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National policies and measures on climate change mitigation in Europe in 2017

Technical overview of the information reported by Member States under the European Union's climate Monitoring Mechanism Regulation

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European Environment Agency

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Key messages

1. In 2017, EU Member States reported information on more than 1 500 national policies and measures on climate change mitigation.

2. Despite important policy developments at international and EU levels, Member States adopted few new policies and measures between 2015 and 2017 to address 2030 climate objectives.

3. Member States report, primarily, information on regulatory and economic instruments, targeting energy efficiency (particularly in buildings), renewable energy and vehicle emissions.

4. Member States continue to underreport quantitative information on national policies and measures, such as that on their effects and costs. Information on achieved greenhouse gas emission savings resulting from existing policies is particularly lacking.

5. Of the reported national policies, 74 % relate to the implementation of EU policies.

6. Significant emission savings are expected by 2020 through the implementation of EU policies that promote renewable energy and energy efficiency.

7. The future governance of the Energy Union could help further improve the reporting and evaluation of national policies and measures.

Executive summary

Despite important policy developments at international and EU levels, Member States adopted few new policies and measures between 2015 and 2017 to address 2030 climate objectives

The 2018 edition of the European Environment Agency (EEA) report *National policies and measures on climate mitigation in Europe* presents an overview of the information on 1 513 national policies and measures (PaMs) on climate change mitigation reported in 2017 by Member States under the European Union (EU)'s climate Monitoring Mechanism Regulation (MMR). It also takes stock of the progress made at national level to plan, adopt and implement new policies since the 2015 reporting exercise.

The period from 2015 to 2017 was rich with developments in climate policy at international and EU levels, with the adoption of the Paris Agreement in 2015, the agreement by EU leaders on a new 2030 framework for climate and energy and the launch of a new strategy for a resilient Energy Union with a forward-looking climate change policy. In 2015 and 2016, the European Commission presented a series of policy proposals to achieve the EU's climate and energy targets and policy objectives for the period 2020-2030. These new EU policies are expected to result in the reinforcement of existing PaMs or in the implementation of additional PaMs at national level.

Although Member States overall reported detailed information on more national PaMs than in 2015, only 20 Member States reported information on PaMs adopted or implemented after 2015. Austria, Bulgaria, Estonia, Greece, Ireland, Italy, Slovakia and Poland did not report on any policy or measure adopted after 2015.

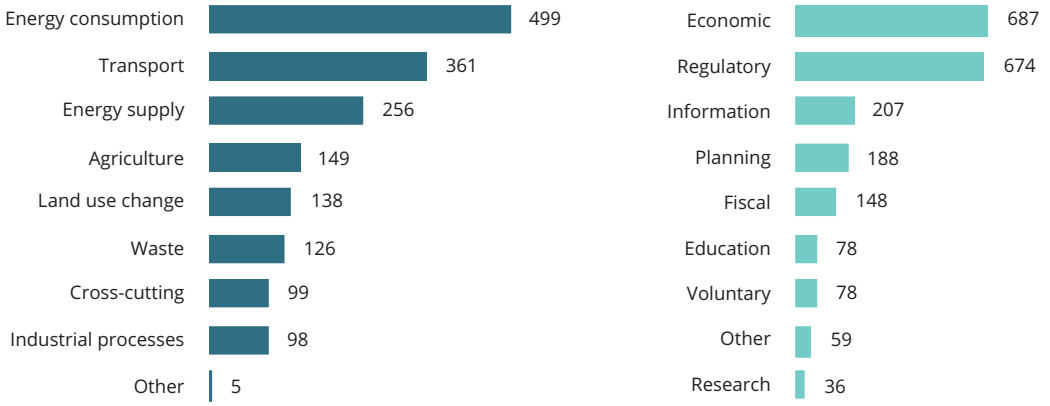
Most reported PaMs began implementation during 2010-2014. This was the period in which a number of key EU climate policies were adopted and implemented, such as the Renewable Energy Directive (2009), the recast Energy Performance of Buildings Directive (2010) and the Energy Efficiency Directive (2012), which resulted in the implementation of new national PaMs.

Member States report primarily information on regulatory and economic instruments targeting energy efficiency and renewable energy

In 2017 each Member State reported between 15 and 115 national PaMs (Figure ES.1). Two thirds of the reported policies relate to energy supply and energy use: energy consumption (29 %), transport (21 %) and energy supply (15 %). Most of these PaMs aim to improve the energy efficiency of buildings (17 %) and to increase the share of renewable energy (12 %). In the transport sector, the measures aim to promote low-carbon fuels and electric vehicles, or to address behavioural change by users. Most Member States also reported PaMs related to other sectors, such as industrial processes (e.g. reducing fluorinated greenhouse gases (GHGs)) and waste (e.g. reducing landfilling and promoting recycling), as well as agriculture (e.g. reducing fertiliser use and cropland management) and forestry (e.g. promoting afforestation and reforestation).

The large majority of these PaMs were reported as regulatory or economic instruments. The two Member States that reported the most PaMs overall, Belgium and France, were also the Member States that reported a broader range of policy instruments. Some countries favour specific instrument types, such as the Netherlands (voluntary agreements).

Figure ES.1 Main sectors (left) and instrument types (right) related to national policies and measures reported in 2017



Source: EEA, 2017a.

Member States continue to underreport quantitative information on national policies and measures

The quality of the information reported in 2017 improved in terms of completeness, consistency, accuracy and transparency, compared with the reporting cycle in 2015. More Member States reported more information on their climate change mitigation PaMs. However, quantitative information on *ex post* policy evaluations, costs and benefits, and indicators remains underreported.

In 2017, only nine Member States (Bulgaria, Denmark, Finland, France, Greece, Hungary, Lithuania, Luxembourg and Poland) reported information on the emission reductions achieved for a mere 65 PaMs. This is not sufficient for a comprehensive analysis of the impacts of existing national climate policies across the EU and highlights that Member States need to increase their efforts to assess more systematically the effects of their implemented PaMs.

Although the reporting of expected (*ex ante*) savings in 2017 was more complete than that of *ex post* savings, and had improved from 2015, it remains insufficient to allow a robust quantitative analysis (Figure ES.2). Twenty-six Member States reported quantified information on expected savings by 2020 from about one third (534) of the total reported PaMs. The contribution of existing policies to projected GHG emission trends for 2020 varies greatly across Member States: reported savings from existing policies for 2020 range from 1 % to 95 % of total projected emissions in the 'with existing measures' scenario, which already accounts for the effects of existing measures ([1]). Although reported policies are expected to deliver savings well after 2020, Member States less frequently reported emission savings for 2025, 2030 and 2035.

In addition, there is still not enough information on the expected effects of additional PaMs to achieve any meaningful aggregation at EU level.

With regard to the costs and benefits of climate PaMs, the reporting of this quantitative information improved in 2017, compared with 2015, although it remains far insufficient: five Member States reported such information in 2015, whereas 10 did so in 2017.

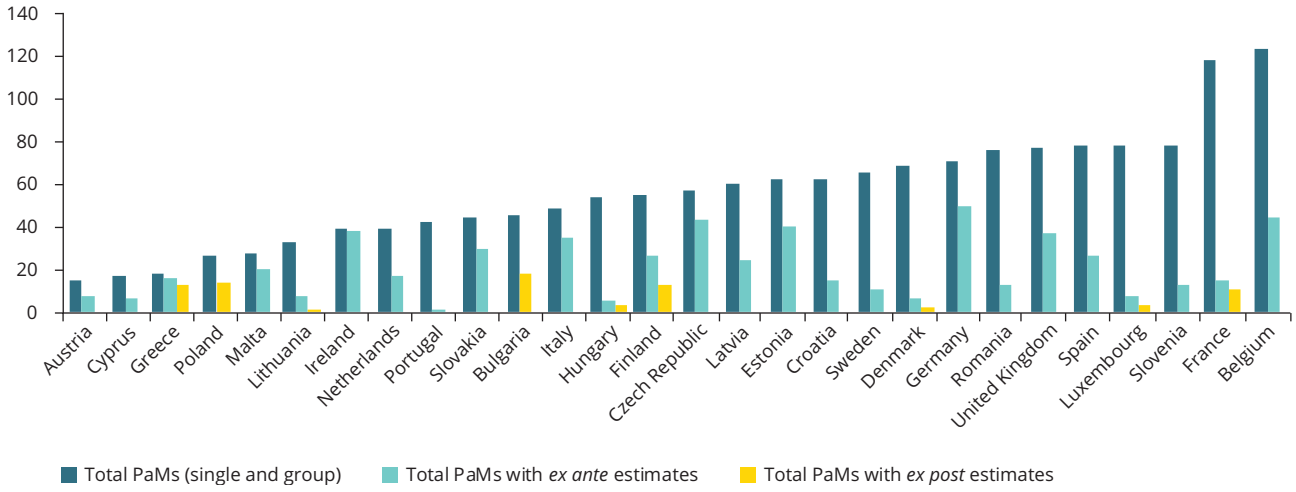
Of national mitigation policies, 74 % relate to the implementation of EU policies

Most of the policies were reported to be adopted or implemented in relation to one or several pieces of EU legislation (e.g. regulations, decisions or directives), but one quarter of national PaMs (400) were reported to have been implemented without a direct link to an EU policy.

