are nevertheless significant differences in the scope of the databases either in the number of countries (but all but one information sources covers all EU Member States) or the sectors that are covered. Most information sources cover energy efficiency and renewable energy policies and therefore look at energy consumption, supply and transport. Especially policies in waste, agriculture and LULUCF are covered in only a few of the selected information sources.

In our benchmark, the EEA PaM databases scores relatively high for providing information that is useful for the evaluation of the effectiveness and efficiency of policies and measures. Quantitative information is however often missing for single policies and measures.

The information sources have significant overlaps in the information that is provided for each policy and measure. There are however also differences. Starting from the EEA PaM database, information from the National Communication and Biennial Report, the Odyssee/MURE database, the OECD database on policy instruments for the Environment and the national action plans on energy efficiency and renewable energy seems most complementary for evaluation of effectiveness, efficiency, relevance and coherence.

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Abbreviations

BR	Biennial Report
CTF	Common Tabular Format
EEA	European Environment Agency
EEA countries	European Economic Area
EFTA	European Free Trade Association
ETC/ACM	European Topic Centre / Air pollution and Climate change Mitigation
FAO	Food and Agriculture Organisation
GHG	Greenhouse gas
IEA	International Energy Agency
IRENA	International Renewable Energy Agency
LCDS	Low carbon development strategy
MMR	Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change
NC	National Communications
NEC	Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants
OECD	Organisation for Economic Cooperation and Development
PaM	Policy and/or Measure
QA/QC	Quality assurance / quality control
RES	Renewable energy sources
SEAP	Sustainable energy action plan
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

To evaluate national policies and measures (PaMs) in the area of climate change mitigation and energy in Europe, the EEA and other stakeholders can rely on the information reported by Member States under the EU Monitoring Mechanism regulation (MMR; 525/2013). This information is reported mandatorily on a biennial basis, with annual voluntary updates. It is compiled by the ETC/ACM in a 'PaM database', accessible through an online 'PaM viewer'. Additionally, a number of other relevant sources of information on energy and climate mitigation PaMs can further support climate and energy policy evaluation.

This report establishes a benchmark of existing sources of information on climate-related PaMs and assesses in particular the performance of the EEA MMR PaM database and data viewer in supporting policy evaluation. To do this an approach is followed where first relevant information sources on PaMs are identified. Secondly, meta-information on these sources (such as: method of information collection, temporal and geographical scope, attributes of PaMs included, information on the status of PaMs over time, etc.) is collected and scored using predefined assessment criteria. The performance of these sources are compared with that of the EEA PaM database, for facilitating public access to relevant information on national PaMs in Europe and, supporting the evaluation of the relevance, efficiency, effectiveness, coherence of PaMs. Finally, the information sources are also used to identify best practices.

The report consists of 4 sections:

- Introduction
- Methodology
- Results
- Recommendations

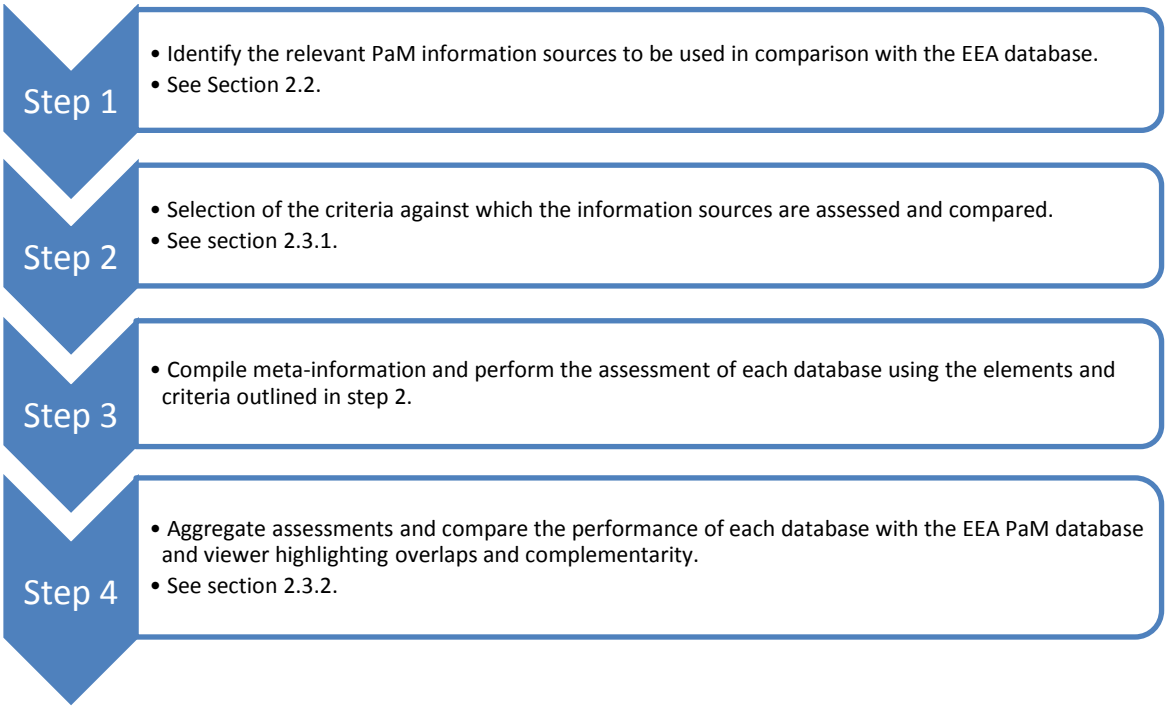
The outcome will be used as the starting point for a deeper PaMs evaluation task in 2016, which will be informed by the analysis of the EEA MMR PaMs database's performance and the availability of other complementary data sources.

2 Methodology

2.1 Steps for analysis

The different steps to perform the assessment of the information sources are explained in Figure 2.1. In the first step, the relevant PaM information sources have been identified. Assessment criteria were established against which the information sources are assessed and compared (Step 2). This includes criteria that relate to completeness, reliability and accessibility but also to the availability of information to perform policy evaluation. The different sources of information were scored on each of these criteria (Step 3). Scores were aggregated and compared to benchmark the different information sources, and especially the EEA PaM database (Step 4).

Figure 2.1 Flow chart of the applied methodology



2.2 Scope of the benchmark

The benchmark covers 14 sources of information on national climate PaMs in European countries. (Table 2.1), including the EEA PaM database. These sources do not all cover exactly the same policy areas (climate mitigation, energy efficiency and/or renewable energy), or have the same geographical scope or structure (searchable online databases and repositories of national reports).

Table 2.1 PaM information sources that will be assessed.

Source	Origin of information	Geographical scope
Monitoring Mechanism Regulation (MMR) - PaMs	Mandatory reporting for EU MMR 525/2013 Article 13	EU Member States
MMR - Low Carbon Strategies	Mandatory reporting for EU MMR 525/2013 Article 4	EU Member States
International Energy Agency (IEA) and International Renewable	IEA database, voluntary contribution	Global

Source	Origin of information	Geographical scope
Energy Agency (IRENA)	countries	
OECD	OECD database, voluntary contribution countries	OECD countries
Odyssee/Mure	EU-funded project	EEA countries
EurObserv'ER	EU-funded project	EU Member States
Eur-Lex	Website of the Official Journal of the European Union	EU
National Communication (NC) and Biennial Reports (BR)	Mandatory reporting for UNFCCC	Annex I countries
National Renewable Energy Action Plans (NREAP)	Mandatory reporting for EU Renewable Energy Directive	EU Member States
National Energy Efficiency Action Plans (NEEAP)	Mandatory reporting for EU Energy Savings Directive	EU Member States
RES-legal	EU-funded project	EEA countries
FAOLEX	Mostly from the official gazettes sent by FAO's Member Nations (pursuant to Article XI of the FAO Constitution)	Global
National Programs under the NEC Directive	Mandatory reporting for EU NEC DIRECTIVE 2001/81/EC Article 6	EU Member States
Covenant of Mayors	Voluntary reporting encouraged of signatory cities.	EU cities

2.3 Analysis

The PaMs information sources, including the EEA PaM database, have been analysed against six main criteria, closely linked to the "TCCCA principles[1]" which are often used to assess the quality of data (e.g. national GHG inventories) or information: transparency, completeness, consistency, comparability and accuracy. A specific criteria focused on the suitability of the database to support work on policy evaluation, which is itself often based on criteria such as effectiveness, efficiency, relevance and coherence.

The analysis also looks into overlaps and complementarity between the EEA PaM database and the other databases.

2.3.1 Assessment criteria

The analysis framework considers the six following main criteria.

1) Coverage/scope: this section looks at several elements describing the scope of the data source. Geographical scope assesses how well EEA countries are covered in the database. Sectoral scope assess how well all sectors are covered by the database. The assessment criteria also

[1] Transparency, Completeness (in this case Scope is used), Comparability, Consistency, Accuracy.

look at how actions at different levels of government (from international to local) are included and to what extent the database covers all IPCC GHGs.

2) Comprehensiveness: assesses the level of completeness of qualitative information on PaMs by the information source, such as a description of the PaM, the instrument type or the objective.

3) Suitability for evaluation: this section assesses to what extent the source provides information that could be used for evaluation of the effectiveness, efficiency, relevance and coherence of the PaM.

4) Reliability: an important element is the quality of the information that is included in the information source. In this section the reliability is assessed by looking at the source of the information and whether reported information has been quality assessed and quality checked.

5) Timeliness: assesses how frequently information is updated.

6) Accessibility: although not related to either TCCCA or PaM evaluation, this section is important. Here it is assessed to what extent information of the information source can be easily searched, retrieved and extracted.

A score between 0 and 5 was given or calculated for each of these main criteria and the results are presented in a radar chart. The score was determined following two different approaches. For some criteria, the score could be given for the entire information source. This applies to the geographical coverage, reliability, accessibility and timeliness. For other criteria the score was given based on the information as it is available and not the information that should be available, this implies that an information source that includes PaMs on for instance agriculture, but not exhaustively will have a lower score than an information source where agricultural PaMs are presented more detailed. The score was given by examining the PaMs in a random selection of at least five countries (if reports were available in English).

To establish each score, each criteria was divided into subcriteria, for which a more detailed scoring was performed (Table 2.1). Each sub criteria relates to:

- The availability of a specific information (yes/no question)
- The quality of the information (e.g. scores: 0 = no, 1 = poor, 2 = good)
- The level of completeness of the reported information (e.g. score from 1 to 5)

Scores for the sub criteria were weighed and aggregated for each main criteria (coverage/scope, comprehensiveness, suitability, reliability, timeliness and accessibility).

The individual PaM source assessment is completed in a dedicated version of this form in the format of Table 2.2 below.

Table 2.2 Assessment criteria and scoring

Topic	Comment	Score/Formula
1) **Coverage/Scope**	How complete are PaMs data and information?	**$Score_{coverage}$ = average ($Score_{EEA}$, $Score_{gov}$, $Score_{Sector}$, $Score_{IPCC}$)**
a) Geographical coverage		**$Score_{EEA}$**
Number of EEA countries covered	How many EEA countries are covered out of the 33?	$Score_{EEA}$ (0 to 5)
Number of non-EEA countries covered	How many non-EEA countries are covered?	Doesn't enter in calculation

Topic	Comment	Score/Formula
b) Levels of governance		**$Score_{gov}$**
How many levels of governance are included?	international, supranational, national, region or city 1-5 with 5 = 100%	$Score_{gov}$ (1 to 5)
c) Sectoral coverage		**Average ($Score_{Sector}$)**
Agriculture	0 = no, 1 = poor, 2 = good	$Score_{sector1}$ (0 to 5)
Energy supply	0 = no, 1 = poor, 2 = good	$Score_{sector2}$ (0 to 5)
Energy use	0 = no, 1 = poor, 2 = good	$Score_{sector3}$ (0 to 5)
Industrial processes	0 = no, 1 = poor, 2 = good	$Score_{sector4}$ (0 to 5)
Land use, land use change, forestry	0 = no, 1 = poor, 2 = good	$Score_{sector5}$ (0 to 5)
Transport	0 = no, 1 = poor, 2 = good	$Score_{sector6}$ (0 to 5)
Waste	0 = no, 1 = poor, 2 = good	$Score_{sector7}$ (0 to 5)
Cross-sectoral PaMs	0 = no, 1 = poor, 2 = good	$Score_{sector8}$ (0 to 5)
d) Greenhouse gases (GHG)		**Average ($Score_{GHG}$)**
CO_2	0 = no, 1 = yes	$Score_{GHG1}$ (0 to 5)
N_2O	0 = no, 1 = yes	$Score_{GHG2}$ (0 to 5)
F-gases / NF_3	0 = no, 1 = yes	$Score_{GHG3}$ (0 to 5)
CH_4	0 = no, 1 = yes	$Score_{GHG4}$ (0 to 5)
2) Comprehensiveness	Are the following elements well described, elaborated or indicated?	**Average ($Score_{comprehensiveness}$)**
National circumstances/needs	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness1}$ (0 to 5)
targeted sector(s)	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness2}$ (0 to 5)
instrument type	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness3}$ (0 to 5)
implementation status	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness4}$ (0 to 5)
Implementation period	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness5}$ (0 to 5)
objective	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness6}$ (0 to 5)
description of PAM	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness7}$ (0 to 5)
implementing entity	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness8}$ (0 to 5)
link to legal text or policy or clear indication of reference to legal text or policy	0 = no, 1 = poor, 2 = good	$Score_{comprehensiveness9}$ (0 to 5)
3) Suitability for evaluation	What is the relevance of the information provided in view of further policy evaluation?	
a) Effectiveness		**$Score_{effectiveness}$ = average ($Score_{obj}$, $Score_{ES,ex-ante}$, $Score_{ES,ex-post}$, $Score_{other}$)**
a) Objectives		$Score_{obj}$ = Average ($Score_{obj}$)*
Policy objective(s) of PaMs identified	0 = no, 1 = poor, 2 = good	$Score_{obj1}$ (0 to 5)
Quantitative policy objective(s) referenced	0 = no, 1 = yes	$Score_{obj2}$ (0 to 5)
Non-quantitative policy objective(s) referenced.	0 = no, 1 = yes	$Score_{obj3}$ (0 to 5)
Is it possible to determine whether the PAM objective has been/ can be achieved?	0 = no, 1 = poor, 2 = good	$Score_{obj4}$ (0 to 5)
b) Expected energy savings or RES shares or GHG savings (ex-ante)		Average ($Score_{ex-ante}$)*
Qualitative	0 = no, 1 = poor, 2 = good	$Score_{ES,ex-ante1}$ (0 to 5)
Quantitative	0 = no, 1 = poor, 2 = good	$Score_{ES,ex-ante2}$ (0 to 5)
Comparable units of measure?	0 = no, 1 = yes	$Score_{ES,ex-ante3}$ (0 to 5)
Years covered.	0 = to 2020; 1 = to 2030; 2 = beyond 2030	Doesn't enter in calculation
Links to effects calculations/technical	0 = no, 1 = yes	$Score_{ES,ex-ante4}$ (0 to 5)

Topic	Comment	Score/Formula
reports/methodologies etc		
c) Achieved energy savings or RES shares or GHG savings (ex-post)		Average ($Score_{Ex\text{-}post}$)*
Qualitative.	0 = no, 1 = poor, 2 = good	$Score_{ES,ex\text{-}post1}$ (0 to 5)
Quantitative	0 = no, 1 = poor, 2 = good	$Score_{ES,ex\text{-}post2}$ (0 to 5)
Comparable units of measure	0 = no, 1 = yes	$Score_{ES,ex\text{-}post3}$ (0 to 5)
Years covered	0 = to current; 1 = since 2007; 2 = since 2005; 3 = since 1990	Doesn't enter in calculation
Links to effects calculations/technical reports/methodologies etc.	0 = no, 1 = yes	$Score_{ES,ex\text{-}post4}$ (0 to 5)
d) Other Effects		Average ($Score_{other}$)*
How well are impacts (i.e. long-term effects) not reflected in 3.a.1 - 3.a.5 covered?	0 = not covered, 1 = poorly covered, 2 = well covered	$Score_{other1}$ (0 to 5)
How well are results (i.e. short-term effects) not reflected in 3.a.1 - 3.a.5 covered?	0 = not covered, 1 = poorly covered, 2 = well covered	$Score_{other2}$ (0 to 5)
How well are outputs not reflected in 3.a.1 - 3.a.5 covered?	0 = not covered, 1 = poorly covered, 2 = well covered	$Score_{other3}$ (0 to 5)
Are indicators provided measuring effects?	0 = no, 1 = poor, 2 = good	$Score_{other4}$ (0 to 5)
Information on effects for other non-energy sectors (e.g. Agriculture, waste and LULUCF)	0 = no, 1 = poor, 2 = good	$Score_{other5}$ (0 to 5)
b) Efficiency		**$Score_{efficiency}$ = Average ($Score_{costs,ex\text{-}ante}$,, $Score_{costs,ex\text{-}post}$, $Score_{output}$)***
a) Financial inputs: costs Projected (Ex-ante)		Average ($Score_{costs,ex\text{-}ante}$)*
Quantitative data	0 = no, 1 = poor, 2 = good	$Score_{costs,ex\text{-}ante1}$ (0 to 5)
Comparable units of measure	0 = no, 1 = yes	$Score_{costs,ex\text{-}ante2}$ (0 to 5)
Years covered	0 = to 2020; 1 = to 2030; 2 = beyond 2030	Doesn't enter in calculation
Are the costs well links to benefits and are they well documented etc.	0 = no, 1 = yes	$Score_{costs,ex\text{-}ante3}$ (0 to 5)
Are indicators identified measuring efficiency ex ante?	0 = no, 1 = yes	$Score_{costs,ex\text{-}ante4}$ (0 to 5)
b) Financial inputs: costs incurred (Ex-post)		Average ($Score_{costs,ex\text{-}post}$)*
Quantitative data	0 = no, 1 = poor, 2 = good	$Score_{costs,ex\text{-}post1}$ (0 to 5)
Comparable units of measure?	0 = no, 1 = yes	Score $\%_{costs,ex\text{-}post2}$ (0 to 5)
Years covered.	0 = to current; 1 = since 2007; 2 = since 2005; 3 = since 1990	Doesn't enter in calculation
Are the costs well links to benefits and are they well documented etc.	0 = no, 1 = yes	$Score_{costs,ex\text{-}post3}$ (0 to 5)
Are indicators identified measuring efficiency ex-post?	0 = no, 1 = yes	$Score_{costs,ex\text{-}post4}$ (0 to 5)
c) Outputs / implementation indicators		Average ($Score_{output}$)
Is there information on the achieved and expected outputs of the policy (e.g. number of installations, GWh installed, homes insulated etc.)	0 = no, 1 = poor, 2 = good	$Score_{output1}$ (0 to 5)
Are indicators identified measuring outputs?	0 = no, 1 = poor, 2 = good	$Score_{output2}$ (0 to 5)
c) Relevance		**Average ($Score_{relevance}$)***
Are the needs justifying the PAMs described?	0 no, 1 = poor, 2 good	$Score_{relevance1}$ (0 to 5)
Is there a catalogue of references of the evidence explaining needs for policy action?	0 = no, 1 = poor, 2 good	$Score_{relevance2}$ (0 to 5)

Topic	Comment	Score/Formula
d) Coherence		**Average ($Score_{coherence}$)**
Is quantitative evidence (data) available on side effects (+ / -) of PaMs (external coherence)? How good is the evidence?	0 not available, 1 = poor evidence, 2 good evidence	$Score_{coherence1}$ (0 to 5)
Is qualitative evidence (information) available on side effects (+ / -) of PaMs (external coherence)? How good is the evidence?	0 not available, 1 = poor evidence, 2 good evidence	$Score_{coherence2}$ (0 to 5)
Which policy areas other than climate, energy and environment policy are considered under external coherence aspects		doesn't enter calculation
Information on other benefits (e.g. jobs, economy)		doesn't enter calculation
4) Reliability		**Average ($Score_{reliability}$)***
Official data reporting?	0 = no, 1 = voluntary, 2 = mandatory	$Score_{reliability1}$ (0 to 5)
Summarise the requirements	Text	doesn't enter calculation
From projects and/or non-official sources	0 = no, 1 = poor, 2 = good	$Score_{reliability2}$ (0 to 5)
Are relevant stakeholders engaged with the data?	0 = no, 1 = poor, 2 = good	$Score_{reliability3}$ (0 to 5)
Collated from multiple official and unofficial sources. Lots of different sources?	0 = no, 1 = poor, 2 = good	$Score_{reliability4}$ (0 to 5)
Are there data supplier QA/QC agreements and is the data checked or verified by the supplier/country?	0 = no, 1 = poor, 2 = good	$Score_{reliability5}$ (0 to 5)
Is there internal QA/QC of the data?	0 = no, 1 = poor, 2 = good	$Score_{reliability6}$ (0 to 5)
Is there a consultation process/ peer review/ stakeholder review on the data?	0 = no, 1 = peer review or stakeholder review, 2 = peer review and stakeholder review	$Score_{reliability7}$ (0 to 5)
Are there standard formats and definitions for reporting?	0 = no, 1 = poor, 2 = good	$Score_{reliability8}$ (0 to 5)
Are reported data compiled and presented using consistent methodologies	0 = no, 1 = poor, 2 = good	$Score_{reliability9}$ (0 to 5)
5) Timeliness		**$Score_{timeliness}$**
How frequently is the data and information updated?	0 = never, 1 = ad-hoc, 2 = minimum biennially, 3 = minimum annually	$Score_{timeliness}$ (0 to 5)
6) Accessibility	How well can users access the data?	**Average ($Score_{accessibility}$)***
Is the database publicly accessible online?	0 = No, 1 = Yes	$Score_{accessibility1}$ (0 to 5)
Is access free?	0 = No, 1 = partial, 2 = all	$Score_{accessibility2}$ (0 to 5)
Can the database be queried online via a user interface?	0 = No, 1 = some parameters, 2 = all parameters	$Score_{accessibility3}$ (0 to 5)
Bulk download of the full database?	0 = No, 1 = partial, 2 = all including bulk download	$Score_{accessibility4}$ (0 to 5)
How many users access the database? (if available)		doesn't enter the calculation
What kind of users access the database? (if available)	select: research expert, policy maker, media, public, education	doesn't enter the calculation
User outputs and contributions? Can users build interfaces and contribute to the system?	0 = No, 1 = Yes	$Score_{accessibility5}$ (0 to 5)
Is the data/information source available and accessible	0 = No, 1 = Yes	$Score_{accessibility6}$ (0 to 5)

* Average calculated taking into account differentiated weights of the subcriteria.

2.3.2 Overlaps and complementarity with EEA PaMs database

Following the analysis and data gathering for the individual PaMs data sources above the team assessed overlaps and complementarity of these data sources with the EEA PaM database. This analysis is used to:

- highlight useful data sources to complement the EEA PaMs database for the purpose of assessing specific PaMs;
- help improve the usefulness and usability of the EEA PaMs database and viewers/databases.

Overlaps

Where there appears to be a duplication (overlap) of information (for instance a similarity in scope) with the EEA PaM database, a series of observations highlighted where the EEA PaM database is superior or inferior to the other data sources, as well as key differences with regard to transparency, accuracy and accessibility, and why. Opportunities were also highlighted where data of similar scope but from different data sources can be used for QA/QC (e.g. for comparison and verification) of the EEA PaM database.

Complementarity

The PaM data sources that complement the EEA PaM database by providing useful information and insights that are not in the EEA PaM database are identified. This could include information on energy savings/renewables that could help to improve the accuracy of assessments of PaMs.

3 Results

Three of the 14 data sources analysed are databases for legislative acts (EURLex, RES Legal and FAOLex), so they have a different approach, objective and target audience than the other data sources considered. The NEEAP, NREAP, NEC, Covenant of Mayors and LCDS are action plans or national programmes, that include individual PaMs.

There is also a difference in approach to present the information. Some data sources are PaM databases, providing information often in well-structured and searchable way (for example the EEA PaM database, IEA and OECD). Other data sources could be considered more as repositories for individual reports, such as the NC, NEEAP and NREAP. The data sources EurObserv'ER, MURE, OECD and IEA have a more intermediary approach and combine a database (even extensive for MURE, OECD and IEA) with country reports on PaMs.

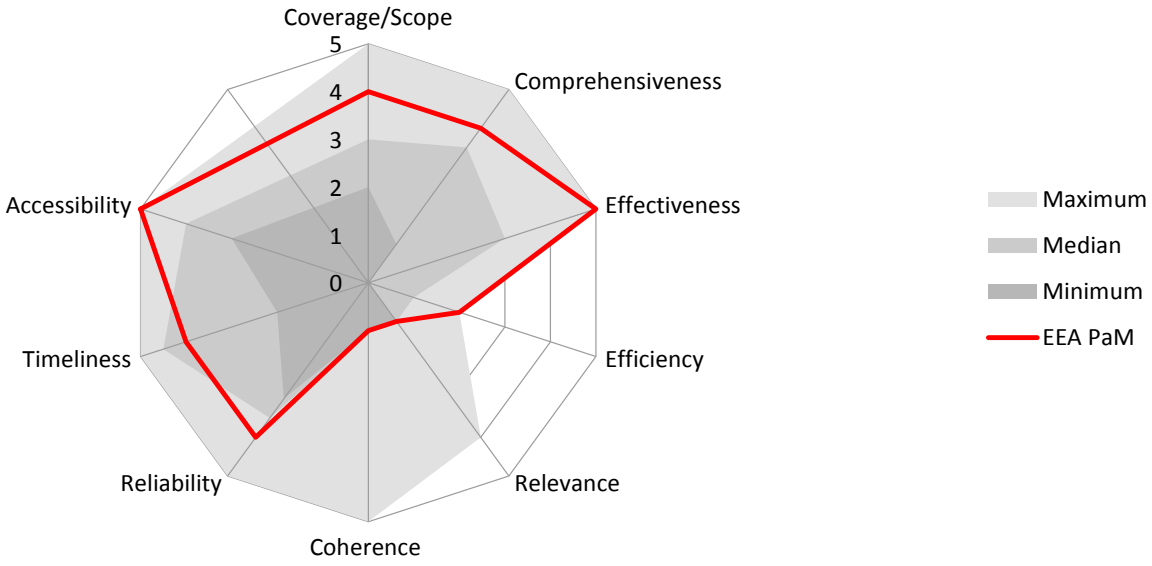
The EEA PaM database scores above average for most criteria, except timeliness. Suitability for evaluation scores low for all data sources. There are numerous assessment criteria for each element that is important for evaluation: effectiveness, efficiency, relevance and coherence and none of the database provided information on all of these criteria in a way that would give them a high score. This does not mean however that the data sources cannot be used for evaluation (see also 3.2.3.).

Table 3.1 Mapping of PaM data sources on approaches.

	Database	Mix	Reports*
Legal acts	EUR-Lex FAOLEX RES Legal		
PaMs	EEA PaM	EurObserv'ER IEA MURE OECD	NC and BR NEC NREAP NEEAP
Action Plans		CoM	MMR LCDS

* Information on PaMs only available in a report and not database structure.

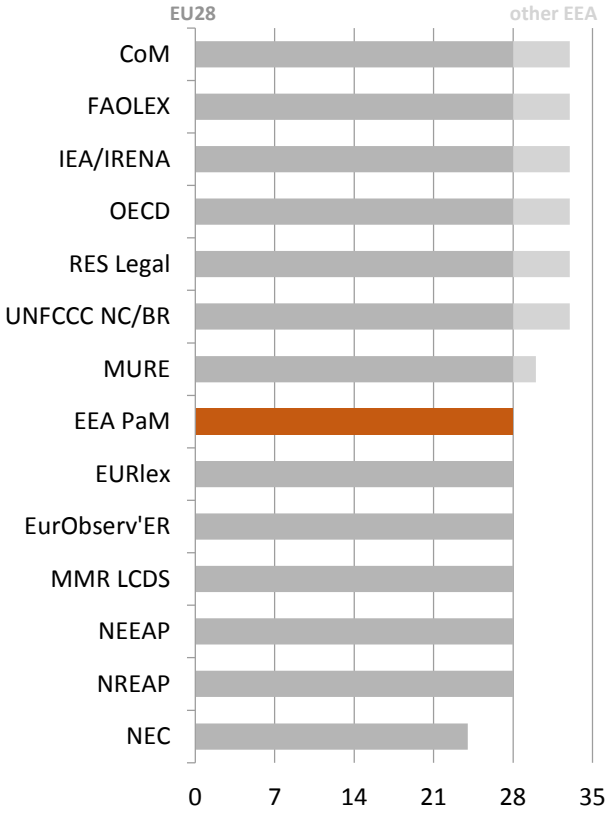
Figure 3.1 Average, minimum, maximum and EEA PaM database scores.



3.1 Coverage/Scope

Most of the databases or information sources focus on the EU Member States. Six of the information sources cover all the EEA countries.

Figure 3.2 Number of EEA countries covered in the information sources.

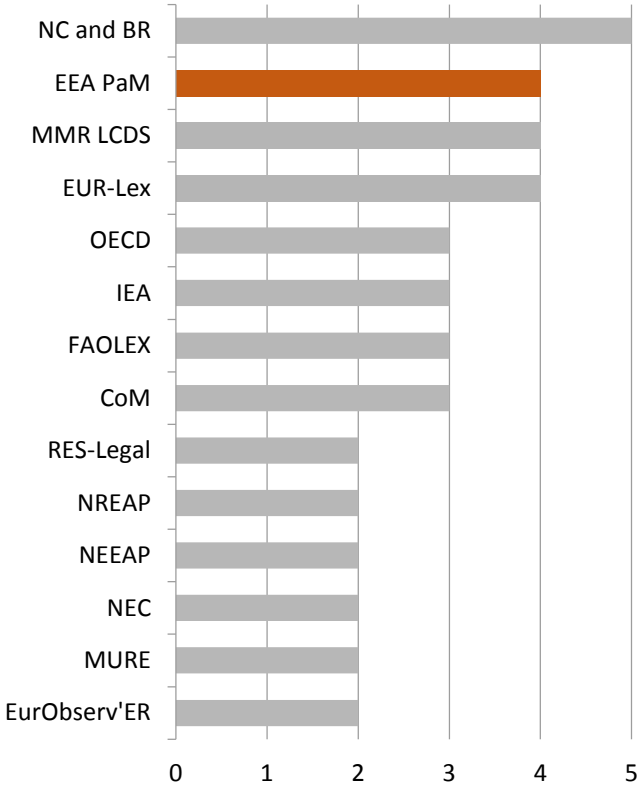


The level of governance varies depending on the target audience or the data source. However, almost all sources of information focus primarily on national policies (or regional, if regional governments have a significant responsibility in energy and climate policies). Additionally a number of information sources include EU policies explicitly (i.e.). Policies at local and international level are largely overlooked. The exception to this is the Covenant of Mayors that focuses only on local initiatives. The EEA PaM database can include PaMs that are implemented at the local level, although few PaMs have been reported.

The majority of the data sources are not designed for monitoring GHGs, therefore the GHG emissions are mainly mentioned as a side effect.

The division in sectors in the EEA PaM database comes from the reporting of GHG inventories under the UNFCCC, and does not necessarily follow the same outline by the other information sources. Most of them consider energy supply and use as well as transport, but other sectors like agriculture are rarely included. A good coverage of the sectors LULUCF and waste is just given in two information sources.

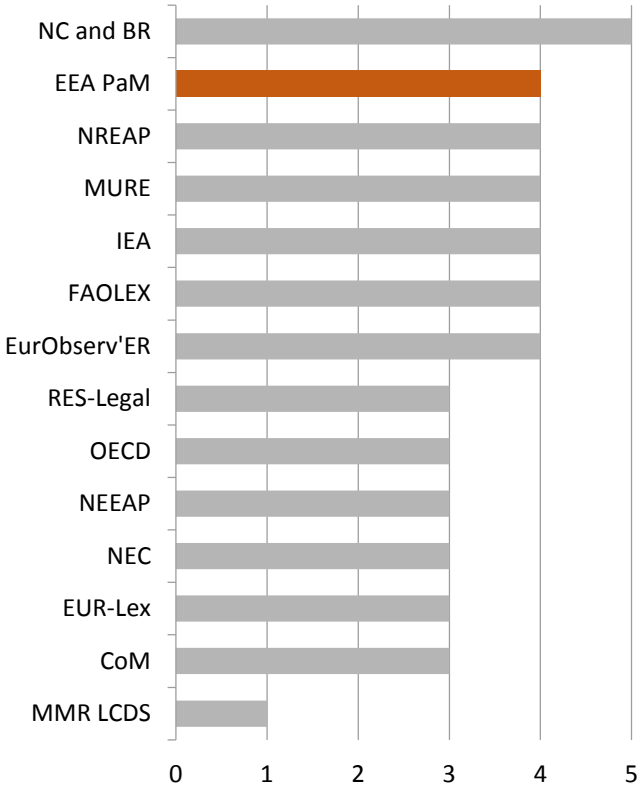
Figure 3.3 Comparison data sources on coverage and scope



3.2 Comprehensiveness

Most databases scored very high on the comprehensiveness of the information that was provided. There are two notable exceptions, the LCDS and the EURLex database. The reason is that the LCDS do not have to contain very detailed descriptions of individual PaMs. The EURLex database does not contain much information, but is rather a means to search for European legal texts. All other information sources score high to very high. The National Communication contains the most comprehensive data, because it includes both detailed descriptions of individual PaMs and national circumstances.

Figure 3.4 Comparison data sources on comprehensiveness



3.3 Suitability for evaluation

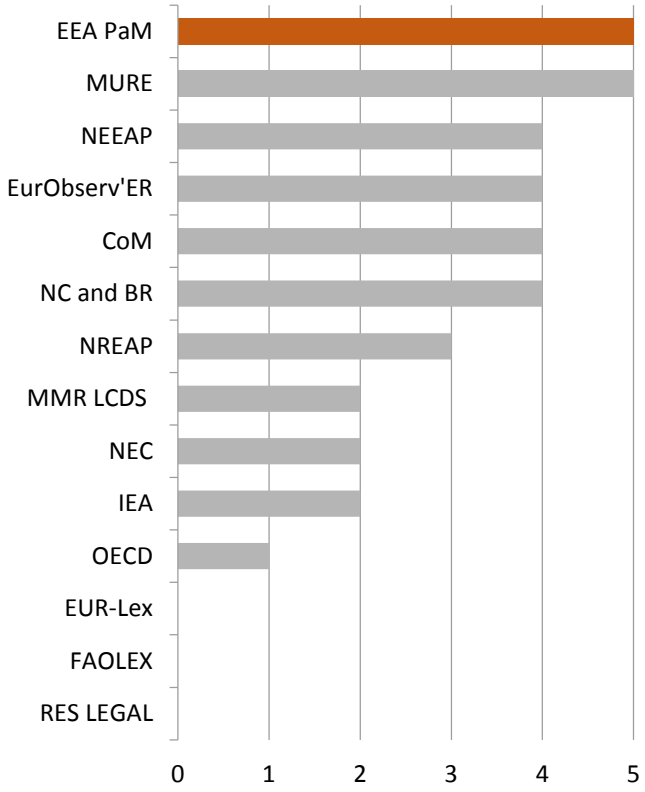
The evaluation of objectives was carried out under the aspect that the highest scoring was given, when information should be available in the data source (based on the provided templates or the requirements). Policy objective of PaMs were scored on their degree of definition. The achievement of the objectives bases on the possibility to clearly figure out inside the data source. References to quantitative and non-quantitative policy objectives were scored, if in the requirements. Only one data source fully reached the score and two of the data sources with a strong focus on legislative instruments scored zero.

3.3.1 Effectiveness

The evaluation of energy savings or RES shares or GHG savings was carried out under the aspect, that the highest scoring for the quantitative part was given, when the savings were defined in numbers or percentage referenced. In general there is more information on ex-post savings than ex-ante in the data sources included. The reason for this is that several databases provide aggregated impacts of PaMs on energy consumption and renewable energy sources, such as the EurObserv'ER, IEA and MURE/Odyssee databases.

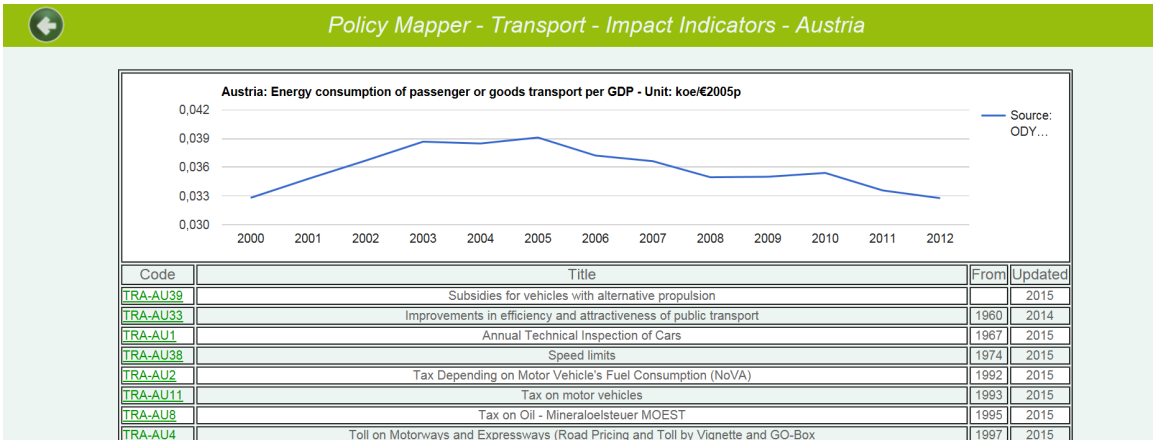
The part "other effects" (see Table 2.2) is poorly covered in the most data sources. If there are other effects mentioned they mainly belong to financial issues. The only exceptions are the provided indicators.