Member States' PaMs were most commonly linked to large, overarching EU policies such as the Renewable Energy Directive, the Energy Efficiency Directive, the Energy End-use Efficiency and Energy Services

([1]) This means that in the '95 %' case, without any of these existing policy savings, emissions in 2020 would be almost double what they are currently projected to be.

Figure ES.2 Number of PaMs reported with *ex post* or *ex ante* emission savings



Source: EEA, 2017a.

Directive, the recast Energy Performance of Buildings Directive and the Emissions Trading Directive. More specific EU policies or those not requiring transposition into national legislation were linked less often. The largest savings by 2020 from national PaMs related to EU policies are expected to come from the implementation of EU legislation supporting renewable energy (21 % of the total reported emission savings) and energy efficiency (18 % of the total reported emission savings).

PaMs implemented in response to the Renewable Energy Directive, the Energy Efficiency Directive and the Effort Sharing Decision (ESD) are reported to affect both Emissions Trading System (ETS) and ESD emissions. For renewable energy policies, most of these emission savings are clearly expected to occur in the ETS sector.

The future governance of the Energy Union could help further improve the reporting and evaluation of national policies and measures

As specified in the MMR, Member States should report all relevant PaMs, including instruments that are not specifically intended to reduce GHG emissions but which do have an effect on these. The number of reported PaMs increased by almost 10 %, from 1 382 in 2015 (EEA, 2015) to 1 513 in this reporting cycle.

Although some Member States clearly managed to report more completely on their climate PaMs, a comparison with other data sources, such as the national energy efficiency action plans (NEEAPs) and national renewable energy action plans (NREAPs), indicated that reporting under the MMR could be made more complete and more consistent. This could be achieved by better aligning the reporting on PaMs under different official reporting streams.

This is one of the key objectives of the Commission's proposal for a Regulation on the Governance of the Energy Union. The Energy Union Framework Strategy sets a new European policy framework for the period after 2020 on five closely related and mutually reinforcing dimensions, effectively tying together renewable energy and climate change policies (both covered in the 'decarbonisation' dimension) and energy efficiency.

To ensure that objectives will be achieved and administrative burden reduced, the proposed Regulation incorporates the provisions of the existing MMR and harmonises them with the provisions of the Paris Agreement and other reporting requirements on energy. In particular, it includes reporting requirements on PaMs, covering each of the five dimensions of the Energy Union, in both integrated national energy and climate plans, as well as in biennial progress reports.

Combining PaMs reporting across different dimensions, wherever possible, will increase the completeness and consistency of reported information on national action and reduce the administrative burden on Member States, while making the PaMs information currently reported under the MMR and in NREAPs and NEEAPs more consistent and better integrated.

About this report

This report presents a synthesis of the information on 1 513 national policies and measures (PaMs) on climate change mitigation, which all 28 Member States reported in 2017 under the EU climate Monitoring Mechanism Regulation (MMR). It is an update of the previous EEA overview, which was based on information reported in 2015 (EEA, 2015).

The report describes the main characteristics of the PaMs implemented, adopted or planned by Member States, such as their objectives, type, targeted sectors and entities responsible for their implementation. The report also presents the quantitative information Member States have reported on the greenhouse gas (GHG) emission savings achieved by national PaMs, both *ex post* (retrospectively) and *ex ante* (anticipated), as well as on the projected and realised costs and benefits of the reported PaMs. The analysis also explores the contribution of EU policies towards implementing national PaMs and related expected emission savings, as reported by Member States.

EEA reports

This report is part of a series of EEA reports and briefings on climate change and energy. In particular, this report is linked to the EEA briefings *Monitoring national climate action in the EU* and *Using databases on policies and measures for policy evaluation*.
All EEA reports are available at: eea.europa.eu.

About the EEA

The EEA is an agency of the EU. It aims to support sustainable development and to help achieve significant and measurable improvement in Europe's environment by providing timely, targeted, relevant and reliable information to policymaking agents and the public. It is supported in its work by the European Environment Information and Observation Network (Eionet), a network of 39 European countries.

Authors

This report was prepared by the European Environment Agency (EEA) and its European Topic Centre for Air Pollution and Climate Change Mitigation (ETC/ACM). The ETC/ACM is a consortium of European institutes that assists the EEA in its support of European Union policy in the field of air pollution and climate change mitigation. The overall coordination of the report was carried out by Magdalena Jóźwicka (EEA) and the ETC/ACM task manager, Tom Dauwe (VITO, Belgium). The authors were Magdalena Jóźwicka (EEA); Tom Dauwe and Larissa Pupo Nogueira de Oliveira (VITO, Belgium); Henrik Neier (UBA, Austria); and Katrina Young and Christofer Ahlgren (Aether, United Kingdom).

1 Introduction

This report presents a synthesis of the information on national climate change mitigation policies and measures (PaMs) reported by European Union (EU) Member States in 2017 under the EU's climate Monitoring Mechanism Regulation (MMR) (EU, 2013) ([2]). The MMR defines PaMs as 'all instruments which aim to implement commitments under the UNFCCC, which may include those that do not have the limitation and reduction of greenhouse gas emissions as a primary objective'. As the MMR requires Member States to report on their national PaMs every 2 years, this report represents an update of the 2015 overview, based on the information Member States reported that year (EEA, 2015).

The MMR's Implementing Regulation (EU, 2014) ([3]) sets out the structure, format, submission processes and review of information reported by Member States pursuant to the MMR. The EEA facilitates the reporting process by:

- providing detailed guidance to assist Member States through all steps of the process (EEA, 2016);
- providing an online reporting questionnaire on its reporting platform, Reportnet;
- checking the quality of the information reported and providing feedback to Member States in the case of missing or inconsistent information;
- compiling the information reported and making it publicly available online via its database on climate change mitigation policies and measures in Europe (http://pam.apps.eea.europa.eu) (EEA, 2017a).

The analysis was based on information reported by Member States as part of their 2017 submissions under the MMR. For each reported policy or measure, Member States must include the following information:

- name, objective (quantified, if available) and description of each PaM or group of PaMs;
- type of instrument used;
- gases and sectors targeted;
- EU policy responsible for implementation of PaMs;
- current status and period of implementation (start and end year);
- indicators used to monitor and evaluate progress;
- projected emission savings (in years 2020, 2025, 2030 and 2035), divided between the EU Emissions Trading System (ETS) and the Effort Sharing Decision (ESD), when available;
- entities responsible for implementing the policy;
- *ex post* and *ex ante* effects on greenhouse gas (GHG) emissions;
- projected and realised costs and benefits of the reported PaMs.

The report is structured as follows:

- Chapter 2 gives an overview of important changes in reported national PaMs compared with the 2015 reporting exercise.
- Chapter 3 describes the main characteristics of the PaMs reported by Member States.
- Chapter 4 presents the reported estimates on the achieved and expected emission savings resulting from the reported policies and measures.

([2]) Article 13 concerning PaMs. Other articles of the MMR relate to reporting requirements concerning national greenhouse gas emissions, projections, adaptation to climate change, etc.
([3]) Article 22(1) of Commission Implementing Regulation.

- Chapter 5 analyses the contribution of EU policies to national policies, in particular in terms of emission savings. The analysis looks in particular at the co-benefits between EU renewable energy policies and energy efficiency policies in terms of emission savings in the EU ETS and under the ESD.
- Chapter 6 provides information on reported costs and benefits of national PaMs.
- Chapter 7 presents information on reported indicators to monitor the reported policies.
- Chapter 8 provides information on the quality of reported information. It also provides conclusions and recommendations to further improve reporting on PaMs.
- Annex 1 presents country-specific information on the total number of PaMs and the number of PaMs per sector and per instrument type. Historical GHG emissions between 1990 and 2015 in comparison with projections with existing measures and the reported emission savings in 2020 from existing PaMs are shown.
- Annex 2 presents reporting requirements related to the MMR.
- Annex 3 provides links to the national questionnaires of policies and measures included in this report.