Figure 3.5 Comparison data sources on suitability for evaluating effectiveness.



Box 3.1 Good practice: MURE links between PaMs and impact

The policy mapper option in the MURE database gives a visual representation of which national PaMs target the same end-use class. This is linked to quantitative data from the Odyssee database and to a specific impact indicator (e.g. energy consumption per GDP) and/or diffusion indicator (e.g. share of efficient cars).



Code	Title	From	Updated
TRA-AU39	Subsidies for vehicles with alternative propulsion		2015
TRA-AU33	Improvements in efficiency and attractiveness of public transport	1960	2014
TRA-AU1	Annual Technical Inspection of Cars	1967	2015
TRA-AU38	Speed limits	1974	2015
TRA-AU2	Tax Depending on Motor Vehicle's Fuel Consumption (NoVA)	1992	2015
TRA-AU11	Tax on motor vehicles	1993	2015
TRA-AU8	Tax on Oil - Mineraloelsteuer MOEST	1995	2015
TRA-AU4	Toll on Motorways and Expressways (Road Pricing and Toll by Vignette and GO-Box	1997	2015

3.3.2 Efficiency

All information sources score low on their suitability of efficiency. Although several (such as EEA PaM database and OECD) include quantitative information on financial costs of PaMs, usually

reporting is very incomplete. This is the case for the EEA PaM database, where few Member States provide information on the cost (and benefits) of PaMs. For the OECD (Box 3.2) more extensive information is available, although this is limited to certain instrument types.

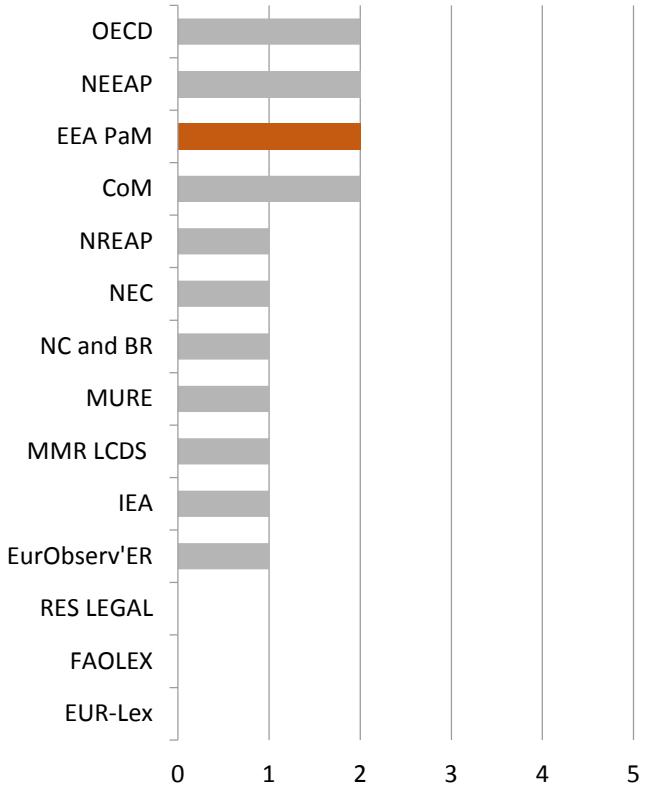
Box 3.2 Good practice: OECD reporting on costs

The OECD database on environmental PaMs standard includes information on administrative costs of PaMs and other relevant information to assess the cost of a PaM (such as height of subsidies).

Denmark

Name of the whole subsidy scheme :	**# -- General subsidy for environmental auditing**
Name of this part of the scheme :	Grant for environmental auditing
Type of subsidy (grant, soft loan, etc.) :	Grant
Additional details concerning the subsidy type :	
Criteria used to determine the size of the subsidy :	
Links to other policy instruments :	
Tax or Charge to which this part is explicitly linked :	
Additionals details on the tax-charge linkage :	
Is it explicitly linked to any other policy instruments :	
Additionals details on the linkage :	
Costs and other details :	
Administrative costs of this part of the system :	
Other comments concerning this part of the system :	DKK 12 million; 33 applicants, 42% granted (1997).

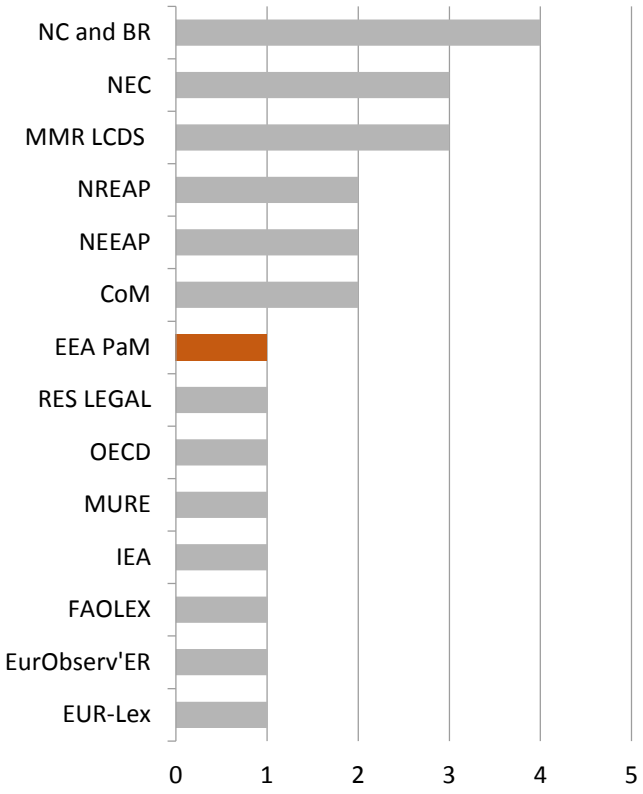
Figure 3.6 Comparison data sources on suitability for evaluating efficiency.



3.3.3 Relevance

Relevance looks at the relationship between the needs and problems in society and the objectives of the intervention. It asks for the problem drivers and their translation into objectives. Evaluating relevance thus demands a good understanding of the national, local, … circumstances that the PaM is addressing. Often this information is not available in the description of a PaM but often requires information on a more general level. This is also reflected in the information sources that score particularly well in this respect: the NC and BR, CoM, LCDS, NEEAP and NREAP.

Figure 3.7 Comparison data sources on suitability for evaluating relevance.

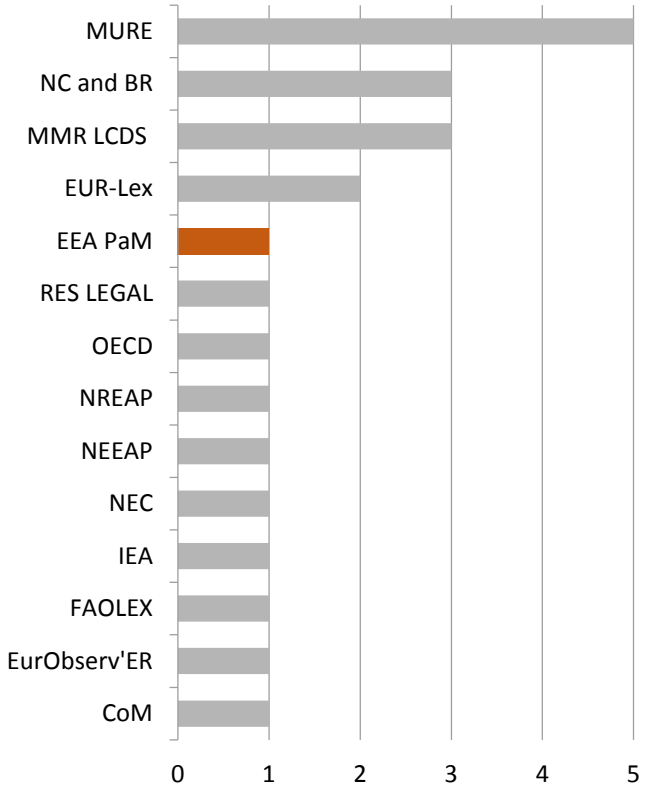


3.3.4 Coherence

The evaluation of coherence involves looking at a how well or not different actions work together. Checking "internal" coherence means looking at how the various internal components of an intervention operate together to achieve its objectives e.g. the different articles of a piece of legislation, different actions under an action plan ... This involves a clear understanding of the nature and characteristics of the PaM. Similar checks can be conducted in relation to other ("external") interventions, at different levels: for example, between interventions within the same policy field or in areas which may have to work together (e.g. agriculture policy and climate policy). At its widest, external coherence looks at compliance with EU and international commitments.

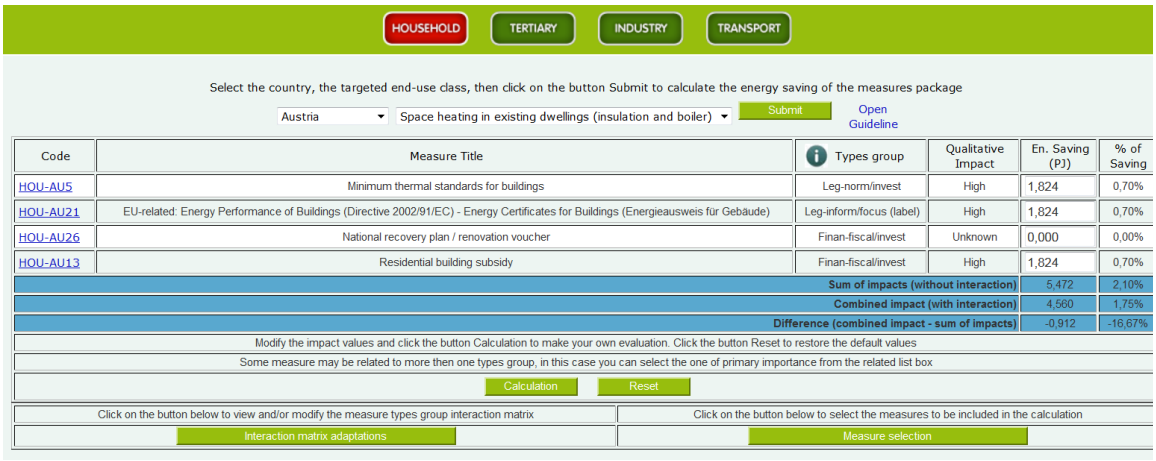
In this assessment we focused on the external coherence of the PaM, i.e. if the information sources provided information that enables to understand the relationship with other PaMs. Up to a certain level all information sources provide information that can be used to evaluate this, as interacting PaMs can be identified based on the description, objective, … However, few information sources provide qualitative or quantitative information on the interactions between PaMs. The MURE database scores by far best as it provides qualitative and quantitative estimates of interactions among PaMs.

Figure 3.8 Comparison data sources on suitability for evaluating coherence.



Box 3.3 Good practice: MURE reporting on PAM interactions

In the MURE database, quantitative information on interacting effects of PaMs is available. This enables characterising packages of PaMs and their interactions. In the MURE database the impact of policy measures is provided, for each policy measure separately. When more policy measures have influence on the same targeted end-use, the combined effect may not fit with the sum of the individually specified impacts. The report describes how mutually consistent impacts for packages as well as individual policy measures can be determined in the MURE database.



3.4 Reliability, timeliness and accessibility

The reliability of data sources are clearly higher for frequent reporting by Member States, such as the NC (Box 3.4) and the EEA PaM database, that are also coupled to a QA/QC or review procedure to check reported information. Low scores on reliability can to some extent be explained by the fact that certain assessment criteria are not relevant. This is particularly the case for the EURLex database.

The score on timeliness differs considerable among data sources. Some data sources provide very up to date information, such as RES Legal and EURLex. The EEA PaM database scores medium, as data is only updated biennially for all Member States. Member States should report important changes in their PaMs annually.

Box 3.4 Good practice: review of National Communications

The UNFCCC has well-established procedures and review guidelines for in-depth reviews of both National Communications and Biennial Reports by teams of international experts. The review of each NC typically involves a desk-based study and an in-country visit, and aims to provide a comprehensive, technical assessment of a Party's implementation of its commitments under the Convention. This review includes, but is not limited to, the policies and measures that have been implemented.

Figure 3.9 Comparison data sources on reliability

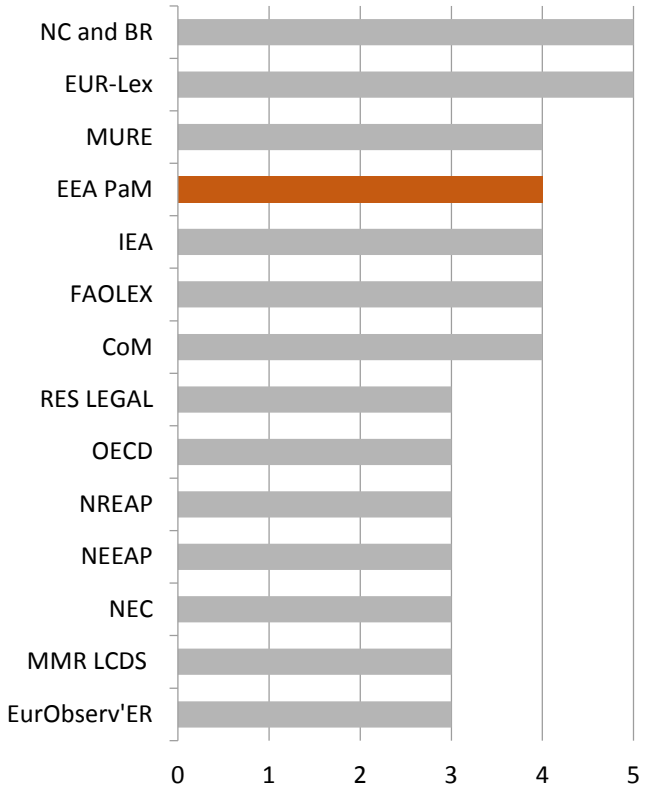


Figure 3.10 Comparison data sources on timeliness

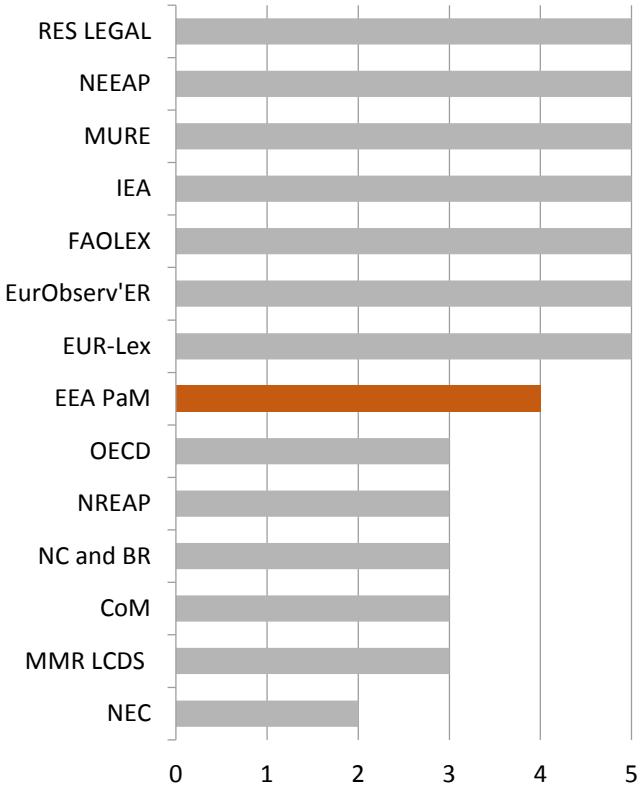
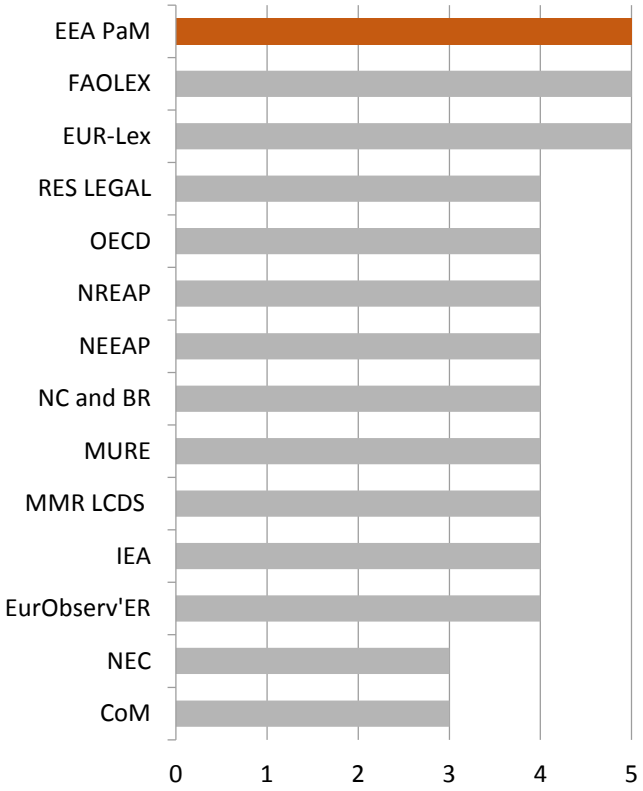
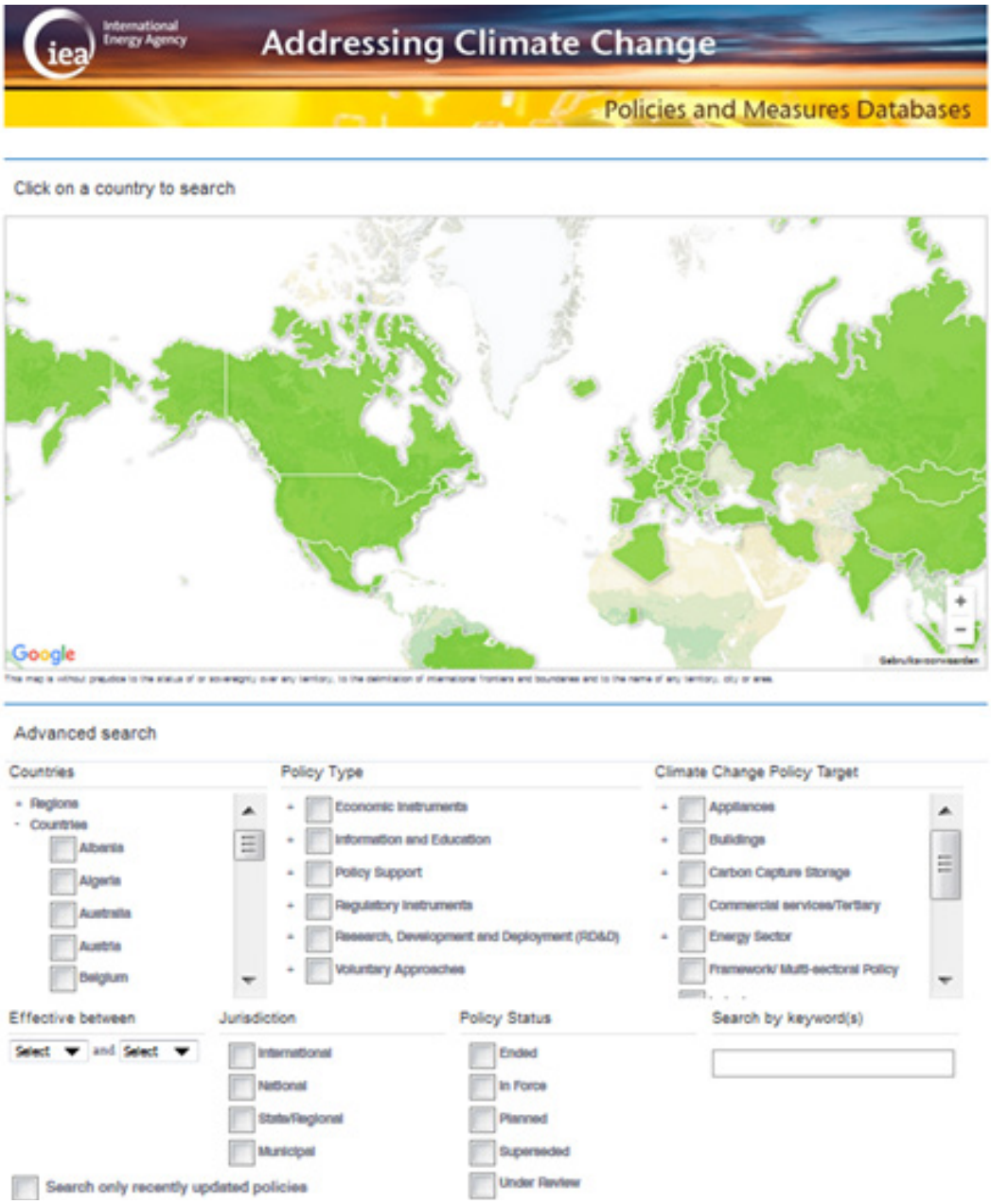


Figure 3.11 Comparison data sources on accessibility



Box 3.5 Good practice: IEA interface

The IEA interface is very user friendly. Users can select options from dropdown lists with extensive information. This gives a large amount of control.



3.5 Overlaps and complementarity of information to support policy evaluation

Overlaps and complementarity of the analysed data sources with the EEA PaM database are assessed, with an emphasis on the information that is required to evaluate PaMs on effectiveness, efficiency, relevance and coherence.

PaMs. There are differences among the information sources with respect to the PaMs that are being addressed. There are information sources that particularly stand out, namely the Covenant of Mayors, EURLex and the MMR LCDS. The Covenant of Mayors is different as it is the only information source focusing solely to local initiatives. The PaMs are included in an action plan (sustainable energy action plans or SEAP) but specific information on some PaMs is also included as "benchmarks". The EURLex on the other hand focuses only on EU PaMs.

Despite the fact that most other databases focus on national PaMs there are significant differences among them and PaMs that can be found in one information source cannot necessarily be found in another. Some of the differences can be explained by differences in coverage (for instance whether it focuses on climate, renewable energy or energy efficiency) but there appear to be other differences as well. For instance Austria has 19 PaMs listed in the MURE policy database and 44 PaMs in the IEA energy efficiency database.

General understanding of the PaM. There is considerable overlap between the analysed data sources and the EEA PaM database for certain information. Especially the information to define a PaM (objective, description, sector, implementation status, implementing entity, instrument type) is in most data sources included. Some data sources (MURE database) give a more extensive description of the PaM than the EEA PaM database. The MMR however specifically requests Member States to report a short description of the PaM.

Relevance. To evaluate the relevance of the PaM, information is needed that makes analysis possible of the relationship between the PaM and the circumstances (i.e. is the intervention still relevant, do the objectives still correspond to the needs that want to be addressed). The EEA PaM database lacks information on the circumstances and the specific needs the PaM addresses to evaluate this question. Other data sources such as the NC, NEEAP and NREAP, do provide more detailed information and complement the EEA PaM database in this respect.

Effectiveness. Evaluation of the effectiveness of PaMs looks specifically at how the PaM resulted in, ultimately, GHG reductions. In the first place, this requires quantitative information on the impact of the PaM, not only on GHG emissions but also on the effects and impacts of the PaM. The EEA PaM database already has information on ex-post and ex-ante impacts of individual or grouped PaMs. The reporting by Member States in the EEA PaM database is however far from complete, especially for ex-post emission savings, and so there remain considerable data gaps. Where information is missing, this could be complemented with information from the NC and BR, although quantified emission savings are also not for all PaMs available.

The principal objective of a PaM does not have to be a reduction in GHGs, but could be improving energy efficiency or reducing waste. Quantitative information on this can be reported by Member States as an indicator. This is possible in the EEA PaM database, but again, reporting is very incomplete and inconsistent. Other data sources providing qualitative information could complement the EEA PaM database. This is particularly the case for the MURE/Odyssee database, the NEEAP and NREAP reports and EurObserv'ER.

Efficiency. The efficiency of the PaM compares the impact of the PaM with the cost or resources that are needed. Information on costs of PaMs is very scarcely included in the different data sources. The EEA PaM database does include information on this, but this has been reported only in a limited number of cases by Member States and very inconsistently. The OECD database seems to have the most extensive information related to the costs of the PaMs, although this is often limited to subsidies and grants, and not for other instrument types.

Coherence. This assesses to what extent PaMs are coherent with other PaMs of the Member State (with similar objectives), with EU policy and are internally coherent. This requires information on the relationship, qualitative and/or quantitative, between different PaMs at different levels of organisation. With the EEA PaM database it is possible to identify all related PaMs (that have a

similar objective), which is the basic information needed for evaluating coherence. There is also a link to EU policy, although this only needs to be identified when PaMs have been implemented in direct response to EU policy. The MURE database has features that looks in great detail to the interaction between national PaMs.

The completeness of the databases is not analysed, which could mean that a PaM that is included in the EEA PaM database is not included in one of the other data sources, or vice versa.

This analysis shows that different data sources considered here could provide complementary information to the EEA PaM database to assess effectiveness (by providing information on non-GHG impacts, e.g. via NEEAP, NREAP or MURE), efficiency (by providing information on costs, e.g. via OECD), relevance (by providing information on national circumstances, e.g. via NC and NEEAP) and coherence (by providing links between the PaM and other national and EU PaMs, e.g. via MURE).

Table 3.2 Complementarity of different information sources to the EEA PaM database for the evaluation of PaMs

	Effectiveness	Efficiency	Relevance	Coherence	Comment
NC and BR	+	-	++	++	The EEA PaM database scores low on evaluation of relevance and coherence, two criteria that are covered better by the NC and BR. Moreover, there is probably better match between PaMs in EEA database and NC and BR, than any of the other information sources considered here.
MURE	+	+	-	++	The MURE database includes both quantitative and qualitative assessment of interactions between PaMs.
OECD	-	++	-	-	The largest added value of OECD database is for evaluating efficiency. But information is limited to certain instrument types.
IEA	-	-	-	-	Probably large overlap in information from EEA PaM database and IEA databases.
NEEAP	++	-	+	+	For both NEEAP and NREAP, largest complementarity could be on effectiveness, but also on relevance and coherence the NEEAP and NREAP could include additional information on the relationship between the objective and societal needs and on the link between the PaM and other national and EU PaMs.
NREAP	++	-	+	+	See NEEAP.
CoM	-	-	-	-	Complementarity is low because the PaMs are inherently different.
MMR LCDS	-	-	+	+	Complementarity is low. For evaluation of relevance and coherence of PaMs, understanding long-term strategy could yield new insight.
EUR-Lex	-	-	-	+	Added value mainly in evaluating coherence (with EU policy).
RES legal	-	-	-	-	In case PaM is included in RES Legal, description could be more detailed in RES Legal database.
FAOLEX	-	-	-	-	The complementarity of the FAOLEX database with the EEA PaM database is limited.
NEC	-	-	-	-	Little complementarity with NEC database.
EurObserv'ER	+	-	-	-	Information is largely the same as in NREAP. The RES barometer reports could provide some additional and recent trends in renewable energy development.

4 Recommendations

The reporting requirements on which the EEA PaM database is build, is fixed in the MMR and implementing regulation of the MMR. The recommendations presented below have taken this into account and therefore do not recommend expanding reporting beyond the scope of what the MMR prescribed.

- The EEA PaM database performs better than other, similar, information sources. This is particularly the case for ex-ante emission savings. The EEA PaM database also offers more reliable data than other information sources. It is evident though that for certain evaluation criteria, relevance and coherence, the information is not sufficient for PaM evaluation.

- There are differences among Member States in how information on PaMs is presented in completeness.

- From our assessment, all information for PaM evaluation is not readily available in the EEA PaM database. Especially quantitative information that is PaM specific is often missing. The EEA PaM database does include ex-post and ex-ante emission savings, indicators and costs and benefits of PaMs. The reporting on these elements is however very incomplete, especially on ex-post emission savings, costs and benefits. **Improving the completeness of reporting** by Member States would fill a clear data gap, that other information sources do not provide.

- Apart from the mandatory reporting on climate PaMs, Member States have to fulfil other reporting obligations, such as for NEEAPs and NREAPs. This information could already be used to **complete the information in the EEA PaM database**, most importantly on relevant indicators on effectiveness. Cross-checking information from different information sources could also be used to complete the reporting of Member States.

  There are several studies ongoing on how reporting in the energy, climate and environment domain could be streamlined. This could not only reduce the administrative burden for Member States, but could also harmonise and improve the completeness of reporting.

- To evaluate PaMs, not only information is needed that is specifically applicable to the PaM but also information on the policy context and the national circumstances is needed. **Linking PaM data more to other datasets** that are already available (e.g. inventory data and projections data) would make the link between PaMs and changes in emissions more explicit).

Annex 1: Results of individual PaM data sources

EEA PaM database

Description

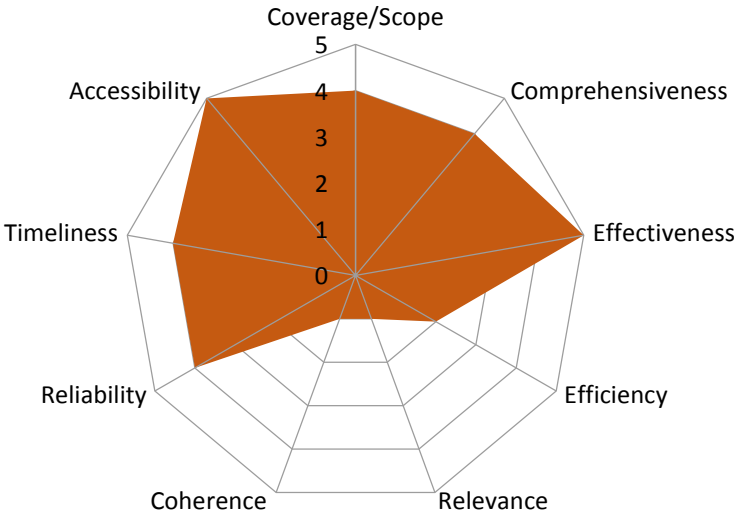
Following Article 13 of the MMR, Member States shall report by 15 March 2015, and every two years thereafter, information on national climate PaMs and on the implementation of Union PaMs presented on a sectoral basis. Mandatory information to be reported by the Member States are the objectives and a short description; the type of policy instrument; the status of implementation; indicators to monitor and evaluate progress over time (where used); quantitative ex-post or ex-ante estimates of emission savings (where available), estimates of the projected or realised costs and benefits (where available), and all references to the assessments and the underpinning technical reports (where available).

The reporting requirements are further elaborated in Article 22 and Annex XI of the implementing regulation of the MMR (749/2014/EC). Reporting is done by Member States that are requested to submit information on their PaMs using an ad-hoc online webtool. The ETC/ACM checks the reports on accuracy, consistency, comparability, transparency and timeliness and compiles them into a single database.

Link: http://PaM.apps.eea.europa.eu

Assessment

Figure A1.1 Outcome of EEA PaM database assessment



Coverage/Scope: 4/5. The EEA PaM database covers all EEA countries, although reporting is only mandatory for EU Member States and other countries seldom provide information. The EEA PaM database covers all sectors and GHGs. The database only includes national PaM at central, regional and local level, but not actions at European or international level. Although EU policies are not included in the database individually, the national policies resulting from the transposition or implementation of EU policies are.

Comprehensiveness: 4/5. The database includes a description of the covered sectors, instrument type, implementation status and period, objective, description and implementing entity. The national circumstances and needs that the PaM addresses are not reflected in the EEA PaM database, other than the information that is provided in the description of the PaM.

Effectiveness: 5/5. The score on the information needed to evaluate effectiveness and efficiency is relatively high. The database records information on emission savings both ex-post and ex-ante and on indicators.

Efficiency: 2/5. To assess efficiency, information on costs, both ex-post and ex-ante should be reported by Member States, when available. However, to date few Member States have reported quantitative information and the information that has been reported differs considerable in outcome.

Relevance: 1/5. With respect to information needed to evaluate relevance and coherence, the EEA PaM database scores low. Although the database provides information on the PaMs, information to assess relevance and coherence of individual PaMs are not addressed well.

Coherence: 1/5. The report as such provides an overview of all climate PaMs within a country and therefore can be used to look at coherence of a single PaM within this context. Reporters should also identify the EU policy that is linked to the national PaM. Apart from this basic information, there is little that contributes to evaluation of coherence.

Reliability: 4/5. The database includes formally and officially reported data of Member States under the MMR and thus scores highly for reliability. Data are generally peer reviewed and have QA/QC performed with consultation when received by EEA. The fact that multiple countries report however does imply that there is less consistency across PaMs of different countries.

Timeliness: 4/5. Reporting is mandatory every 2 years, so there is scope for data to be out of date compared to policies in the MS. In case of substantial changes however, Member States are requested to submit updated information to the Commission annually.

Accessibility: 5/5. The information in the database has very good accessibility. The whole database is shared online, free of charge, and downloadable. Apart from the user interface hosted at the EEA website, most of the original reports can be accessed via ReportNet. The EEA PaM database can easily be searched by users via drop-down menus and search results can be downloaded in bulk in either tsv of csv format. The information is presented in a tabular format.

Low carbon Development Strategies (LCDS)

Description

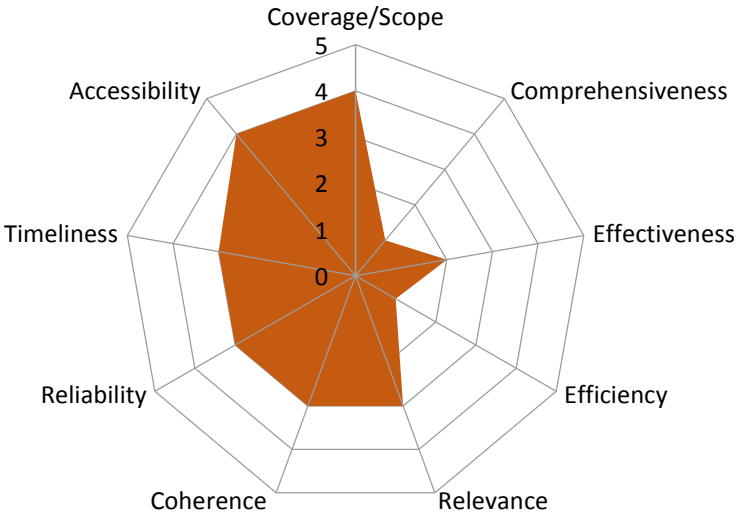
Following Article 4 of the MMR, Member States, and the Commission shall prepare their low-carbon development strategies in accordance with any reporting provisions agreed internationally in the context of the UNFCCC process. Member States have to report the status of implementation of their LCDS by 9 January 2015 or in accordance with any timetable agreed internationally in the context of the UNFCCC process to the Commission. These low-carbon development strategies have to be made available to the public. Additionally, Member States must report updates relevant to their LCDS and progress in implementing those strategies every two years thereafter.

Member States shall report on updates of their LCDS referred to in Article 13 of the MMR, including information concerning: the objective and a short description of the update carried out; the legal status of the LCDS; the changes and expected impacts of the update on the implementation; the timeline and a description of the progress for the implementation, and an assessment of the projected costs and benefits associated with the update (where available); the manner in which the information is made available to the public. To this end a template has been developed.

Link: http://rod.eionet.europa.eu/obligations/700/deliveries

Assessment

Figure A1.2 Outcome of the LCDS assessment



Coverage/Scope: 4/5. All Member States had to submit to the Commission a LCDS before 9 January 2015, for the first time. The LCDS cover all sectors, GHGs and different levels of organisation, so the score on coverage is high.

Comprehensiveness: 1/5. The comprehensiveness of the LCDS scores low because the LCDS do not have to include extensive and detailed description of the specific PaMs that contribute to the LCDS. More so than for any of the other information sources assessed, there is significant variability among Member States in the comprehensiveness of their LCDS. This makes evaluation particularly difficult. In general, the LCDS are vague with respect to the PaMs that will contribute towards the low carbon development. In most cases it does provide a good description of the state-of-play in the Member State and provides an insight as to what are the Member States long term objectives, which could contribute to understanding the policy context.

Effectiveness: 2/5. The assessment of suitability for evaluation is hampered by the significant differences among Member States with respect to their LCDS. Some have submitted studies, others just links to related studies and strategies. By nature, the LCDS are also forward looking and do not include specific PaMs to achieve these long-term targets. As such, the LCDS are not a suitable data sources to the EEA PaM database to evaluate specific PaMs. Due to the objective of the LCDS, the strategies focus on ex-ante impacts. For ex post evaluation there is however little information to assess effectiveness.

Efficiency: 1/5. Cost effectiveness is an important element of all LCDS. Costs are mostly described as additional costs to achieve long term targets, rather than costs of specific PaMs.

Relevance: 3/5. The relevance is covered in most LCDS, as national circumstances are generally well described. The needs the LCDS are addressing are generally well described. For individual PaMs included in the LCDS, information is much more scarce.

Coherence: 3/5. The LCDS give a good overview of short, medium and longer term objectives with respect to GHG objectives and therefore could be a useful information sources to evaluate relevance and coherence of a given PaM within the context of these short to long term policy objectives.