2 Recent developments in climate policies and measures at national level

2.1 European Union policies that affect national climate policies and measures

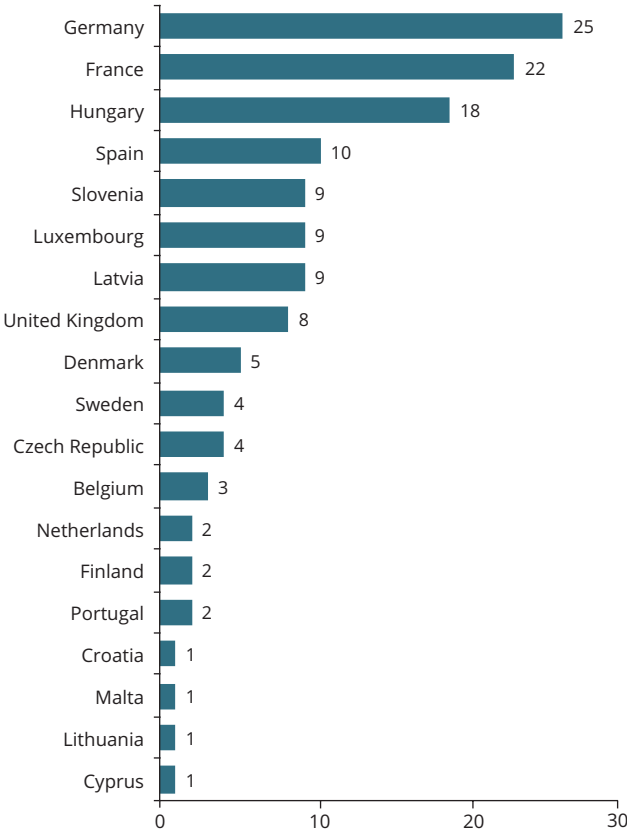
Important policy developments took place at international and EU levels between the last two reporting cycles in 2015 and 2017. At the international level, the adoption and rapid ratification of the Paris Agreement by Parties across the world resulted in an increased momentum to combat climate change. In the EU, Member States have agreed on a new 2030 framework for climate and energy, including EU-wide targets and policy objectives for the period 2020-2030. In 2015, the European Commission launched a new strategy for a resilient Energy Union with a forward-looking climate change policy. A European Energy Union will ensure that Europe has secure, affordable and climate-friendly energy. The strategy sets out policy objectives in five closely related and mutually reinforcing dimensions, including decarbonising the economy. An ambitious climate policy is integral to the Energy Union, and a package with new EU policies is expected to be fully adopted in 2018. Actions include the EU ETS, strong but fair national targets for sectors outside the ETS to cut GHG emissions, a roadmap towards low-emission mobility and an energy policy that makes the EU the world leader in renewables.

Both the Paris Agreement and the Energy Union will have an effect on climate policy developments in Member States in forthcoming years. At this stage, a large majority of Member States are on track to achieve their 2020 targets on GHG emission reductions, renewable energy and energy efficiency with existing PaMs. However, current projections indicate that these measures will not be sufficient to achieve the 2030 objectives (EEA, 2017b). New targets under the Effort Sharing Regulation, the Energy Efficiency Directive and the Renewable Energy Directive for 2030 mean that Member States will have to make additional efforts and adjust existing or implement new PaMs.

2.2 New national policies and measures

This assessment considers as new national PaMs those adopted or implemented after 2015. Eight Member States did not report any PaMs meeting this criterion in 2017: Austria, Bulgaria, Estonia, Greece, Ireland, Italy, Poland and Slovakia. All other Member States reported at least one new PaM (Figure 2.1).

Figure 2.1 **Number of policies and measures implemented or adopted after 2015**



Source: EEA, 2017a.

The information reported in 2017 shows limited development in the number of new national policies compared with earlier information ([4]). This could be related to the ongoing policy cycle at the EU level, whereby important new EU policies had not yet been adopted at the time of reporting. In addition, new developments can take place by simply revising existing PaMs, which makes changes less visible, and the level of reporting detail might not be sufficient to capture all recent policy developments.

Energy efficiency remains at the top of national priorities. Reported new PaMs target primarily energy consumption (34 %), transport (23 %), waste (12 %) and land use, land use change and forestry (LULUCF) (12 %).

Table 2.1 National developments in climate change mitigation policies and measures

Country	Description of new policies and measures
Belgium	Belgium implemented three new PaMs related to: • improving energy performance and certification of residential buildings; • introducing a kilometre tax for transporting goods by road; • installing low-emission zones in cities.
Croatia	Croatia adopted one new PaM to reduce landfilling of biodegradable waste.
Cyprus and Malta	Cyprus and Malta both have one new PaM aiming to promote natural gas to replace other fossil fuels.
Czech Republic	The Czech Republic implemented four new policies, of which the Climate Protection Policy is the most important. This policy defines the main objectives at national level to ensure the fulfilment of EU and international GHG emission targets in 2020 and 2030. Furthermore, it contributes towards a gradual long-term transition to a sustainable low-emission economy (Czech Republic, 2017).
Denmark	Five new PaMs were reported by Denmark, ranging from measures to cover landfills to innovative ways to support heat pumps. In the latter, energy companies are facilitated to install, finance, run and maintain heat pumps, and in return the customer pays for the heat delivered.
Finland	To promote zero-energy buildings, Finland adopted a new PaM to start in 2018. A new decree on landfills was also reported.
France	In 2015 France adopted the Energy Transition Law (see Box 2.1), which resulted in the adoption and implementation of several new instruments presented in France's PaMs report. In addition, new PaMs were implemented covering all sectors: • energy supply (e.g. *Programmation pluriannuelle de l'énergie et les appels d'offres*); • waste (e.g. *Mise en place de plans régionaux de gestion des déchets*); • transport (e.g. *Développement des poids lourds fonctionnant au gaz naturel véhicule*); • energy consumption (e.g. *Expérimentation du label « Bâtiments à énergie positive et réduction Carbone* »); • industrial processes (*Renforcement de la réglementation relative au contrôle d'étanchéité des équipements frigorifiques, climatiques et thermodynamiques*); • agriculture (e.g. *Stratégie nationale de mobilisation de la biomasse et schémas régionaux biomasse*); • LULUCF (e.g. *Programme national de la forêt et du bois et programmes régionaux de la forêt et du bois*).
Germany	Germany implemented and adopted the highest number of new PaMs. Most of them started in 2016. The emphasis of these new PaMs is on: • transport (e.g. subsidies for electric mobility and extending highway tolls for heavy-duty vehicles); • energy supply (e.g. designating lignite plants as reserve); • energy consumption and improving energy efficiency in buildings and heating systems (e.g. tightening minimum energy requirements for new buildings). Several new instruments were put in place to provide financial incentives to increase energy efficiency through soft loans, tendering and other incentive programmes.

([4]) Some countries, e.g. Luxembourg and Portugal, reported major changes, but these related more to improved completeness of the reporting, rather than to changes in the national climate policies.

Table 2.1 National developments in climate change mitigation policies and measures (cont.)

Country	Description of new policies and measures
Hungary	Hungary implemented and adopted 18 new PaMs. Regarding transport, the National Framework Plan for the Development of Alternative Fuels Infrastructure is important, as it identifies national targets on the deployment of alternative fuel infrastructure (such as compressed natural gas and electric vehicles). Other new PaMs supporting electric and compressed natural gas vehicles are also included. Five new PaMs relate to the LULUCF sector and promoting afforestation. Hungary also implemented new requirements on the energy performance of buildings (as did several other Member States).
Latvia	Latvia adopted nine new PaMs, four of which are investment support programmes for district heating and for energy efficiency improvements; three were in the LULUCF sector.
Lithuania	Lithuania implemented one new PaM promoting more efficient cogeneration in Vilnius.
Luxembourg	Luxembourg implemented and adopted nine new PaMs. Most relate to the transport sector, promoting electric vehicles, carpooling and adjusting fiscal benefits for company cars.
Netherlands	Building on existing legislation, the Netherlands implemented two new PaMs to promote renewable energy in specific subsectors (small installations and sport infrastructure).
Portugal	Portugal put in place two new PaMs to build a low-carbon mobility pattern and reduce the energy intensity (GJ/pkm) and increase the efficiency of passenger and freight transport.
Slovenia	The new PaMs implemented by Slovenia are very diverse. Set to start in 2020, the Energy Act is an important PaM that sets obligations for the district heating systems regarding the amount of heat produced from renewable energy sources or waste heat. One third of the new policies aim to reduce waste production. Three of the new PaMs are also co-financed from either the EU cohesion fund or the European Fund for Regional Development.
Sweden	Sweden implemented four new PaMs to improve the energy efficiency of buildings through training programmes and coaches and one new support measure specifically targeted at rental apartments.
United Kingdom	The United Kingdom implemented and adopted PaMs building on, to some extent, already existing PaMs, such as the adjustment to the Climate Change Levy, Salix loans and the Industrial Emissions Directive, as well as new product policies arising from the Ecodesign Directive. One new PaM supports heat networks.