Reliability: 3/5. Information on LCDS is done by the Member State. Unlike the MMR reporting on PaMs however, reporting on the Low Carbon Development Strategies is less consistency on how information is presented. The Member States must only use a template to report on the status of implementation, rather than on their LCDS itself. The LCDS are also not under a formal review process and analysis by EEA as compared to the information on projections or PaMs.

Timeliness: 3/5. Every two years, Member States have to report updates relevant to their LCDS and on the progress in implementing those strategies. The first LCDS had to be reported by 9 January 2015, subsequent reporting should be done by 15 March, similar to PaMs.

Accessibility: 4/5. The LCDS of the Member States are accessible through ReportNet, but there is no aggregation of the information contained in the individual reports. For some Member States access limitations apply for LCDS, which means that these cannot be accessed by the general public. All information is contained in the original reports and there is no user interface that can be used to search for specific information.

National Energy Efficiency Action Plan (NEEAP)

Description

Member States had to submit under Article 14 of the Energy Services Directive 2006/32/EC:

- a first NEEAP no later than 30 June 2007;
- a second NEEAP no later than 30 June 2011;
- a third NEEAP no later than 30 June 2014.

All NEEAPs have to describe the energy efficiency improvement measures planned to reach the national targets. Before the 2014 reporting however, the Energy Services Directive was repealed by the Energy Efficiency Directive (EED, 2012/27/EU) that included provisions for submitting a NEEAP starting from 2014, and every three years thereafter.

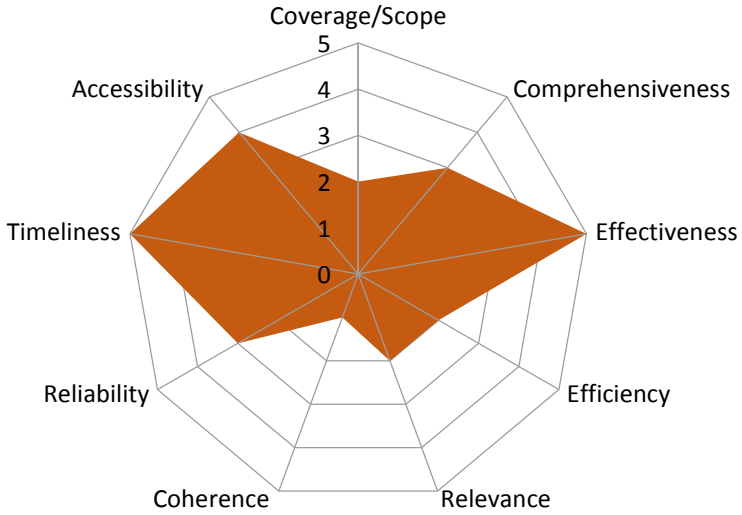
Member States are responsible for reporting. The Commission has provided a template as guidance for the NEEAP that can be used by the Member States. The minimum information that has to be included in the NEEAPs is specified in Annex XIV of the directive. Under the Energy Efficiency Directive, EU Member States must draw up National Energy Efficiency Action Plans (NEEAP) every three years.

The most recent version of the NEEAP was due in 2014 and was for most Member States the third NEEAP, after action plans in 2007 and 2011. On PaMs, Member States must report information on all important energy efficiency measures adopted or planned to be adopted in the Member State. In accordance with the Energy Efficiency Directive Annex XIV, this section of the NEEAP should describe the main policy measures implementing the Energy Efficiency Directive and contributing toward the national 2020 targets for energy efficiency. It should also include some specific information required to be reported under some specific Energy Efficiency Directive obligations.

Link: https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive /national-energy-efficiency-action-plans

Assessment:

Figure A1.3 Outcome of the NEEAP assessment.



Coverage/Scope: 2/5. The NEEAP covers all EU Member States. As it only includes end-use energy efficiency PaMs, some sectors are poorly (energy supply) or not covered (waste, agriculture, LULUCF and industrial processes).This also applied for the IPCC GHGs. All EU Member States have submitted information, which gives good but not complete geographical coverage.

Comprehensiveness: 3/5. The comprehensiveness of the NEEAP scores medium. As this is not a database but rather a repository of country reports the level of detail and comprehensiveness of the information that is presented in the NEEAP depends from one country to the other. Information that was represented well in the NEEAPs are the national circumstances (for example for France), a description of the PaM, the targeted sector and the instrument type. Information on implementing entity and implementation status is not comprehensively reported.

Effectiveness: 5/5. The NEEAPs provide quantitative ex-post and ex-ante information on energy savings.

Efficiency: 2/5. With respect to efficiency, the NEEAP contains scarce information on costs of PaMs, depending on the Member State reporting. Reporting of costs is however not mandatory.

Relevance: 2/5. Information that is useful for evaluating relevance and coherence is provided.

Coherence: 1/5. For coherence no quantitative information is available. The NEEAPs and annual reports do contain some qualitative information that could be used to evaluate coherence.

Reliability: 3/5. Under the EED Member States must submit a NEEAP every 3 years. Countries must report the progress towards their NEEAPs every year. Guidance to preparing the NEEAPs is provided in the *"Guidance for National Energy Efficiency Action Plans"* template[2]. The report only contains officially reported data from the Member States, although data source for each differs. There is no QA/QC of the reports after submission. NEEAPs and annual reports are evaluated by the Commission to assess the extent to which Member States have made progress towards the achievement of the national energy efficiency targets and the implementation of the Energy Efficiency Directive. The medium score is explained by the fact that there is no QA/QC after submission or that there is no consultation process.

Timeliness: 5/5. NEEAPs have to be reported every three years. The latest version of the report was due 30 April 2014 and a new report has to be submitted in 2017. The National Energy Efficiency Action Plans shall provide information on measures adopted or planned to be adopted in view of implementing the main elements of the Energy Efficiency Directive (and on their related energy savings). However progress has to be monitored and reported annually, from 2013. These annual reports should give an update on major legislative and non-legislative measures implemented in the previous year which contribute towards the overall national energy efficiency targets for 2020.

Accessibility:4/5. The database only provides the reports submitted by the Member States, which can be downloaded all in zipped folder (for the years 2007 and 2011 (NEEAP) and 2013 and 2014 (annual report)) or from individual Member States as pdf (for the most recent years, 2014 (NEEAP) and 2015 (annual report)). National reports that are not in English have been translated.

[2] https://ec.europa.eu/energy/sites/ener/files/documents/20131106_swd_guidance_neeaps.pdf

National Renewable Energy Action Plan (NREAP)

Description

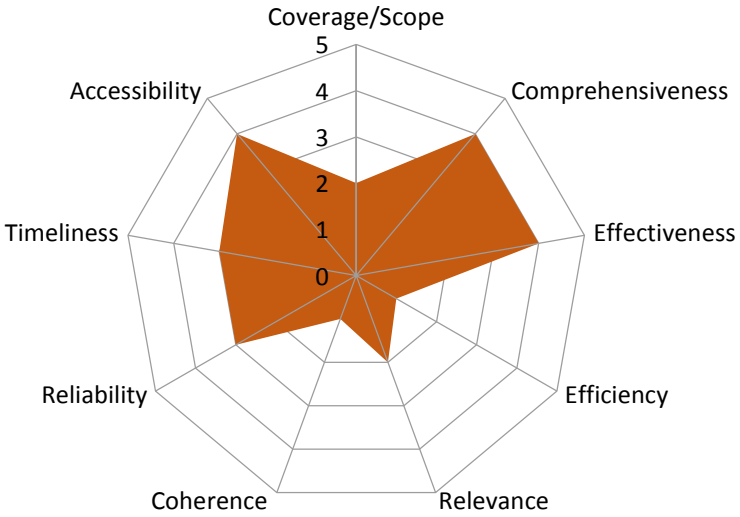
EU Member States have to follow distinctive paths when it comes to meeting their obligations under the Renewable Energy Directive, including their legally binding 2020 targets, taking into account national circumstances. In their national action plans under the renewable energy directive, Member States must explain how they intend to do this. The plans covers not only individual renewable energy targets for the electricity, heating and cooling, and transport sectors and the planned mix of different renewables technologies but also PaMs to achieve national targets including cooperation between local, regional, and national authorities and national PaMs to develop biomass resources.

Additionally, every two years EU Member States report on their progress towards the EU's 2020 renewable energy goals. This includes reporting information on support schemes and other measures to promote renewable energy.

Link: https://ec.europa.eu/energy/en/topics/renewable-energy/progress-reports

Assessment

Figure A1.4 Outcome of the NREAPs assessment



Coverage/Scope: 2/5. The NREAP covers all EU Member States. The main focus is on energy related sectors. There are some PaMs related to agriculture due to biomass supply and utilisation. Only CO_2 is mentioned in the report, but not on PaM level. There are PaMs on national and regional level of governance included. All EU Member States have submitted information, which gives good but not complete geographical coverage.

Comprehensiveness: 4/5. The comprehensiveness of the NREAP reports is high. National circumstances are described, although an analysis of the needs specific to the PaMs is not included. For most of the other assessment criteria a score of 1 to 2 is given, only a link or reference to a legal text is missing.

Effectiveness: 4/5. The NREAP contains quantitative data to assess effectiveness, although not on GHG emission savings and not for individual PaMs (see also Box 3.5).

Efficiency: 1/5. Reporting on costs is not performed in a consistent and comprehensive manner, information is provided on the level of support for some PaMs by Member States, including information on total costs (ex-post).

Relevance: 2/5. The NREAP contains a description of national circumstances that could be used to assess the relevance of the PaM.

Coherence: 1/5. For coherence no quantitative information is available. The NREAPs and progress reports do contain some qualitative information that could be used to evaluate coherence.

Reliability: 3/5. Under the Renewable Energy Directive, Member States must report on how they will meet their 2020 renewable energy targets. Unlike the NEEAP, the action plan on renewable energy is a one off reporting, and progress is tracked by biennial progress reports. It is assumed that the reports undergo QA/QC within the country before being sent to the EU but this is not explicitly documented. For the progress reports, templates help Member State in reporting the necessary information in a consistent manner in their original language. There is also a FAQ document to assist Member States further. The medium score is explained by the fact that there is no QA/QC after submission or that there is no consultation process.

Under the EED Member States must submit a NEEAP every 3 years. Countries must report the progress towards their NEEAPs every year. Guidance to preparing the NEEAPs is provided in the *"Guidance for National Energy Efficiency Action Plans"* template[3]. The report only contains officially reported data from the Member States, although data source for each differs. There is no QA/QC of the reports after submission. NEEAPs and annual reports are evaluated by the Commission to assess the extent to which Member States have made progress towards the achievement of the national energy efficiency targets and the implementation of the Energy Efficiency Directive.

Timeliness: 3/5. Member States had to report their NREAP by 30 June 2010. Afterwards, each Member State must submit a report on their progress in the promotion and use of energy from renewable sources by 31 December 2011, and every two years thereafter. This report should include, among others, the measures taken or planned at national level to promote the growth of energy from renewable sources.

Accessibility: 4/5. The Member States NREAPs (https://ec.europa.eu/energy/en/topics/renewable-energy/national-action-plans) and progress reports (https://ec.europa.eu/energy/en/topics/renewable-energy/progress-reports) are downloadable, but there is no online interactivity with the data available. There is no link from the NREAP to the progress report website, or vice versa. National reports that are not in English have been translated. It is also possible to download detailed, albeit outdated, statistics from https://www.ecn.nl/projects/nreap/2010/data/, but not from the NREAP website itself.

[3] https://ec.europa.eu/energy/sites/ener/files/documents/20131106_swd_guidance_neeaps.pdf

National Communications (NC) and Biennial Reports (BR)

Description

Developed countries (Annex I countries) that are Parties to the UNFCCC have to submit a Nation Communication on the steps they are taking to implement the Convention. In preparing their NCs, Annex I countries should follow the UNFCCC guidelines for reporting and review. The first NC was due in 1994 or 1995. The most recent version of these reports, the sixth National Communications (NC6), were submitted in 2014.

National Communications should include information on national circumstances, information on the GHG inventory, GHG emission projections, assessment of vulnerability to climate change impacts, financial resources and technology transfer, public awareness and research and characteristics and impacts of PaMs. Developed countries may also provide information about the costs of PaMs and information about non-GHG mitigation benefits. The UNFCCC prepares summary reports on NCs[4] containing information on sector emissions, features of main PaMs and implementation of PaMs by sector.

The Conference of the Parties (COP) decided that developed country Parties should enhance reporting and submit also biennial reports, which outline progress in achieving emission reductions and the provision of financial, technology and capacity-building support to non-Annex I Parties, building on existing reporting and review guidelines, processes and experiences. A Biennial Report Common Tabular Format (BR CTF) was developed. The BR CTF consists of 27 tables designed to facilitate the provision of information by developed country Parties on: GHG emission trends; description of quantified economy-wide emission reduction target; progress in achievement of this target; policies and measures; GHG projections; and provision of financial, technological and capacity building support.

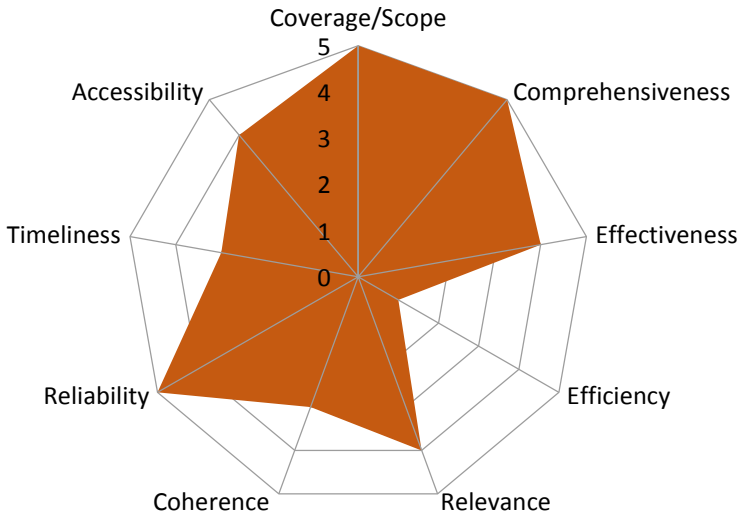
To facilitate flexible search queries of the BR data the UNFCCC Secretariat has launched the Biennial Reports Data Interface (BR-DI) application. The data presented in the BR-DI has been extracted from the BR CTF tables submitted by developed country Parties, and every effort has been made to ensure the accuracy and consistency of the information. The UNFCCC also offers the possibility of query GHG projections by projection scenario (with measures, without measures, with additional measures).

Link: http://unfccc.int/national_reports/annex_i_natcom/submitted_natcom/items/7742.php

[4] http://unfccc.int/national_reports/annex_i_natcom/compilation_and_synthesis_reports/items/2736.php

Assessment

Figure A1.5 Outcome of the NC assessment.



Coverage/Scope: 5/5. All EEA countries are Annex I Parties and therefore have to submit a NC and BR. In the NCs all sector and gases are covered well. There are PAMs on both national and regional level of governance included in the report. Reports of Member States also include an overview of the overarching EU policy context and there is a separate EU submission as well, providing detail on EU climate policies.

Comprehensiveness: 5/5. The NC and BR score very high on comprehensiveness, with a maximum score for each of the elements. Especially national circumstances and needs are described very well and exhaustively, which is different from most other information sources assessed. All other elements of reporting (sectors, implementing entities, etc.) are also included comprehensively. The EEA PaM database is particularly compatible with the NC and BR because both use similar definitions. Reporting by Member States for NC/BR and MMR PaMs also shows there are significant overlaps.

Effectiveness: 4/5. The NC and BR contains information that can be used to assess effectiveness of PaMs. This includes ex-post and ex-ante emission savings from individual PaMs, where available) or the total impact of PaMs. For the BR only ex ante emission savings have to be reported in the CTF.

Efficiency: 1/5. Information on costs and output are scarce in the NC, but some countries have included this information in their NC (for example Denmark).

Relevance: 4/5. Of all data sources studied, the NC and BR provide the most extensive information to evaluate relevance and coherence. For relevance, the national circumstances are described well in the NC.

Coherence: 3/5. The policy making process is explained and most countries clearly indicate the link between policy developments at different levels of organisation (EU, Member State, etc.). This makes it possible to understand the coherence of an individual PaM with other PaMs within the climate domain.

Reliability: 5/5. Annex 1 countries are required to submit biennial reports under the UNFCCC. Under the UNFCCC, countries should also report steps to implement the Convention. Both for the NC and the BR, clear and detailed reporting guidelines are available and there is a high level of engagement

from countries. Both NC and BR are reviewed by independent and international teams. These reviews are organised by the UNFCCC secretariat and findings are published.

Timeliness: 3/5. The reporting is every two (BR) or every four years (NC) for Annex I countries.

Accessibility: 4/5. All submitted NC and BR from countries are accessible as pdf from the UNFCCC website. Additionally, information from the BR can be queried through the Biennial Reports – Data Interface (http://www4.unfccc.int/sites/br-di/Pages/MitigationActions.aspx; Figure 6). This provides good level of access and simple interfaces to the data. The interface offers six selection criteria to query the information of the BR: the country, the submission (2014 or 2016), the implementation status, the affected sector, the affected GHG and the type of instrument. The results of the query can be exported to Excel. The information in the BR-DI is however not complete and does not include, for instance, a description of the PaM. This information is only accessible through the BR and NR reports.

Figure A1.6 Screenshot of the UNFCCC BR data interface.

National Programmes under the NEC Directive

Description

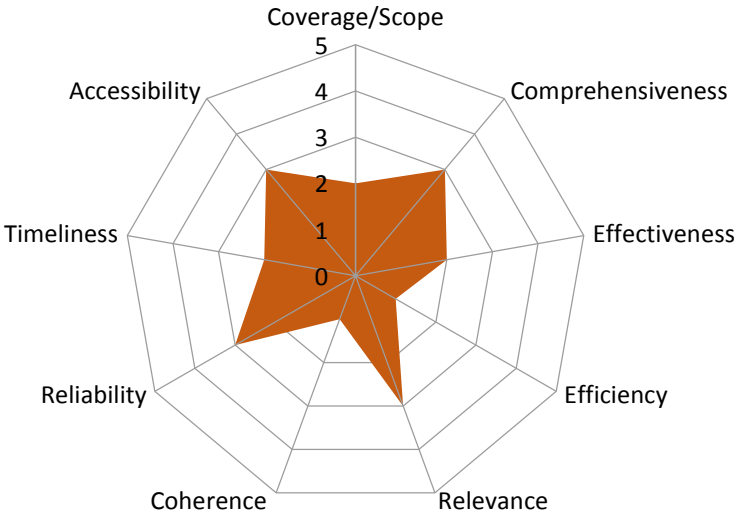
The NEC Directive requires Member States to have national programmes prepared by 2002 and an updated version in 2006. The programmes describes the progressive reduction of national emissions with the aim of complying with the national emission ceilings laid down in the NEC Directive. The national programmes also includes information on adopted and envisaged PaMs and quantified estimates of the effect of these policies and measures on emissions of the pollutants in 2010. Anticipated significant changes in the geographical distribution of national emissions shall be indicated.

Further information on Member States' emission inventories and projections is also available at ReportNet.

Link: http://ec.europa.eu/environment/air/pollutants/nationalprogr_dir200181.htm

Assessment

Figure A1.7 Outcome of the NEC assessment.



Coverage/Scope: 2/5. The National Programmes of only 25 Member States are available (Bulgaria, Croatia and Romania as missing- . Most sectors are included in the National Programmes, however these do not relate directly to IPCC GHG, which explains the low score Actions at national and, where appropriate, regional level are included.

Comprehensiveness: 3/5. The reporting on PaMs in the NEC National Programmes is comprehensive, although the level of detail differs among Member States. The report contains a section that gives a good picture on national circumstances (which is particularly relevant for those PaMs in the report).

Effectiveness: 2/5. The national programme does not allow evaluation of effectiveness of the PaMs that are included. The objective of the PaMs are described.

Efficiency: 1/5. Some reports contain a section on costs and benefits, although not all Member States reported quantitative information on costs for all PaMs included in the NEC national programme.

Relevance: 3/5. The NEC national programmes are often extensive reports that give an overview of national circumstances, needs and policy context that can be used to evaluate relevance and coherence of the PaMs included in the national programmes.

Coherence: 1/5. For coherence no quantitative information is available. The NEC does contain some qualitative information that could be used to evaluate coherence. For instance regarding coherence of energy policies with NEC directive.

Reliability: 3/5. Data are reported by the Member States. The synthesis report of national programmes in 2006 noted that the provision of clear and comprehensive National Programmes was a significant weakness. After the 2002 reporting, guidelines were developed to assist Member States in preparing their National Programme. Not all Member States used these guidelines. Reporting on PaM was found to be inconsistent within and across Member States, making comparison and analyses of the data difficult. [5]

Timeliness: 2/5. The directive requires Member States to draw up twice a National Programme which includes information on adopted and envisaged policies and measures and quantified estimates of their effects on the emissions in 2010. The national programme reporting is done in 2002 and 2006. Data on emissions are reported annually.

Accessibility: 3/5. NEC national programme reports are published online where the Member States' documents can be downloaded as pdf. Reports are not all in English and have not been translated. All 2006 National Programmes can be download in bulk. The report containing 2002 programmes must be downloaded separately by country. The website only provides the national programmes, so there is no interactive way to search for information.

[5] http://ec.europa.eu/environment/archives/air/pollutants/pdf/evaluation_synthesis_report.pdf

EUR-Lex

Description

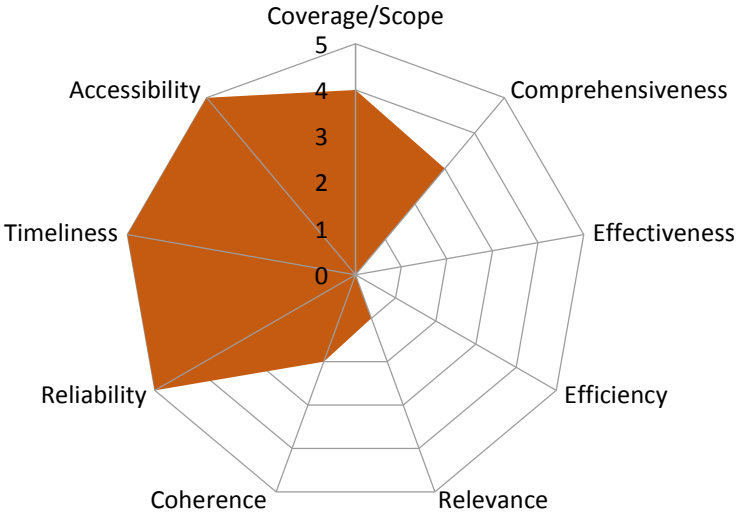
EUR-Lex is the database hosted by the European Commission providing access to all legal texts of the European Union. The system makes it possible to consult the Official Journal of the European Union and it includes treaties, legislation, case-law and legislative proposals.

This database offers the opportunity to search the transposition of EU legislation using key words, year, member state or number of the transposed directive, or its CELEX number.

Link: http://eur-lex.europa.eu/

Assessment

Figure A1.8 Outcome of the EUR-Lex assessment.



Coverage/Scope: 4/5/ The EUR-Lex provides information on all EU legislation, irrespective of topic or sector targeted . Therefore the database covers all sectors and GHGs. The provided information is on supranational level only, although some regulations will have a direct impact on national level.

Comprehensiveness: 3/5. This is a database on all EU legislations, including all legislation that affects GHG emissions. The database as such does not contain specific information on the EU policies but offers an easy to use portal to search for EU legal texts. The database as such is therefore not very comprehensive. The abstract of the EU legislation does give a concise overview of the objective of the PaM. All relevant information on the PaM is off course included in the legal text itself, but is not considered in this assessment.

Effectiveness: 0/5. This is only a database with links to legal texts and no other information is included that could be used in a policy evaluation (other than the legal text itself). The EUR-Lex database provides a good and clear summary of the legislation and this enables identification of the objective and instrument type. Apart from this no additional information is provided.

Efficiency: 0/5. See above.

Relevance: 1/5. The EUR-Lex database does not describe the needs that explain the implementation of the legislation, other than information that could be included in the legal text itself.

Coherence: 2/5. The EUR-Lex database gives a good overview of how different pieces of legislation are linked to one another. However, this only includes to legislation that implements, is implemented by, amends or repeals the legislation selected. For EU policies, links to Member States legislation is also included. Although users can only search EU legislation in the EUR-Lex database, for each EU legislation links to the implementation into national legislation are available via the tab 'National Implementing Measures'.

Reliability: 5/5. The database contains information on EU legislation, official documents, court cases and decisions. It is the portal to search the Official Journal of the European Union. Several of the assessment criteria are not applicable for EUR-Lex. In this case a maximum score was given, to avoid that the score for reliability would decrease, not reflecting actual reliability of the data source. Considering the nature of the database, the reliability of the information that it contains is very high.

Timeliness: 5/5. EUR-Lex is by default up-to-date.

Accessibility: 5/5. EUR-Lex is publically available and free of charge. The EUR-Lex database can be queried by text search, document reference, type (e.g. regulation, directive), author, CELEX number, publication date, theme or legislative procedure. The outcome of the queries is a link to the legal text, but also a summary of the legislation, the procedure and linked documents.

MURE policy database

Description:

The ODYSSEE-MURE project is co-ordinated by ADEME with the technical support of Enerdata, Fraunhofer, ISIS and ECN. It is supported by the Intelligent Energy Europe programme and is part of the activity of the European network of energy efficiency agencies (EnR). The projects rely on two complementary internet databases that are regularly updated by the network of national teams (once to twice a year):

- ODYSSEE, a database containing detailed data on the energy consumption drivers by end-use and, on the other hand, energy efficiency and CO2 related indicators. Data is regularly updated by national representatives, such as energy agencies or statistical organisations, from all 28 EU member states as well as Norway. Currently, energy efficiency data is available from the year 1990 to 2012.

- MURE, a database on energy efficiency policy measures for all end-use sectors. Main purpose: (1) gather and organize information on energy efficiency policies in the EU Member States and Norway (2) gather information on qualitative and quantitative impact evaluations (3) tool for the identification and analysis of the policy measures included in the national energy-efficiency action plans (NEEAPs) under the Energy Services Directive. MURE also provides a simulation tool for the bottom-up modelling of energy efficiency PaMs.

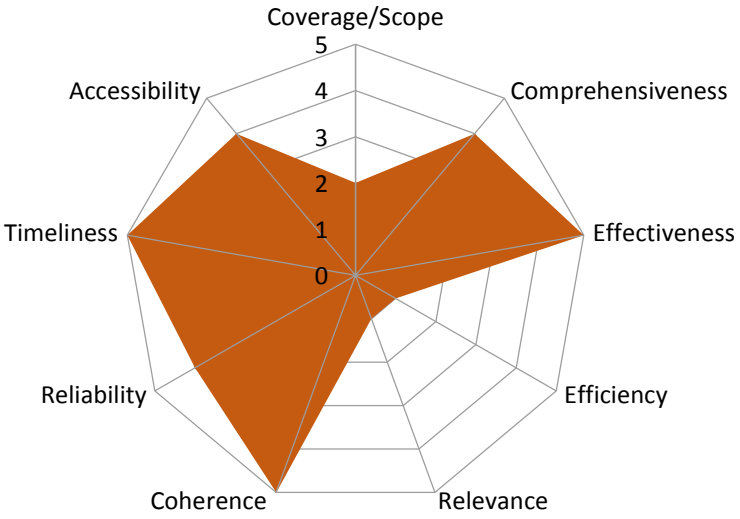
The general objective of the project is to provide a comprehensive monitoring of energy consumption and efficiency trends as well as an evaluation of energy efficiency policy measures by sector for EU Member States and Norway.

To provide results in an interactive and attractive way to decision makers and actors involved in energy efficiency, the project will develop specific data facilities. The originality of the project is to cover all sectors and end-uses with a homogeneous and harmonised approach and to provide an overall picture of the trends and measures by sector.

Link: http://www.measures-odyssee-mure.eu/

Assessment

Figure A1.9 Outcome of the MURE database assessment.



Coverage/Scope: 2/5. The MURE database has good geographical coverage, with all EU Member States and most EEA countries. As the database covers only energy efficiency policies, some sectors are poorly (energy supply) or not covered (transport, waste, industrial processes and LULUCF). The database does not cover GHG emissions. However, because the database only includes energy efficiency measures, it is expected that CO_2 will be the only GHG that is affected by the PaMs included in the MURE database.

Comprehensiveness: 4/5. For the sectors that are included in the database, information is presented very comprehensively: five sectors (household, tertiary, industry, transport and cross-cutting) and numerous sub-options to select the targeted end-use (i.e. appliances, lighting, cooking, hot water, space cooling, space heating, other targeted uses and total electrical, fuel and energy consumption). Also for the instrument type there are numerous options, often sector specific. For instance of the transport sector: co-operative measures, cross-cutting with sector-specific characteristics, financial, fiscal, information/education/training, infrastructure, legislative/informative, legislative/normative and social planning/organisational, with for each numerous sub-categories. A very detailed description of the PaM is available in pdf format for each PaM. The objective of the PaM is not included as separate section, but can be retrieved from the description of the PaM. The database includes detailed information on interacting effects of PaMs. The national circumstances are not included in the MURE database. The Odyssee/MURE database does publish country reports[6] which combine quantitative statistics and information on policies per country, which does give insight in national circumstances.

Effectiveness: 5/5. The MURE PaM database is linked to the Odyssee database, that provides detailed ex-post data and indicators on energy efficiency for all EU Member States. In the framework of the Odyssee project, a set of indicators, ODEX indicators, have been developed to track progress in Member States' progress in energy efficiency. Although the focus of the database is on energy, also information on CO_2 emissions are included. This also includes information on indicators specific for the PaM.

Efficiency: 1/5. Costs are not included in a structured way in the MURE PaM database. However information on investment costs is provided in the description of some PaMs (for example[7]).

Relevance: 1/5. The Odyssee/MURE database does publish country reports[8] which combine quantitative statistics and information on policies per country, which does give insight in national circumstances. This could be useful information to understand the relevance of specific energy efficiency PaMs.

Coherence: 5/5. Information on coherence is reflected well in the database, linking policies to both other national and EU policies. The MURE database is the only database that quantifies the impact of PAM interactions.

Reliability: 4/5. Data is provided by 33 partners, usually Energy Efficiency Agencies. There is limited information on the data flow of the database. The information is mostly derived from official reporting, such as in NEEAPs. Internal QA/QC procedures are applied to make reporting on PaMs

[6] http://www.odyssee-mure.eu/publications/national-reports/

[7] http://www.measures-odyssee-mure.eu/public/mure_pdf/household/AU26.PDF

[8] http://www.odyssee-mure.eu/publications/national-reports/

uniform[9]. In some countries, information is reviewed by governmental agencies (e.g. in the case of Belgium).

Timeliness: 5/5. The MURE database is updated once to twice a year (for the lifetime of the project). Quantitative data in Odyssee are updated annually, information up to 2013 published online.

Accessibility: 4/5. The MURE policy database is freely accessible online, but the Odyssee database with quantitative data on energy efficiency is not. There is the option to download the results of queries in Excel. The description of the PaM can be downloaded as pdf file. MURE offers sophisticated options for querying the database (e.g. country, measure type, targeted end use, target audience, start year, … as well as free text fields). However, this could be perceived too complex and too difficult to get an idea of the dimensions of the data being searched.

[9] http://www.odyssee-mure.eu/news/workshops/stockholm/session-2-work-packages/WP3-MURE.pdf

EurObserv'ER

Description

A consortium, led by Observ'ER (Observatoire des énergies renouvelables), including ECN, EC BREC Institute of Renewable Energetic Ltd, Renewable Academy AG, Frankfurt School of Finance and Management and Institut Jozef Stefan combine policies on renewable energy in a project co-funded by the Intelligent Energy Europe Programme (IEE) of the European Commission.

Since 1998 the EurObserv'ER Barometer measures the progress made by each renewable sector and in each Member State of the EU in an as up-to-date way as possible. EurObserv'ER publishes a yearly report – an overview barometer called "The State of Renewable Energies in Europe" – that assesses the development of all renewable energy sectors including their socio-economic impacts.

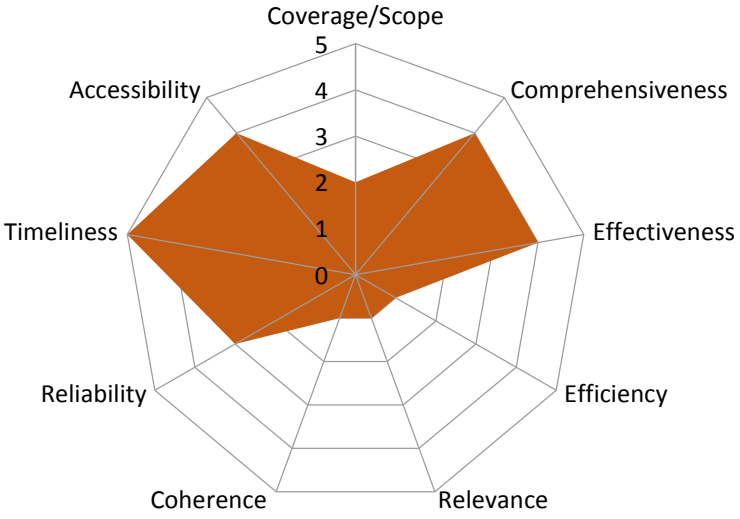
The EurObserv'ER policy profiles list recent policy changes in the EU Member States. Starting point for this monitoring is the situation as it has been described in the country's Progress Report (which were due end of 2013). All Renewable Energy Progress Reports are available in English language (translated versions).

For each of the Member States, the EurObserv'ER consortium has elaborated policy files, each focussing on the support systems dedicated to a specific renewable energy technology. These files are not being updated anymore, but their content may still be relevant, so they have been kept as a feature of this website. The monitoring of policies in place is now carried out within the policy files above, stating what has changed since the Member States 2013 progress reports.

Link: http://www.eurobserv-er.org/eurobserver-policy-files-for-all-EU-member-states/

Assessment

Figure A1.10 Outcome of the EurObserv'ER assessment.



Coverage/Scope: 2/5. The coverage of EurObserv'ER scored low because of the focus on national renewable energy PaMs. This means that most sectors and IPCC GHGs are not covered by this database. All 28 Member States are included in the database. There are PAMs on national and regional level of governance included.

Comprehensiveness: 4/5. Policy files for each Member State are prepared for wind power, photovoltaics, solar thermal, biofuels, solid biomass and biogas. Information on PaMs is presented in textual format that provides information on the instrument type, a description of the PaM and the implementation status. The national circumstances are covered partially, but information is generic (referring to overall renewable energy objectives) and does not specify specific needs that individual PaMs are addressing. The "country policy profiles" provides up-to-date information of policy changes compared to the latest NREAP progress reports, but do not give comprehensive information on the PaMs themselves.

Effectiveness: 4/5. Due to its link with the NREAPs, quantitative information on the impact of RES PaMs is available. EurObserv'er also publishes technology barometers, reports on the progress of one RES technology in the EU and individual Member States in an as up-to-date way as possible (with figures less than 12 months old).

Efficiency: 1/5. Information on costs is not given in a consistent manner, only for some PaMs information on the level of financial support is provided.

Relevance: 1/5. With respect to information specifically relevant to assess coherence and relevance of the PaM, no data is presented (additional to the information that is presented in the NREAPs and progress reports).

Coherence: 1/5. See above.

Reliability: 3/5. The database is built around the Renewable Energy Progress Reports which EU Member States much submit every 2 years. This is the official reporting by the Member States. Additionally, EurObserv'ER makes updates every 2 months to track recent changes in RES policies. The update reports asks reader to signal missing information. With respect to the quantitative data that EurObserv'ER publishes, the consortium compared the data from EurObserv'ER with Eurostat. This comparison (http://www.eurobserv-er.org/pdf/data-comparison-between-eurostat-and-eurobserver-march-2015/) showed some differences between the two data sources, up to 10%.

Timeliness: 5/5. Information on PaMs is taken from the NREAP progress reports, which are published every two years (latest version end of 2013). EurObserv'ER publishes country update reports annual, keeping track of recent changes in RES PaMs after publication of the progress reports (latest version August 2015). Once a year, an overview barometer collects the main indicators published during the year and completes these with additional renewable sectors. Individual sectors updated every 2 months. For each of the European MS, the EurObserv'ER consortium has elaborated policy files, each focussing on the support systems dedicated to a specific RES technology. These policy files however will not be updated (last update 2013). EurObserv'ER also publishes annual reports with quantitative data on RES deployment in the EU, so called RES barometers.

Accessibility: 4/5. Information on PaMs cannot be queried. Reports per country and sector (wind power, photovoltaics, solar thermal, biofuels, solid biomass, biogas) can be downloaded as pdf. EurObserv'ER also includes an interactive database, where users can access quantitative indicators using renewable energy sector, geographic zones and years. The format and querying is not that user friendly or intuitive. Users can download all data for a given country or data for all countries and all years for a given as well as the full database.

IEA climate, energy and energy efficiency databases

Description

Since 1999, the IEA's Policies and Measures Databases offer access to information on energy-related PaMs taken or planned to reduce greenhouse gas emissions, improve energy efficiency and support renewable energy development and deployment. This online service aims to complement the policy analysis carried out by the IEA and covers measures taken in IEA member countries. The databases are not exhaustive; for example, information on actions taken by provincial or regional government is not systematically included.