Box 2.1 Cross-cutting policies: Energy Transition Law (France)

In the run-up to the 21st Conference of the Parties (COP21) in Paris, France published the Energy Transition Law (*Loi relative à la transition énergétique pour la croissance verte*). The aim of this horizontal policy is to support the transition to a decarbonised economy. More specifically, it sets medium- to long-term objectives to:

- reduce GHG emissions in line with the 40 % reduction target of EU emissions by 2030;
- cut France's consumption of fossil fuels by 30 % by 2030;
- reduce the share of nuclear energy to 50 % of electricity production by 2025;
- increase the share of renewables to 32 % of final energy consumption by 2030 and to 40 % of electricity production;
- reduce France's final energy consumption by 2050 by 50 % (compared with 2012);
- cut 50 % of landfill waste by 2050.

One of the horizontal measures to achieve this target is the government's target of increasing the carbon component of the tax on energy products to EUR 56/tonne by 2020 and to EUR 100/tonne by 2030 (France, 2017). In 2016, this carbon tax was EUR 22/tonne.

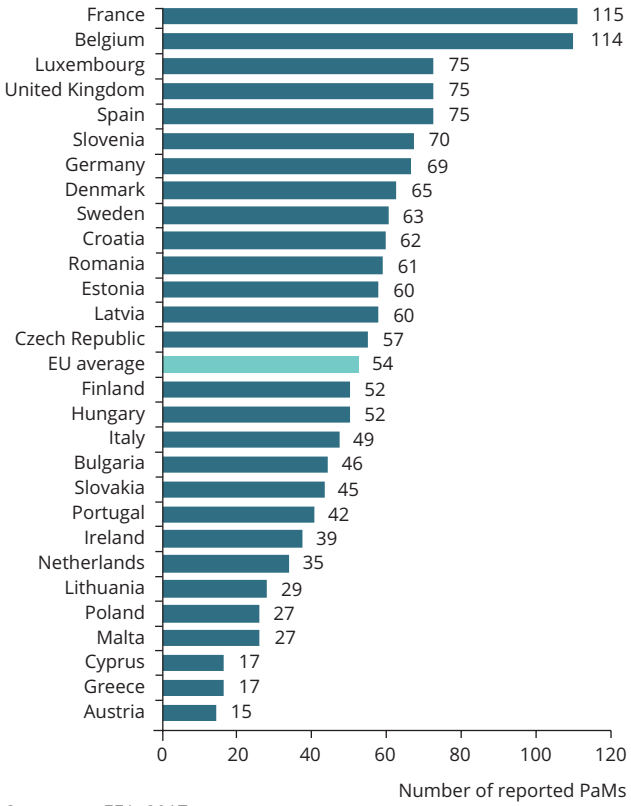
In addition, the Energy Transition Law includes numerous specific measures in the buildings, electricity, transport and waste sectors to achieve the above-mentioned targets: from setting-up strategies and plans, such as the National Low Carbon Strategy or the Clean Mobility Development Strategy, to specific instruments such as incentives to improve the energy efficiency of buildings, a ban on plastic bags, an increase in the number of charging stations for electric vehicles or a new support scheme for renewable energy.

Apart from objectives to reduce GHG emissions, increase the share of renewable energies and improve energy efficiency, the Energy Transition Law also has implications for employment and energy poverty.

3 Description of policies and measures reported by Member States

This chapter describes the characteristics of Member States' reported PaMs, based on Table 1 of the MMR's reporting template ([5]). These attributes include the objective(s), the sectors targeted, the GHGs affected, the instrument type, the implementing entity, the status of implementation and the EU policy that led to the development of the PaM. Annex 1 of this report provides country-specific information on the number of single PaMs and their main characteristics (sector targeted and instrument types).

Figure 3.1 **Number of single policies and measures reported**



Source: EEA, 2017a.

3.1 Number of reported policies by Member States

Member States reported a total of 1 513 individual PaMs in 2017. This is a 9 % increase compared with the 2015 reports.

The actual number of PaMs per country ranges from 15 to 115. France and Belgium reported by far the most individual measures, and Austria ([6]), Greece and Cyprus the least (Figure 3.1). Both France and Belgium report their PaMs at a highly disaggregated level, while other Member States report their PaMs at a more aggregated level.

The Member States that had the greatest increase in the number of reported PaMs were, in descending order, Luxembourg, Slovenia, Germany, Hungary, Latvia, France, the United Kingdom, Croatia, Portugal, Sweden and Italy. Austria and Poland reported fewer PaMs.

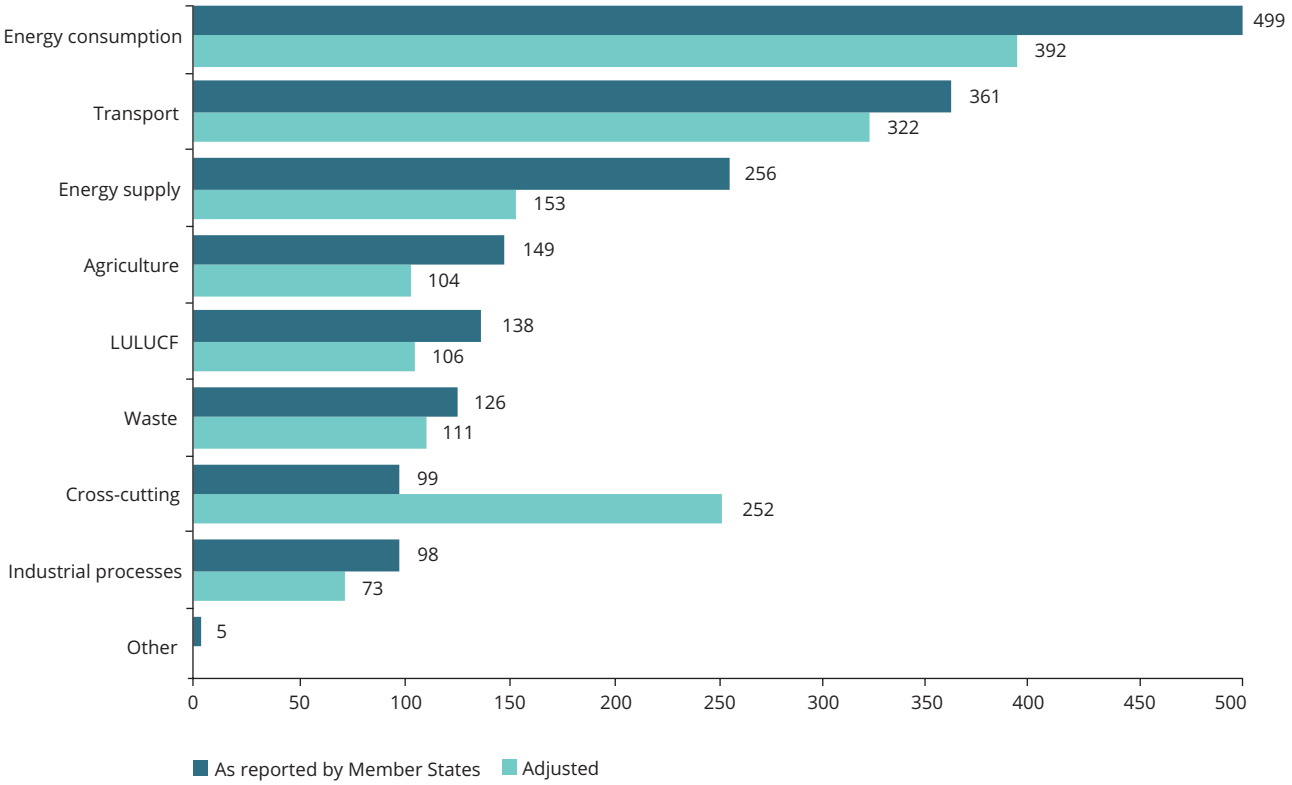
3.2 Sectors targeted by policies and measures

The reported PaMs may impact emissions through a range of emission sources and sectors. Member States are required to report all the sectors targeted by each policy or measure. The Member States were requested to select a sector from the following:

- energy supply (extraction, transmission, distribution and storage of fuels, as well as energy and electricity, production);
- energy consumption (consumption of fuels and electricity by end-users such as households, services, industry and agriculture);
- transport;
- industrial processes;

([5]) Table 1 in Annex XI of Commission Implementing Regulation No 749/2014.
([6]) Austria did not use the online questionnaire to submit information on national climate PaMs.

Figure 3.2 Number of policies and measures reported per sector



Note: Adjusted means that whenever a PaM is reported to affect more than one sector this is adjusted to cross-sectoral.

Source: EEA, 2017a.

- agriculture;
- waste;
- LULUCF;
- cross-cutting and other.

The option for Member States to report measures as 'cross-cutting' or to select several targeted sectors provides two ways of aggregating the information (see Figure 3.2): as reported by Member States or adjusted by indicating 'cross-cutting' where more than one sector was selected. The latter allows countries to take a more consistent approach to reporting cross-cutting PaMs. Based on these adjusted data, the following observations can be made.

- Policies and measures mostly target the energy consumption (26 %), transport (21 %) and energy supply (10 %) sectors, which also have the largest share of GHG emissions in Europe.
- 17 % of the PaMs are cross-cutting (Figure 3.2).
- Sectors that are least covered by PaMs in the EU are waste (8 %), LULUCF (7 %), agriculture (7 %) and industrial processes (5%).

These differences between sectors can be explained by the following reasons.

- The sectors least covered by PaMs have a comparatively smaller share of the total GHG emissions.
- Member States have to meet EU targets related to renewable energy and energy efficiency enabling policy actions in the energy supply, energy consumption and transport sectors. These three sectors are frequently reported in combination.

Furthermore, the number of PaMs is not a robust indicator of the sector's importance or of the total emission savings from policy intervention in the sector.

The number of PaMs per sector also differs across Member States (Table 3.1). Sectors that receive little focus at the overall EU level may, conversely, be relatively important in individual Member States. Examples include the number of policies addressing industrial processes in Slovakia (27 %), LULUCF in the United Kingdom (22 %), waste in Luxembourg and Malta (18 %) and agriculture in Poland (23 %).

Five Member States did not report any specific PaMs for at least one sector. This does not necessarily mean that in these cases no action is taken to reduce emissions: emissions could be targeted by cross-sectoral PaMs, for example. Ireland, Italy, Malta and the Netherlands omitted to report any PaMs on LULUCF, while the Netherlands and Hungary did not report any PaMs specifically related to industrial processes. This is a much smaller number than in 2015, when 16 Member States did not report at least one PaM per sector.

Table 3.1 **Share of targeted sectors per Member State (as % of total number of sectors reported), not adjusted for cross-cutting**

	Energy consumption	Transport	Energy supply	Agriculture	LULUCF	Waste	Cross-cutting	Industrial Processes	Other
EU-28	29	21	15	9	8	7	6	6	0
Austria	24	18	18	6	6	6	18	6	0
Belgium	32	26	16	4	2	1	12	9	0
Bulgaria	12	14	24	16	12	10	12	2	0
Croatia	30	18	16	9	4	8	5	9	0
Cyprus	33	17	22	6	6	11	0	6	0
Czech Republic	28	18	17	15	8	3	6	6	0
Denmark	26	21	17	13	8	12	0	3	0
Estonia	16	22	20	9	20	9	0	3	0
Finland	33	14	17	6	3	8	5	13	0
France	31	22	8	9	12	7	6	5	0
Germany	54	14	10	6	3	6	3	6	0
Greece	28	17	17	17	6	11	0	6	0
Hungary	21	27	13	3	17	14	5	0	0
Ireland	44	21	19	2	0	2	9	2	0
Italy	35	24	33	4	0	2	0	2	0
Latvia	27	12	24	17	12	3	0	5	0
Lithuania	9	22	25	9	13	13	0	9	0
Luxembourg	33	14	6	11	11	18	5	4	0
Malta	50	18	7	4	0	18	0	4	0
Netherlands	37	16	16	8	0	3	21	0	0
Poland	7	23	17	23	10	10	7	3	0
Portugal	14	33	16	5	7	12	7	7	0
Romania	26	20	18	11	5	9	8	3	2
Slovakia	14	20	4	14	8	6	2	27	4
Slovenia	34	24	15	3	5	7	7	6	0
Spain	24	39	6	5	6	4	7	5	1
Sweden	25	22	13	7	7	7	15	3	0
United Kingdom	39	10	12	9	22	1	0	6	1

Source: EEA, 2017a.

3.3 Reported policy objectives

Member States must identify the objective(s) of each reported PaM based on the selected sectors. The most frequently selected objective was improving efficiency in buildings (250 out of 1 513 PaMs (17 %)), either alone or in combination with other objectives (see Figure 3.3). The next most frequent was the promotion of renewable energy (12 % of PaMs). The most frequently reported objectives were almost exclusively linked to the energy supply, energy consumption and transport sectors, which are also the sectors that most PaMs target.

Energy consumption

Improving energy efficiency was reported in 79 % of all objectives related to energy consumption, including 50 % for energy efficiency specifically in buildings. There could be several explanations for this:

- Several EU policies have direct and indirect links to improving the energy efficiency of buildings, such as the recast Energy Performance of Buildings Directive and the Energy Efficiency Directive.

- Improving energy efficiency in buildings is a relatively cost-efficient way both to increase energy efficiency and to reduce GHG emissions. The PaMs relate, among other things, to the building regulations in the different Member States and to the (energy) labelling of houses.

Transport

In the transport sector, objectives are more widely distributed among the different options. The objectives can be divided into two large groups:

- Objectives that aim to reduce the emissions factor of the vehicle fleet by promoting low-carbon fuels and electric vehicles (35 % of transport PaMs) and improving the efficiency of vehicles (30 % of transport PaMs). Compared with 2015, promoting low-carbon fuels and electric vehicles has taken over improving efficiency of vehicles at the top.

- Objectives focused on behavioural changes by users: for instance, promoting the modal shift to public transport (26 % of transport PaMs), encouraging more efficient driving (20 % of transport PaMs) and reducing demand (19 % of transport PaMs).

Improved transport infrastructure, which does not necessarily belong to either group, represented 19 % of transport PaMs. This could include improved rail infrastructure or more charging stations for electric vehicles.

Energy supply

In the energy supply sector, the predominant objective was the promotion of renewable energy. In total, decarbonising the energy system (through use of renewable energy, nuclear energy and fuel switching) accounted for 67 % of all reported objectives in this sector. PaMs are driven mostly by the Renewable Energy Directive and the renewable energy target it imposes on individual Member States in 2020. Improving efficiency in the energy supply sector (including reduction of losses) accounted for 20 % of the reported objectives (28 % of energy supply PaMs). Among the other objectives reported were the promotion of combined heat and power, the development of electricity networks and the promotion of energy storage. The pattern is very similar to the reporting in 2015, although carbon capture and storage and nuclear power swapped places.

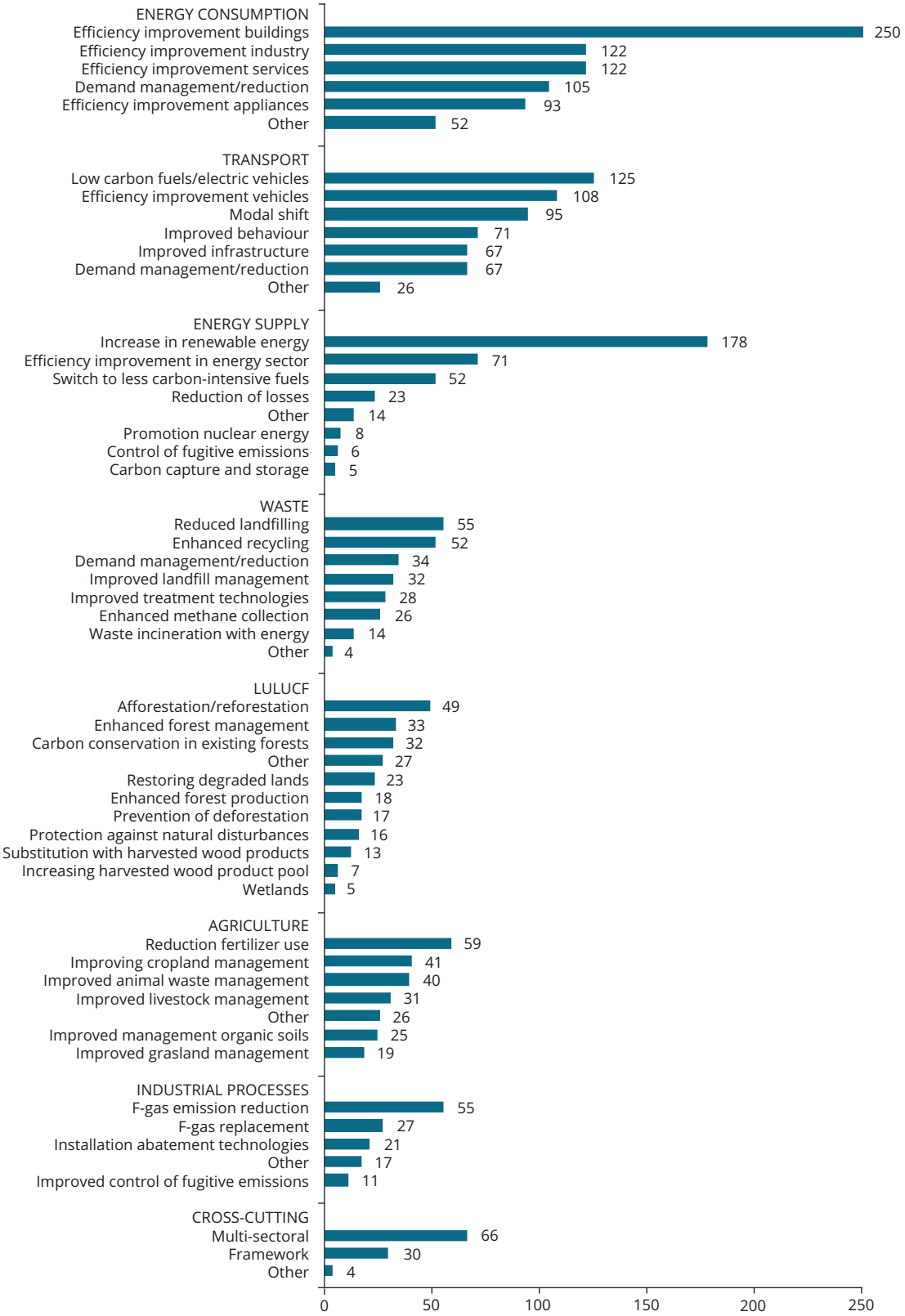
Industrial processes

In the industrial processes sector, objectives related to the emission of fluorinated GHGs were reported most frequently. The objectives 'reduction of emissions' and/or 'replacement of fluorinated gases' were reported respectively by 56 % and 28 % of PaMs in the industrial processes sector and in cross-cutting PaMs with objectives in industrial processes. This was already the case in 2015. This means that most PaMs in this sector affect fluorinated GHG emissions in subsectors such as industrial and commercial refrigeration. Large point-sources for GHG emissions in the industrial processes sector fall under the ETS, which could explain why there are relatively few single PaMs in this sector.