IEA Delegates from IEA member countries are given the opportunity to review information in the databases twice a year.

IEA/IRENA offers four databases:

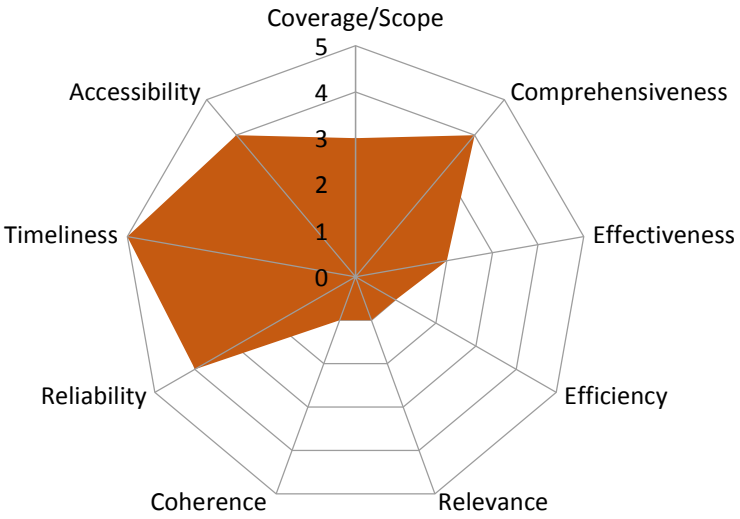
- Dealing with Climate Change: provides information on energy-related PaMs taken or planned to reduce greenhouse gas emissions.
- Global Renewable Energy Policies and Measures Database: provides information on PaMs taken or planned to encourage the uptake of renewable energy in all IEA and IRENA Member countries and signatories.
- Energy Efficiency Policies and Measures Database: provides information on PaMs taken or planned to improve energy efficiency. The database further supports the IEA G8 Gleneagles Plan of Action mandate to "share best practice between participating governments", and the agreement by IEA Energy Ministers in 2009 to promote energy efficiency and close policy gaps.
- Building Energy Efficiency Policies (BEEP) Database: was launched in 2012 as part of the work of the IEA's Sustainable Buildings Centre (SBC). It provides a detailed breakdown of policies for energy efficiency in buildings around the world, including those supporting buildings codes, labels, incentive schemes and zero-energy buildings.

In the context of this study, the focus will primarily be on the climate change policy database, but additional information that is accessible via the other databases was also considered. The level of detail of the information provided in the different databases is very similar in all IEA policy databases, although the focus is different.

Link: http://www.iea.org/policiesandmeasures

Assessment

Figure A1.11 Outcome of the IEA assessment.

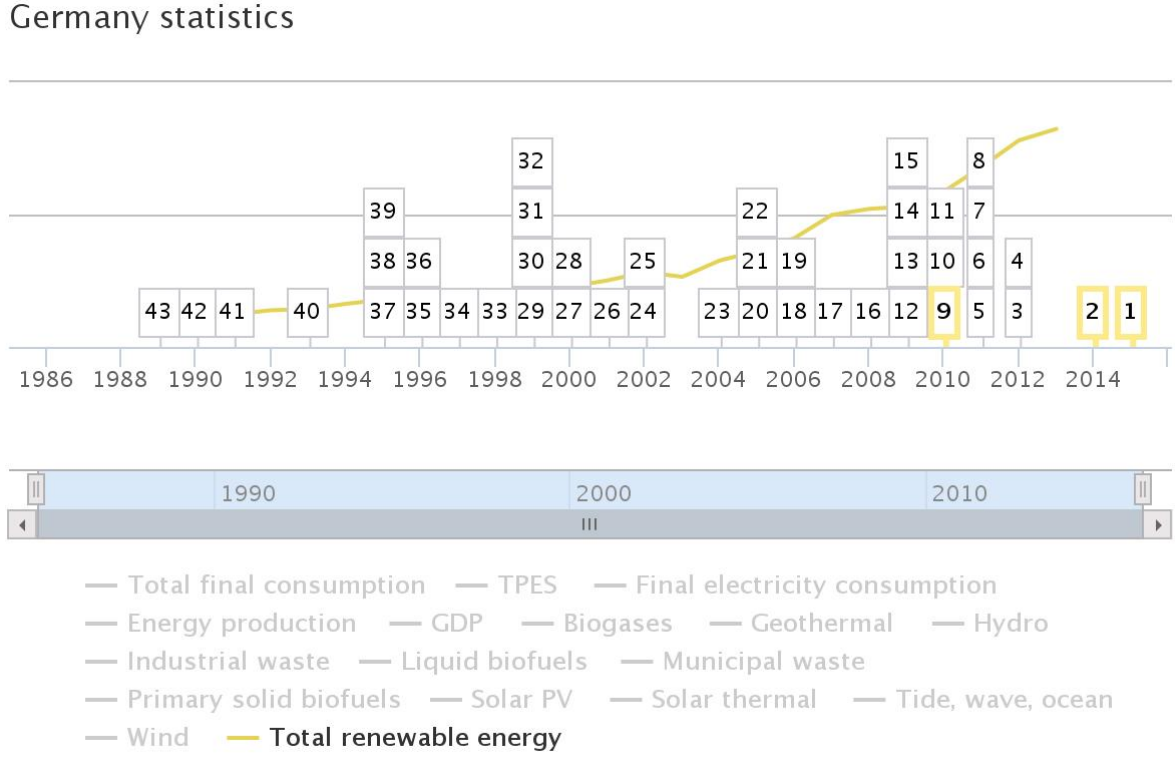


Coverage/Scope: 3/5. Although the IEA hosts a separate climate policies database, policies targeted towards agriculture, waste and LULUCF are missing. There is complete geographical coverage of EEA countries, although not complete for all databases. The climate database does not cover all EEA countries (EU Member States Bulgaria, Cyprus, Malta, Slovakia are missing from the climate policy database). The database includes policies at four different levels of governance, from supranational to local.

Comprehensiveness: 4/5. The comprehensiveness of the IEA PaM database is very high. For instrument type there are 6 categories (economic, information, policy support, regulation, R&D and voluntary approaches) and several subcategories. Also for sectors, the IEA database seems comprehensive considering that there are 10 options to select the sectors (for instance, appliances and CCS). The database also provides a clear link to the legislation. The climate database does not cover all sectors though as agriculture, LULUCF and waste are missing.

Effectiveness: 2/5. The IEA database offers ex-post data on CO_2 emissions and several indicators at an aggregate level. The impact of individual PaMs on GHG emissions is however not available. The objective of the PaM is in general well described in the description. Additionally, for some PaMs information on the level of support is also provided.

Figure A1.12 Screenshot quantitative information IEA climate, energy and energy efficiency databases



Efficiency: 1/5. Not much information in the IEA database is available to assess efficiency, relevance and coherence of the PaM. With respect to efficiency some PaMs contain information that could be used to evaluate efficiency, e.g. budgetary targets and available funding[10].

Relevance: 1/5. The different IEA databases do not describe the needs that explain the implementation of the legislation.

Coherence: 1/5. There is a link to other related legal texts, so this could be used to evaluate the coherence of the PaM within the national policy context. Coherence with PaMs outside energy and climate domain is missing.

Reliability: 4/5. Countries are encouraged to provide data on climate change, energy efficiency and renewable energy PaMs. Information on actions taken by provincial or regional government are not systematically included. IEA liaise with country representatives before including new information. Delegates from IEA member countries are given the chance to review information in the database twice a year. The cooperation by countries is however voluntary.

Timeliness: 5/5. Data can be submitted at any time, following consultation with country officials. There is an opportunity twice a year to review the data.

Accessibility: 4/5. The user interface of the IEA policy databases is very user friendly. It enables users to select options from thick boxes on a variety of selection criteria (i.e. countries, policy type, policy target, jurisdiction, policy status, start and end year and a free text field). Users have a large amount of

[10] Poland - Elimination of low emission sources through support of energy efficiency and development of dispersed renewable energy sources. Part 2) pilot program KAWKA.

control and can create searches and interact with the map to select different countries and policies. Each policy has a URL link to information regarding the policy/national government web page.

FAOLex

Description

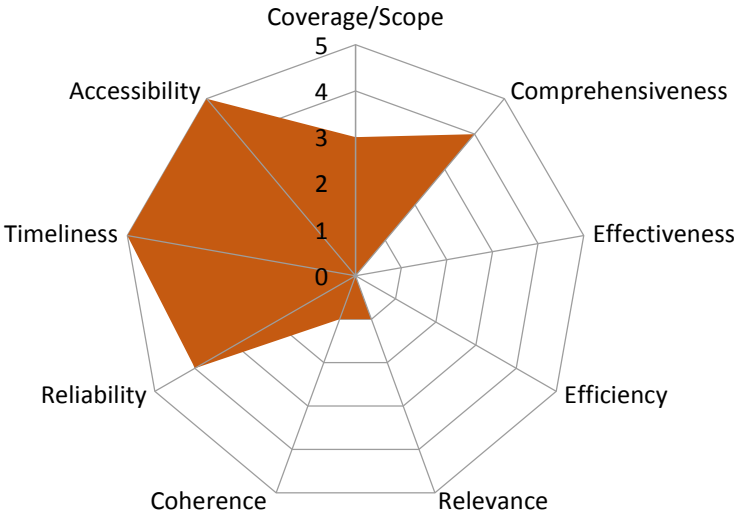
For over 40 years legislation on food and agriculture is collected and disseminated by FAO through a publication called Food and Agricultural Legislation.

FAOLex contains treaties, laws and regulations on food, agriculture and renewable natural resources from all over the world. The FAO Legal Office selects, indexes and summarizes in English, French or Spanish significant texts pertaining to FAO's mandate, i.e. legislation on agriculture, livestock, environment, fisheries, food, forestry, land and soil, cultivated plants, water and wild species and ecosystems. Records are provided in either English, French or Spanish and the full text of the document is provided in the original language or in the language of communication used by the originating country.

Link: http://faolex.fao.org/

Assessment

Figure A1.13 Outcome of the FAOLex assessment.



Coverage/Scope: 3/5. The FAOLex database contains information from 198 countries, including all 33 EEA countries. The FAO database focusses on sectors related to agriculture and land use, without particular emphasis on climate mitigation. Other sectors are included in the database, such as energy and waste, although it appears not comprehensively. The FAOLex database appears to comprise not all legislation on GHG emission mitigation, although some mitigation measures are included. There are PAMs on supranational national and regional level of governance included.

Comprehensiveness: 4/5. The FAOLex database is not a climate database, but a policy database relating to agriculture, forestry, land use and renewable natural resources. Many PaMs included in the database therefore do not have an impact on GHG emissions. A distinction is made between sectors (for instance energy, forestry, livestock, agriculture, land and soil). National circumstances are not covered by the FAOLex database.

Effectiveness: 0/5. The FAOLex database contains little information that could contribute to the evaluation of effectiveness of the PaMs that are included. The FAOLex database provides an abstract of the legislation, which enables identification of the objective and instrument type. Apart from this

no additional information is provided. The FAOLex database also includes links to governmental websites publishing national legislation. The type of information that is available through FAOLex is very similar to EURLex[11].

Efficiency: 0/5. See above.

Relevance: 1/5. The FAOLex database does not describe the needs that explain the implementation of the legislation.

Coherence: 1/5. The FAOLex database does give a good overview of how different pieces of legislation are linked to one another. However, this only includes to legislation that implements, is implemented by, amends or repeals the legislation selected. For EU policies, links to Member States legislation is also included.

Reliability: 4/5. The database is a collection of official legislation and policies but reporting on these is not compulsory. The data originates from multiple, but official, sources. As for EURLex, a number of assessment criteria do not apply, considering that FAOLex focus only on legal acts, with few additional information than a short description. The reliability scores lower than EURLex because there are different sources for this information.

Timeliness: 5/5. FAO-Lex is an up-to-date legislative and policy database. Information is updated regularly and throughout the year.

Accessibility: 5/5. Users have the option to simply search by text or search using a more advanced interface with more selection criteria: sector, geographical area, country/territory, territorial subdivision, basin, year, keywords (in title or record), status, instrument type and language. The policy target is missing from the selection criteria and needs to be searched as free text. Information can be downloaded in different formats and as html or csv file. User can only search the database and pull out relevant documents, but under each law there is a link to the full text and often a relevant website.

[11] In the FAOLex database, the implementation of EU legislation into national legislation is immediately visible (under the section implemented by). This only includes the title of the legislation, without the identification of the Member State, which is very confusing. In this respect the EUR-Lex database provides this information more clearly (under the tab National Implementing Measures), which are grouped per Member State.

Covenant of Mayors

Description

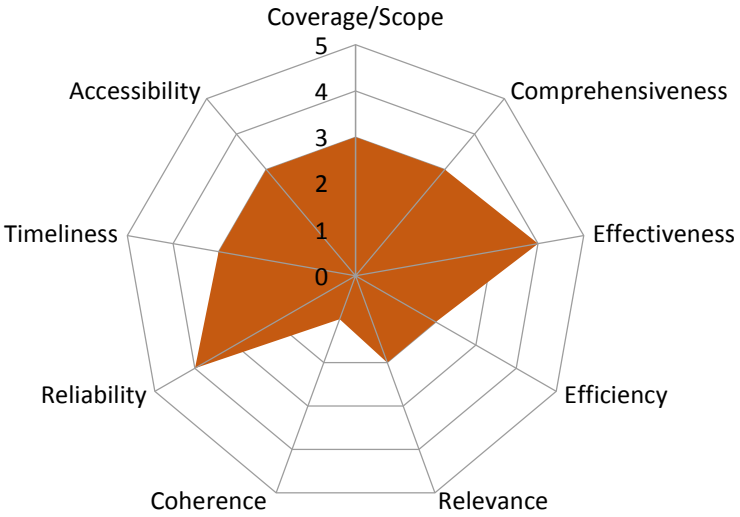
The Covenant of Mayors is the mainstream European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and the use of renewable energy sources on their territories. This political commitment is translated into concrete measures and projects by Covenant signatories by preparing a Baseline Emission Inventory and a Sustainable Energy Action Plan (SEAP) outlining the key actions they plan to undertake to achieve their target.

The Covenant of Mayors database contains two elements: on the one hand the submitted and accepted SEAPs are available, which are action plans on how the signatory will achieve the proposed target. Additionally, there is a database with benchmarks of excellence, which includes a selected list of implemented PaMs at local level.

Link: http://www.covenantofmayors.eu/actions/sustainable-energy-action-plans_en.html

Assessment

Figure A1.14 Outcome of the Covenant of Mayors assessment.



Coverage/Scope: 3/5. The covenant of mayors is different from other data sources as it contains only actions at the local level, a level that is missing or underrepresented in most other data sources analysed. The Covenant is voluntary, so although all 33 EEA countries are included, there is a difference among countries in participation of individual cities. Signatories are free to select their key areas of action, so there are also differences among SEAP in scope. The PaMs focus on energy supply, energy use and transport, sectors relevant for urban environment. This also means that focus is on energy consumption and on CO_2 emissions.

Comprehensiveness: 3/5. The SEAPs contain a description of the local circumstances and describes the needs for action. The SEAP also includes measures that could be taken to comply with the voluntary target. However, these PaMs have not necessarily been implemented yet. Information on the individual PaMs vary among SEAPs. The PaMs in the Benchmarks of Excellence, have more comprehensive information including: sector, implementation status and time frame, implementing entity, description and impact and costs.

Effectiveness: 4/5. In the SEAPs there is aggregated ex-ante information on local level provided in a very detailed, which is used to set up the baseline for the targets. The ex-post information is generated by the monitoring reports. Based on the requirements for the SEAPs and the monitoring reports the data submitted are very well prepared. The quantitative objectives of the SEAPs are well defined and monitored. The CoM provides information on ex-ante impacts (aggregated over all measures).

Efficiency: 2/5. The SEAPs contain a chapter on budget, which specifies the budget that is allocated to achieving the target, although not all SEAPs include this information. The assessment is based on the level of information that is available at present. Monitoring and reporting requirements[12] however include reporting on implementation budget. Overall the SEAPs and subsequent reporting of progress will be useful data sources to evaluate local PaMs.

*Relevance: 2/5.*The needs justifying actions takes at local level are described in the SEAP. The reporting on current situation helps

Coherence: 1/5. The CoM database provides little information to evaluate coherence of local PaMs. The SEAPs do not necessarily link to or provide information on PaMs at regional or national level.

Reliability: 4/5. Signatories to the Convenant are required to submit a SEAP, which has to be followed by a report on implementation, two years later. The reporting procedure is facilitated by an online template. After submission the system gives reporters the opportunity of a preliminary checking of the template, allowing the detection of errors or inconsistencies (e.g. completeness and consistency check, comparison with default values, …). After submission the SEAP has to wait to be accepted by the European Commission following QA/QC by the JRC.

Timeliness: 3/5. The SEAP is a one-off report, but reporting on the progress is done every two years when local authorities have to submit alternatively an action report (without monitoring; years 2, 6, 10, …) and an implementation report (with monitoring; years 4, 8, 12, …)[13].

Accessibility: 3/5. Users can interact with maps and can also create queries by country, year, CO_2 target and status to find SEAP reports of cities. The SEAPs can be downloaded, but there is no option to download multiple SEAPs at once. Individual actions taken by cities cannot be queried completely. Apart from the SEAPs, the CoM website also provides information on so called "benchmarks of excellence". These are relevant examples of local initiatives which Covenant actors have realised in their territories and endorse as useful actions for other local authorities to replicate. The benchmarks of excellence can be queried through on online user interface based on country, type, sector and field of action (which are not so transparent as to what this means). Information cannot be downloaded, only accessed online.

[12] http://www.covenantofmayors.eu/IMG/pdf/Reporting_Guidelines_SEAP_and_Monitoring.pdf

[13] Covenant of Mayors (2010) How to develop a sustainable energy action plan

RES Legal

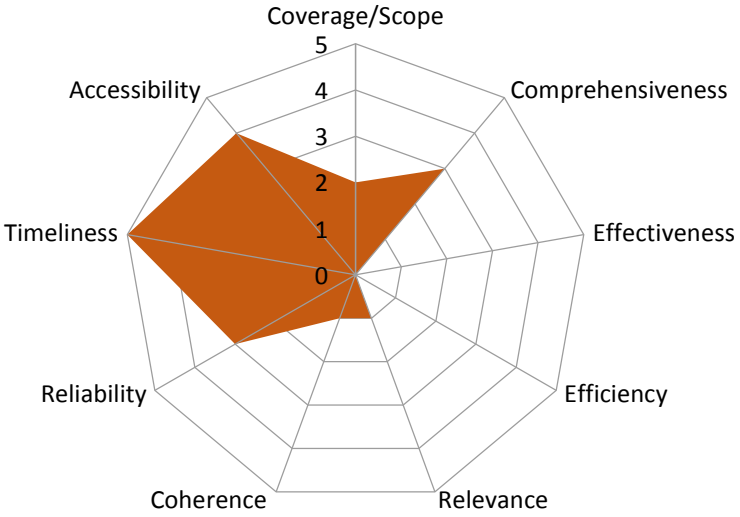
Description

RES Legal Europe is a free of charge online database on support schemes, grid issues and policies regarding renewable energy sources in the EU Member States, the EFTA Countries and some EU accession countries. The database is hosted by eclarion on behalve of the European Commission. The database covers all three energy sectors: electricity, heating and cooling and transport. It aims to provide an overview of the different national regulations regarding renewable energy sources.