Agriculture, LULUCF and waste

As in the transport sector, objectives related to agriculture, LULUCF and waste were relatively equally distributed among the different options. In the agricultural sector, reducing fertiliser use (40 % of agriculture PaMs) and cropland management (28 % of PaMs) were the most frequently reported objectives. Promoting afforestation and reforestation (36 % of LULUCF PaMs) and enhancing forest management

Figure 3.3 Number of single policies and measures per objective grouped by sector



Note: More than one objective could be selected for each single PaM; therefore, the sum for all objectives is greater than the total number of PaMs.

F-gas, fluorinated greenhouse gases.

Source: EEA, 2017a.

(24 % of PaMs) were the most important objectives for PaMs affecting the LULUCF sector. In the waste sector, where national PaMs are often driven by EU legislation, PaMs mainly aim to reduce landfilling (44 % of waste PaMs) and to promote recycling of waste (41 % of waste PaMs); 35 % of all waste objectives relate to reducing waste by demand reduction and recycling, while 47 % of objectives relate to the treatment of waste streams (e.g. landfilling, improved treatment and incineration).

3.4 Greenhouse gases affected by policies and measures

National PaMs primarily target emissions of carbon dioxide (CO_2). The number of PaMs affecting each GHG clearly reflects the prevalence of each gas in terms of emissions, with CO_2 (84 % of PaMs) being the GHG predominantly affected, followed by methane (CH_4) (23 %) and nitrous oxide (N_2O) (20 %). Nitrogen trifluoride (NF_3) (1 %) is the least reported GHG. The other fluorinated GHGs, namely hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6), are each reported in 4-6 % of PaMs (Figure 3.4.)

3.5 Types of instruments used

Member States are required to report the type of instrument that is associated with each of the PaMs. These instruments can be classified as:

Economic: a PaM that provides an economic incentive to reduce GHG emissions. This includes measures such as infrastructure programmes, subsidies, investment programmes, feed-in tariffs, loans/grants and trading schemes (e.g. EU ETS).

Fiscal: a PaM that provides a financial incentive via taxes. This includes both increases and decreases in taxes.

Voluntary/negotiated agreements: a binding or voluntary standard/regulation as in regulatory and information measures, but agreed between regulators and the sector targeted.

Regulatory: measures that set binding standards and regulations. This includes, for instance, building regulations or ecodesign standards.

Information: measures such as labelling, awareness raising, voluntary standards. The objective is to disseminate information to the general public or to specific target groups.

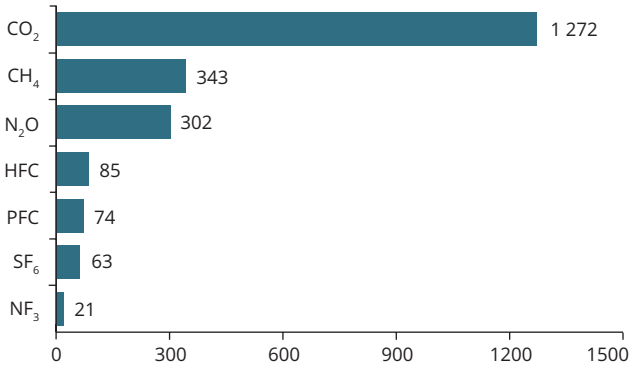
Education: measures such as training programmes and capacity building.

Research: measures that include, for instance, research programmes or demonstration projects.

Planning: measures such as waste management plans, transport plans, urban planning.

Other: measures that do not fit in any of the above categories, such as public procurement.

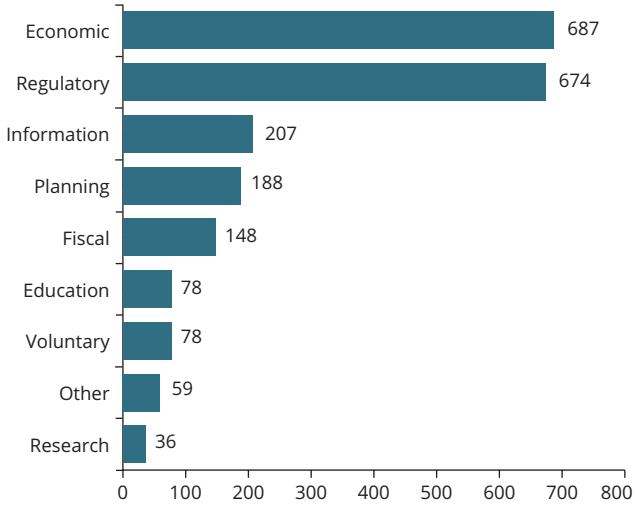
Figure 3.4 Number of single policies and measures per greenhouse gas



Note: More than one GHG could be selected for each single PaM; therefore, the sum for all GHGs is greater than the total number of PaMs.

Source: EEA, 2017a.

Figure 3.5 Number of single policies and measures reported per instrument type



Note: More than one instrument type could be selected for each single PaM; therefore, the sum for all instrument types is greater than the total number of PaMs.

Source: EEA, 2017a.

Member States predominantly use economic and regulatory instruments, in almost equal shares (respectively 32 % and 31 % of cases, which corresponds to about 45 % of PaMs; Figure 3.5). This pattern is very similar to the reporting in 2015. If the number of PaMs is considered, fiscal instrument types did become less important in 2017 than in 2015.

The dominance of economic and/or regulatory instrument types can be observed across most Member States (Table 3.2). For 25 Member States, economic and regulatory instrument types are selected in more than 50 % of cases. Slovakia reported only regulatory or economic instrument types.

Some Member States deviate significantly from this general pattern. Romania reports almost no economic PaMs. In Romania, this gap is filled by a very large share of regulatory PaMs and, to a lesser extent, planning PaMs.

Table 3.2 **Share of instrument types per Member State (as % of total number of instrument types reported)**

	Economic	Regulatory	Information	Planning	Fiscal	Voluntary	Education	Research	Other
EU-28	32	31	10	9	7	4	4	2	3
Austria	35	39	16	3	3	0	0	3	0
Belgium	26	20	19	9	8	4	11	2	1
Bulgaria	39	36	1	7	3	4	6	4	0
Croatia	39	26	11	1	3	10	4	4	0
Cyprus	23	32	9	14	23	0	0	0	0
Czech Republic	39	30	8	9	9	2	3	0	0
Denmark	43	24	14	0	12	3	1	1	0
Estonia	52	23	11	9	4	0	0	1	0
Finland	20	41	16	7	12	1	0	0	3
France	24	26	16	15	6	3	3	3	4
Germany	52	27	10	1	2	5	1	1	0
Greece	25	31	14	12	16	0	2	0	0
Hungary	43	20	4	24	6	2	2	0	0
Ireland	22	25	10	6	9	9	13	3	1
Italy	45	24	0	18	10	2	0	0	0
Latvia	46	28	7	4	9	4	1	0	0
Lithuania	36	36	11	7	4	2	4	2	0
Luxembourg	16	38	9	5	9	6	9	2	4
Malta	36	14	7	11	18	0	4	0	11
Netherlands	24	30	5	0	14	24	0	0	3
Poland	23	39	0	0	0	0	7	5	26
Portugal	14	44	5	31	5	2	0	0	0
Romania	11	72	0	13	0	4	0	0	0
Slovakia	47	53	0	0	0	0	0	0	0
Slovenia	28	26	12	7	6	0	6	4	11
Spain	27	21	4	25	3	4	4	2	10
Sweden	39	20	13	1	16	4	3	1	1
United Kingdom	31	38	14	0	6	6	3	1	2

Source: EEA, 2017a.