Link: http://www.res-legal.eu/

Assessment

Figure A1.15 Outcome of the RES Legal assessment.



Coverage/Scope: 2/5. Geographical coverage is good, with information for all EEA countries. The database focuses on renewable energy policies, so this means that sectoral coverage is limited to mainly energy supply and transport and that few IPCC GHG emissions are covered, and not explicitly. RES Legal focuses only on national PaMs.

Comprehensiveness: 3/5. The RES Legal database is moderately comprehensive, covering some information on most issues, with the exception of national circumstances and needs for which no information is provided. Most of the information is included in the description, which means that it could be missing for some PaMs (such as start year). Some descriptions are very detailed, including on how level of support is calculated.

Effectiveness: 0/5. The database does not contain quantitative information on the ex-post and ex-ante impacts of PaMs that could contribute to evaluating the effectiveness of PaMs. The objective of the PaM is described and links to national websites are included (that could contain the necessary information to evaluate effectiveness).

Efficiency: 0/5. Quantitative data on costs is available for subsidies. This includes information who bares the cost and, if available, quantitative information or a qualitative description how the PaM is funded. This information is not available for all PaMs.

*Relevance: 1/5.*The databases focuses solely on the (description of the) PaMs and therefore does not provide information to evaluate the relevance of individual PaMs.

*Coherence: 1/5.*Qualitative information is provided sketching the overall renewable energy policy landscape in a given country. However links among PaMs at national level and EU level are missing.

Reliability: 3/5. The database brings together details on laws and legislation present in each country for the options that the user chooses. The way in which laws are compiled differs among countries, but they are displayed in a consistent manner in the database. No non-official sources are used, data is collected from many different departments and ministries each with their own expertise. Descriptions of the PaMs are based on the relevant legal sources. The database provides contact points for national bodies and experts who are available to answer questions.

Timeliness: 5/5. RES Legal publishes an archive (for comparing the support schemes and grid issues for electricity from RES in EU Member States since 2007) and these show that there have been annual updates. The latest update was November/December 2014, information is considered to be updated annually.

Accessibility: 4/5. Users are able to search by country and then refine their search by sector, support schemes/grid issues/policies and then individual policies. The user interface is simple and does not provide a lot of flexibility to the user. The database contains an option to compare countries. The database only provides links to relevant sources/websites and comparisons of information, no option to download data. Information cannot be downloaded, it is only accessible online.

OECD - Database on instruments used for environmental policy

Description

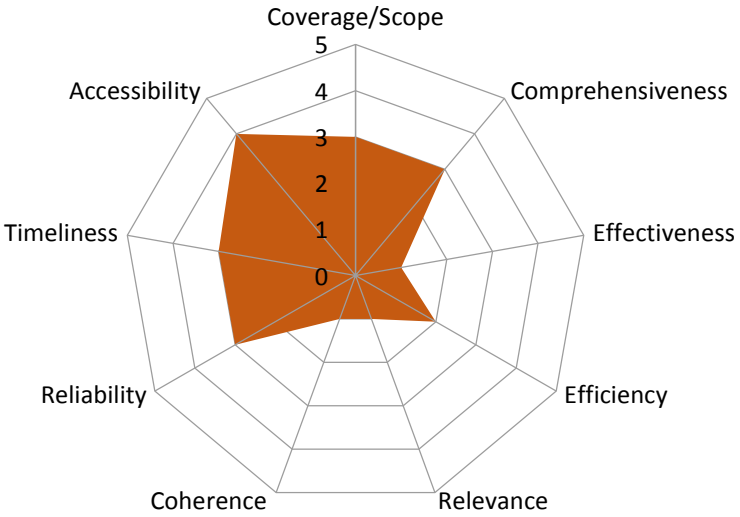
This database provides information on environmentally related taxes, fees and charges, tradable permit systems, deposit refund systems, environmentally motivated subsidies and voluntary approaches used in environmental policy in OECD member countries, OECD accession countries, EEA member countries and countries otherwise co-operating with EEA, not being members of OECD. The policy database is not exclusively climate policies, but include wider environment domain. A number of other countries have also provided information to the database as well.

For each type of instrument, there are also additional categories that provide other types of information, for instance give information that apply to a specific year, or give details concerning the geographical and sectoral coverage, the types of activities supported under a subsidy scheme, trade volumes under a tradable permits scheme, etc.

Link: http://www2.oecd.org/ecoinst/queries/

Assessment

Figure A1.16 Outcome of the OECD assessment.



Coverage/Scope: 3/5. The geographical coverage of the OECD database is high and includes all EEA countries. Although all sectors are covered, the type of instruments that are included in the database are not exhaustive so not all PaMs in the different sectors are included (this is reflected in the lower sectoral scores). The database covers all environmental policies, but the number of PaMs related to climate change seems small, which could be related to the fact that the OECD database emphasises on fiscal and financial policy instruments.

Comprehensiveness: 3/5. The database of the OECD is comprehensive but information is spread over different elements describing the PaM, which makes it difficult to assess. Information on implementation period is missing. As already mentioned not all types of measures are included and regulations, planning or information and education PaMs are not well represented in the database. Information on national circumstances or needs is missing. A good complete description of the PaM is also missing.

Effectiveness: 1/5. The database does not contain quantitative of qualitative information on the impact of the PaMs such as avoided GHG emissions, energy savings or RES production, which is needed to assess effectiveness of PaMs. The objective of the PaM is described in qualitative terms, which explains the score of 1.

Efficiency: 2/5. Information that could be used to assess efficiency is available. This includes information on the height of taxes and subsidies, total cost of subsidies and administrative costs, although the latter is seldom reported. The low score can be explained, because in the scoring we differentiate between ex ante (which is not available through OECD database) and ex post (which is available) costs. The database is one of the few databases that provides clear financial costs of national PaMs, such as net financial costs of subsidy schemes, administrative costs and revenues raised from environmentally related taxes, although not for all PaMs.

Relevance: 1/5. The database does not provide information that helps understand the specific needs the PaM is addressing.

Coherence: 1/5. The OECD database does give a qualitative overview of the different fiscal and financial PaMs within a country that could be used to evaluate aspects of coherence. The information is grouped per instrument type, which complicates this analysis however.

Reliability: 3/5. The database is based on voluntary reporting and assistance of countries, as there is no formal obligation to report in this context. There are many different sources, but all are official. For EU Member States this was done in cooperation with the EEA.

Timeliness: 3/5. The last major changes to the database were made 26 March 2014, but there are frequent updates to different parts of the information in the database. Updates are considered to be on an ad-hoc basis, but minimally every two years.

Accessibility: 4/5. The OECD database is accessible to all users, free of charge. Users have to select a predefined query (Taxes/Fees/Charges, Tradable Permits, Deposit-Refund Systems, Environmental Subsidies, Voluntary Approaches, All Information, ISIC / COICOP Codes, Environmental Domain). Under each of these predefined queries, users can select the type of information they would like to have. For instance for Taxes/Fees/Charges, users can select: Main Characteristics, Revenues generated, Tax rates, Exemptions, Refund mechanisms, Tax ceilings and Earmarked Environmentally Related Taxes. Within each of these options one or more countries can be selected. Unlike several other information sources, the interface is therefore not very flexible and does not allow searching on keywords for instance. The information can easily be downloaded in bulk to excel, which is convenient.

Annex 2: Summary table showing analysis criteria and PaM data sources.

Table A2.1 Overview of the assessment criteria and subcriteria scores for the PaM data sources.

Code	Criteria	EurObserv'ER	FAOLEX	MURE	NEC	NEEAP	NREAP	OECD	RES LEGAL	CoM	EUR-Lex	IEA	MMR LCDS	NC and BR	EEA PaM
1.	**Coverage/Scope**	2	3	2	2	2	2	3	2	3	4	3	4	5	4
1.1.	Geographical coverage	4	5	5	4	4	4	5	5	5	4	5	4	5	4
1.2.	Levels of governance	1	1	2	2	2	2	2	1	1	1	4	1	3	3
1.3.	Sectoral coverage	1	3	2	3	2	2	3	2	3	5	2	5	5	5
1.3.1	Agriculture	0	5	0	5	0	0	3	0	0	5	0	5	5	5
1.3.2	Energy supply	5	3	3	5	3	5	3	5	5	5	5	5	5	5
1.3.3	Energy use	0	3	5	3	5	3	3	3	5	5	5	5	5	5
1.3.4	Industrial processes	0	3	0	5	0	0	3	0	3	5	0	5	5	5
1.3.5	Land use, land use change, forestry	0	5	0	0	0	0	3	0	0	5	0	5	5	5
1.3.6	Transport	3	3	5	5	5	5	3	5	5	5	0	5	5	5
1.3.7	Waste	0	3	0	3	0	0	3	0	3	5	0	5	5	5
1.3.8	Cross-sectoral PaMs	0	3	5	3	3	3	3	3	5	3	5	5	5	5
1.4.	Coverage of IPCC GHGs	0	3	0	0	0	1	1	0	1	5	1	5	5	5
1.4.1.	CO2	0	3	0	0	0	3	5	0	5	5	5	5	5	5
1.4.2.	N2O	0	3	0	0	0	0	0	0	0	5	0	5	5	5
1.4.3.	F gases / NF3	0	3	0	0	0	0	0	0	0	5	0	5	5	5
1.4.4.	CH4	0	3	0	0	0	0	0	0	0	5	0	5	5	5
2.	**Comprehensiveness**	4	4	4	3	3	4	3	3	3	3	4	1	5	4
2.1.	National circumstances/needs	3	0	3	5	5	3	0	0	5	0	0	5	5	0
2.2.	Targeted sector(s)	5	5	5	5	5	5	5	3	5	5	5	3	5	5
2.3.	Instrument type	5	3	5	3	5	5	5	5	0	3	5	0	5	5
2.4.	Implementation status	3	5	5	3	3	3	0	3	5	3	5	0	5	5
2.5.	Implementation period	5	5	5	3	3	5	3	3	5	3	5	0	5	5
2.6.	Objective	5	3	3	3	3	5	3	0	3	3	3	0	5	5
2.7.	Description of PAM	5	3	5	3	5	5	3	5	3	5	5	3	5	5
2.8.	Implementing entity	0	5	5	3	3	3	5	3	5	3	5	0	5	5
2.9.	Link to legal text or policy	5	5	5	3	0	0	5	5	0	5	5	0	5	3
3.	**Suitability for evaluation**	2	1	3	2	2	2	1	1	2	1	1	2	3	2
3.1.	**Effectiveness**	4	0	5	2	5	4	1	0	4	0	2	2	4	5
3.1.1.	Objectives	4	2	5	4	5	4	1	1	5	3	3	3	5	5
3.1.1.1.	Policy objective(s) identified	5	3	5	5	5	5	3	3	5	3	5	3	5	5
3.1.1.2.	Quantitative policy objective(s) referenced	5	0	5	5	5	5	0	0	5	5	0	5	5	5
3.1.1.3.	Non-quantitative policy	5	5	5	5	5	5	3	3	5	5	5	5	5	5

Code	Criteria	EurObserv'ER	FAOLEX	MURE	NEC	NEEAP	NREAP	OECD	RES LEGAL	CoM	EUR-Lex	IEA	MMR LCDS	NC and BR	EEA PaM
	objective(s) referenced														
3.1.1.4.	Is it possible to determine whether the PAM objective has been/ can be achieved?	3	0	5	0	5	3	0	0	5	0	0	3	5	5
3.1.2.	Energy savings or REN shares or GHG savings projected (Ex-ante)	4	0	5	4	5	4	0	0	5	0	2	4	5	5
3.1.2.1	Qualitative	5	0	5	5	5	5	0	0	5	0	3	5	5	5
3.1.2.2	Quantitative	3	0	5	3	5	3	0	0	5	0	0	3	5	5
3.1.2.3	Comparable units of measure	5	0	5	0	5	5	0	0	5	0	0	0	5	5
3.1.2.5	Links to effects calculations, technical reports, …	0	0	5	0	5	0	0	0	0	0	3	5	5	5
3.1.3.	Energy savings or REN shares or GHG savings achieved (Ex-post)	5	0	5	0	5	4	0	0	5	0	2	0	3	5
3.1.3.1.	Qualitative	5	0	5	0	5	5	0	0	5	0	3	0	3	5
3.1.3.2.	Quantitative	5	0	5	0	5	3	0	0	5	0	0	0	3	5
3.1.3.3.	Comparable units of measure?	5	0	5	0	5	5	0	0	5	0	0	0	5	5
3.1.3.5.	Links to effects calculations, technical reports, …	5	0	5	0	5	0	5	0	0	0	3	0	5	5
3.1.4.	Other Effects	3	0	3	0	3	3	1	0	1	0	0	2	3	3
3.1.4.1.	How well are impacts (i.e. long-term effects) covered	3	0	3	0	3	3	0	0	0	0	0	3	3	3
3.1.4.2.	How well are results (i.e. short-term effects) covered	3	0	3	0	3	3	0	0	0	0	0	3	3	3
3.1.4.3.	How well are outputs covered	3	0	3	0	3	3	3	0	0	0	0	0	3	3
3.1.4.4.	Are indicators provided measuring effects?	3	0	3	0	3	3	3	0	3	0	0	3	3	3
3.2.	**Efficiency**	1	0	1	1	2	1	2	0	2	0	1	1	1	2
3.2.1.	Financial inputs: costs Projected (Ex-ante) (Efficiency)	0	0	2	2	2	0	0	1	5	0	2	2	0	3
3.2.1.1.	Quantitative data	0	0	3	3	3	0	0	3	5	0	3	3	0	1
3.2.1.2.	Comparable units of measure?	0	0	0	0	0	0	0	0	5	0	0	0	0	5
3.2.1.4.	Are the costs well links to benefits and are they well documented etc	0	0	0	3	5	0	0	0	5	0	3	0	0	5
3.2.1.5.	Are indicators identified measuring efficiency ex ante?	0	0	5	0	0	0	0	0	0	0	0	5	0	0
3.2.2.	Financial inputs: costs incurred (Ex-post)	2	0	2	2	2	2	4	1	3	0	1	0	1	3
3.2.2.1.	Quantitative data	3	0	3	3	3	3	5	3	3	0	3	0	3	1
3.2.2.2.	Comparable units of measure?	0	0	0	0	0	0	5	0	5	0	0	0	0	5
3.2.2.4.	Are the costs well links to benefits and are they well documented etc	3	0	0	3	5	3	0	0	5	0	0	0	0	5
3.2.2.5.	Are indicators identified measuring efficiency ex post?	0	0	5	0	0	0	0	0	0	0	0	0	0	0
3.2.3.	Outputs / implementation indicators	3	0	3	0	3	3	0	0	3	0	0	1	3	3
3.2.3.1.	Outputs: Is there information on the achieved and expected outputs of the policy	3	0	3	0	3	3	0	0	3	0	0	0	3	3
3.2.3.2.	Are indicators identified measuring outputs?	3	0	3	0	3	3	0	0	3	0	0	3	3	3

Code	Criteria	EurObserv'ER	FAOLEX	MURE	NEC	NEEAP	NREAP	OECD	RES LEGAL	CoM	EUR-Lex	IEA	MMR LCDS	NC and BR	EEA PaM
3.3.	**Relevance**	1	1	1	3	2	2	1	1	2	1	1	3	4	1
3.3.1.	Are the needs justifying the PAMs described?	1	1	1	5	3	3	1	1	3	1	1	5	5	1
3.3.2.	Is there a catalogue of references of the evidence explaining needs for policy action?	0	0	0	0	0	0	0	0	0	0	0	0	3	0
3.4.	**Coherence**	1	1	5	1	1	1	1	1	1	2	1	3	3	1
3.4.1.	Is quantitative evidence (data) available on the external coherence of PaMs? How good is the evidence?	0	0	5	0	0	0	0	0	0	0	0	0	0	0
3.4.2.	Is qualitative evidence (information) available on the external coherence of PaMs? How good is the evidence?	3	3	5	3	3	3	3	3	3	4	3	5	5	3
4.	**Reliability**	3	4	4	3	3	3	3	3	4	5	4	3	5	4
4.1.	Official data reporting?	3	3	3	5	5	5	3	3	5	5	3	5	5	5
4.2.	Data from projects and/or non-official sources	3	0	3	0	0	0	3	0	4	5	4	0	0	3
4.3.	Are relevant stakeholders engaged with the data?	5	5	3	5	5	5	5	5	5	5	5	5	5	5
4.4.	Data collated from multiple official and unofficial sources. Lots of different sources?	4	4	4	4	4	4	4	4	4	5	4	4	4	4
4.5.	Are there data supplier QA/QC agreements and is the data checked or verified by the supplier/country?	3	5	3	5	4	4	3	3	5	5	3	3	5	5
4.6.	Is there internal QA/QC of the data?	0	5	5	3	0	0	0	0	3	5	0	3	5	5
4.7.	Is there a consultation process/ peer or stakeholder review on the data?	3	5	4	0	0	0	0	0	0	5	5	0	5	0
4.8.	Are there standard formats and definitions for reporting?	5	3	5	3	5	5	5	3	5	5	5	3	5	5
4.9.	Are reported data compiled and presented using consistent methodologies	5	4	5	3	5	5	5	5	5	5	5	5	5	5
5.	**Timeliness**	5	5	5	2	5	3	3	5	3	5	5	3	3	4
5.1.	How frequently is the data and information updated?	5	5	5	2	5	3	3	5	3	5	5	3	3	4
6.	**Accessibility**	4	5	4	3	4	4	4	4	3	5	4	4	4	5
6.1.	Is the database publicly accessible online?	5	5	4	5	5	5	5	5	5	5	5	5	5	5
6.2.	Is access free?	5	5	3	5	5	5	5	5	5	5	5	5	5	5
6.3.	Can the database be queried online via a user interface?	3	5	5	0	0	0	3	5	3	5	5	0	3	5
6.4.	Bulk download of the full DB?	3	5	4	3	5	5	3	0	0	4	0	5	5	5
6.8.	Is the data/information source available and accessible	5	5	5	5	5	5	3	5	5	5	5	3	5	5