Table 3.3 Share of instrument types linked to specific sectors (% of total)

	Economic	Regulatory	Information	Planning	Fiscal	Voluntary	Education	Research	Other
Energy Supply	47	27	5	8	7	4	1	1	1
Energy Consumption	33	30	14	5	7	4	4	1	3
Transport	27	27	9	12	13	3	3	1	4
Industrial Processes	22	52	6	1	4	4	6	2	2
Agriculture	37	29	9	7	1	3	6	6	3
LULUCF	37	27	8	14	1	5	4	2	1
Waste	17	47	4	18	7	1	1	0	3
Other	29	57	0	0	0	0	0	0	14
Cross-cutting	32	22	12	10	10	5	2	3	3

Note: Sectors not adjusted for cross-cutting.

Source: EEA, 2017a.

Belgium has selected regulatory and/or economic instrument types in the least number of cases. This could be because Belgium has reported among the largest number of single PaMs. France also reported many PaMs and has a relatively smaller share of regulatory or economic instrument types.

In the Netherlands, voluntary agreements are relatively important. This could indicate that the Netherlands pays particular attention to working together with the different parties involved in implementing climate action. In Portugal and Spain, planning is dominant as a policy instrument. Many policies in Spain appear to be installed by the central government but then need further implementation by regional or local authorities. These policies have been characterised as planning instruments.

Sectoral differences can also be identified (Table 3.3). Regulatory and economic instruments dominate all sectors and account for more than 50 % of all PaMs. However, there are differences: economic instruments are more important in the LULUCF and energy supply sectors (a difference of more than 10 percentage points), and regulatory instruments are more important in the industrial processes and waste sectors (a difference of more than 10 percentage points).

In the transport sector, and for cross-cutting measures, a wide range of instruments are used; the most commonly reported are information, fiscal and planning instruments, with a relatively small share of economic and regulatory instruments. The industrial processes and energy supply sectors, on the other hand, are the least diverse, with more than 70 % of PaMs being regulatory and/or economic.

3.6 Status of implementation

The status of implementation of the reported PaMs can be classified as follows:

- **Planned:** options under discussion that have a realistic chance of being adopted and implemented in the future.
- **Adopted:** PaMs for which an official government decision has been made and for which a clear commitment to proceed with implementation exists.
- **Implemented:** PaMs for which one of the following applies:
  - national legislation is in force;
  - one or more voluntary agreements have been established;
  - financial resources have been allocated;
  - human resources have been mobilised.
- **Expired:** PaMs for which the timeline of the policy has ended. Expired policies may still have a long-term impact on GHG emission savings.

About four fifths of the reported PaMs are already implemented (77 %) or have been adopted (4 %), while 10 % are still at the planning stage. Member States also reported information on expired PaMs (8 %). The reason for the relatively small share of expired PaMs is that there is no requirement to report all historical climate PaMs. Therefore, expired PaMs that have been superseded by other PaMs or that have no measurable impact on GHG emissions are in most cases not reported by Member States.

Member States' reporting is not consistent in this respect, especially when the start year is close to the reporting year. In this case, there are differences in interpreting when a PaM is implemented or adopted, reflecting national circumstances and alignment of the PaMs reporting with the reporting of GHG projections. Although guidelines are provided on this issue (EEA, 2016), there is potential inconsistency between the start year of the PaM, its reported status and the type of projection scenario in which the effect of the PaM on GHGs is accounted for ('with existing measures' versus 'with additional measures').

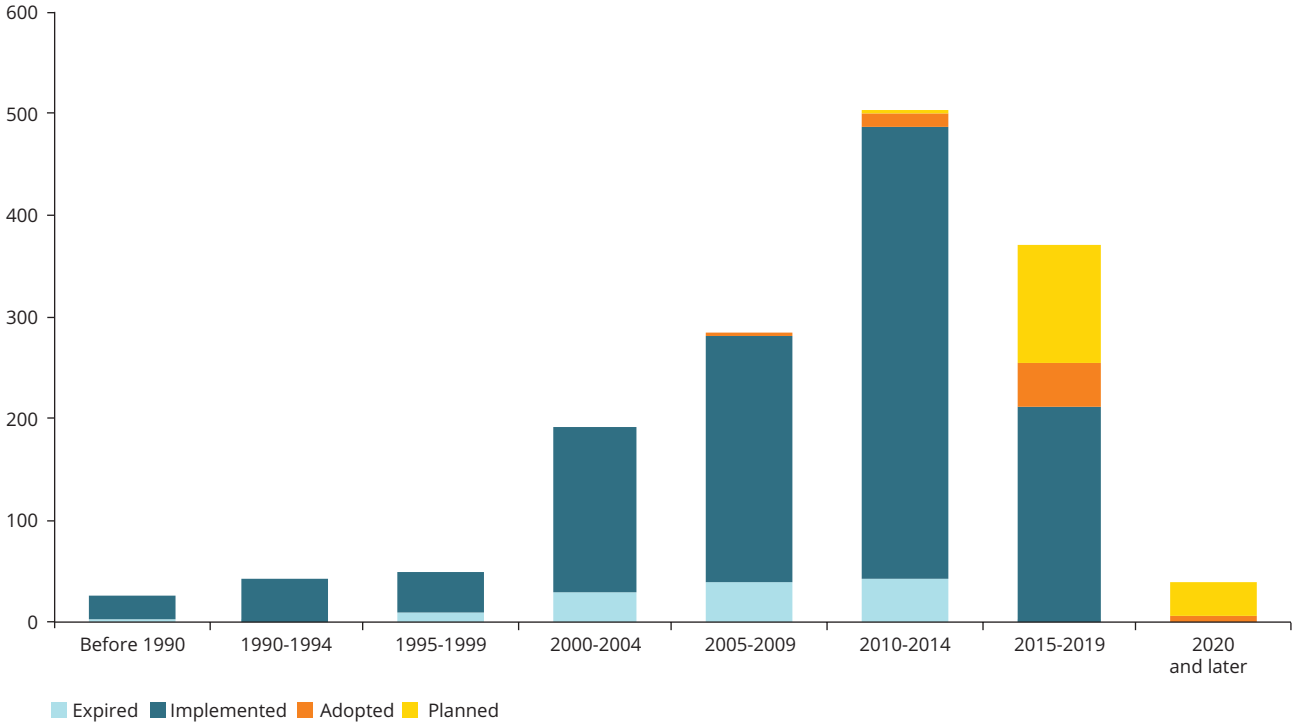
Reported expired PaMs started mostly in the period 2000-2014 (see Figure 3.6). This does not mean that no PaMs adopted before 2000 have expired, but rather may indicate a bias to report only recently expired PaMs or that detailed analysis of PaMs is not available because of a lack of historical data. The reporting also includes a number of very old PaMs (before 1990), starting from the 1950s.

3.7 Main timeframes for implementation

The number of PaMs implemented increased significantly between 1990 and 2014 (see Figure 3.7, which combines all PaMs irrespective of their reported status). Reporting by Member States on the starting year of their PaMs clearly improved compared with 2015, as in 2017 only 11 PaMs did not have this information reported (0.7 %, compared with 14 % in the previous reporting period).

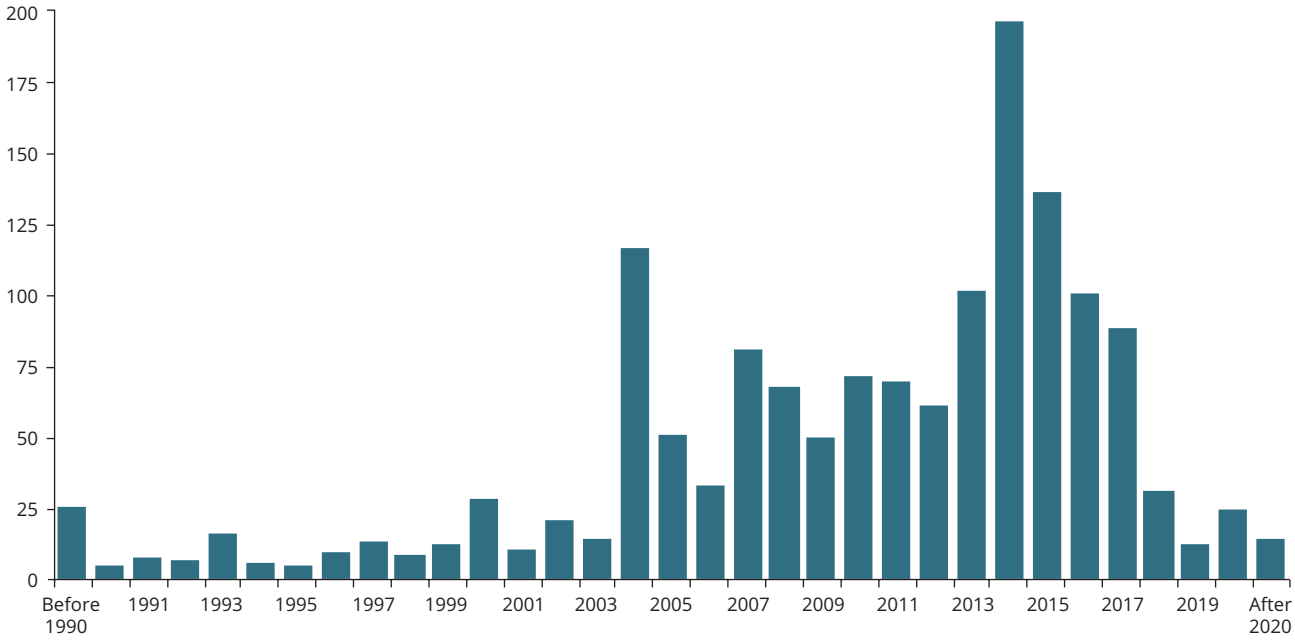
The peak observed in 2004 is mostly due to Belgium, which contributed to 75 % of the overall total: almost all of the country's PaMs were reported to start being implemented that year. The decrease in new PaMs in 2012 could be explained by austerity measures taken as a consequence of the economic recession.

Figure 3.6 Number of policies and measures per reporting period and implementation status



Source: EEA, 2017a.

Figure 3.7 Number of policies and measures per starting year of implementation



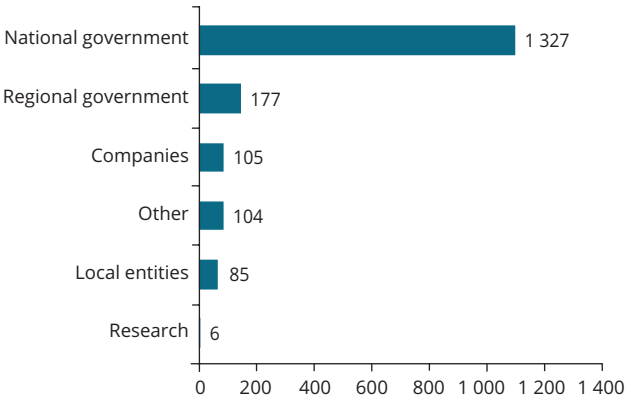
Source: EEA, 2017a.

3.8 Implementing entities

Member States must report on the type of entity, or entities, responsible for implementing each reported PaM: national, regional and/or local government, research, other, and companies. Unsurprisingly, Member States report predominantly PaMs implemented at national level (see Figure 3.8). National governments are responsible for implementing 88 % of the reported PaMs, either solely or with other entities.

Belgian regional authorities' responsibility for climate policy is the main reason for the large number of regional climate PaMs at EU level (there are 97 regional policies in this country, which is more than half of the EU total). Fifteen Member States used the category 'other' to refer to, for example, non-governmental organisations, agencies that are not linked directly to national government, commissions and authorities such as grid managers.

Figure 3.8 Number of policies and measures per entity responsible for their implementation



Note: More than one entity could be selected for each PaM; therefore, the sum for all entities is greater than the total number of PaMs.

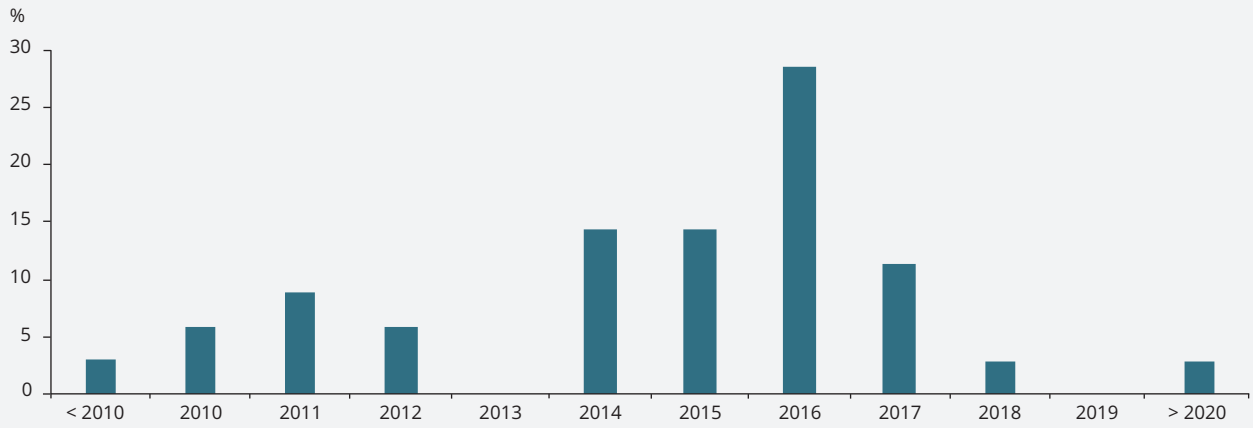
Source: EEA, 2017a.

Box 3.1 Transport policy: promotion of electric vehicles

Many Member States are facing challenges in reducing GHG emissions in the transport sector. In the past, policies focused on improving the energy efficiency of new vehicles, promoting biofuels and modal shift. The economic recession also had a very significant effect on GHG emissions in the transport sector. As the economy across the EU is recovering, GHG emissions from road transport have increased again in recent years, due to increased demand for transport of both goods and people. Decarbonising transport will be crucial to curb this emission trend and to allow Member States to achieve their long-term mitigation objectives.

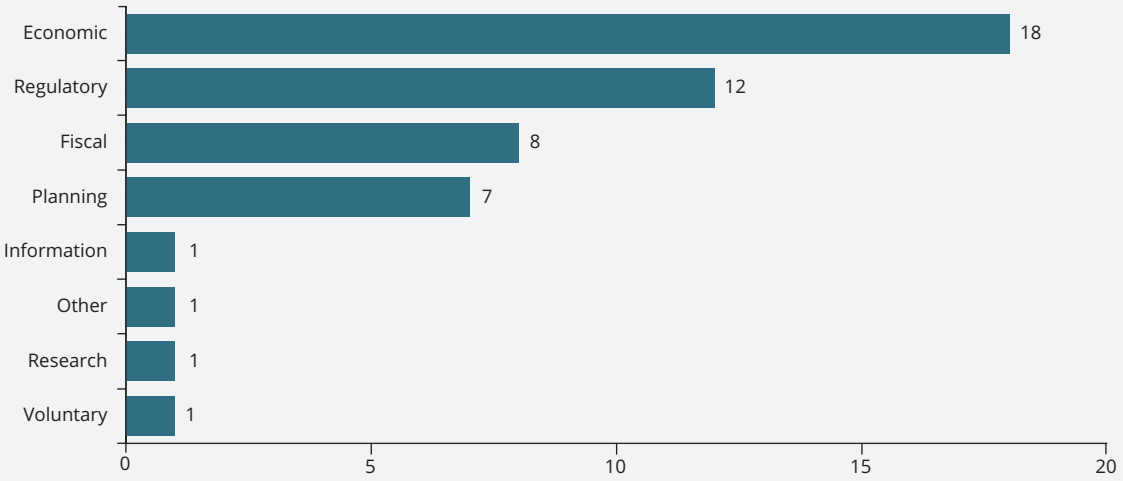
The information reported by Member States shows an increase in the number of adopted policies promoting electric vehicles, although this number is small compared with the total number of PaMs (Figure 3.9). These PaMs are dominated by financial incentives (economic and fiscal). Examples of these instruments are the Irish 'grant support for new electric vehicles' and the Swedish 'super green car rebate' and the 'electrical bus premium'. Some countries, such as Hungary, Latvia and Luxembourg, also reported PaMs aiming to improve their infrastructures to accommodate more electric vehicles. In Hungary, the 'Ányos Jedlik Plan for promotion of e-mobility' is the main policy document for promoting e-mobility and has resulted in several sub-programmes.

Figure 3.9 Share of policies and measures targeting electric vehicles per starting year



Source: EEA, 2017a.

Figure 3.10 Instrument types targeting electric vehicles per starting year



Source: EEA, 2017a.

4 Reported effects of policies and measures

This chapter covers the quantitative information reported by Member States on the emission reductions achieved by (*ex post*) or expected from (*ex ante*) PaMs. As there are no requirements on the methodologies to be used to estimate savings, the analysis presented below should be considered taking into account the potentially large variation in methodological approaches across Member States.

4.1 Reported achieved (*ex post*) emission savings from policies and measures

Ex post emission savings from PaMs are essential for assessing the effectiveness and efficiency of national climate PaMs. However, evaluating the exact progress made towards the objective of the policy is often difficult. There are different methodological approaches possible and assumptions needed, which have a significant impact on the results. Moreover, many PaMs have been introduced to achieve goals in addition to those relating to climate change mitigation, and interactions between instruments as well as external changes make distinguishing the effects of a single instrument very difficult. This complicates comparing and adding up *ex post* emission savings.

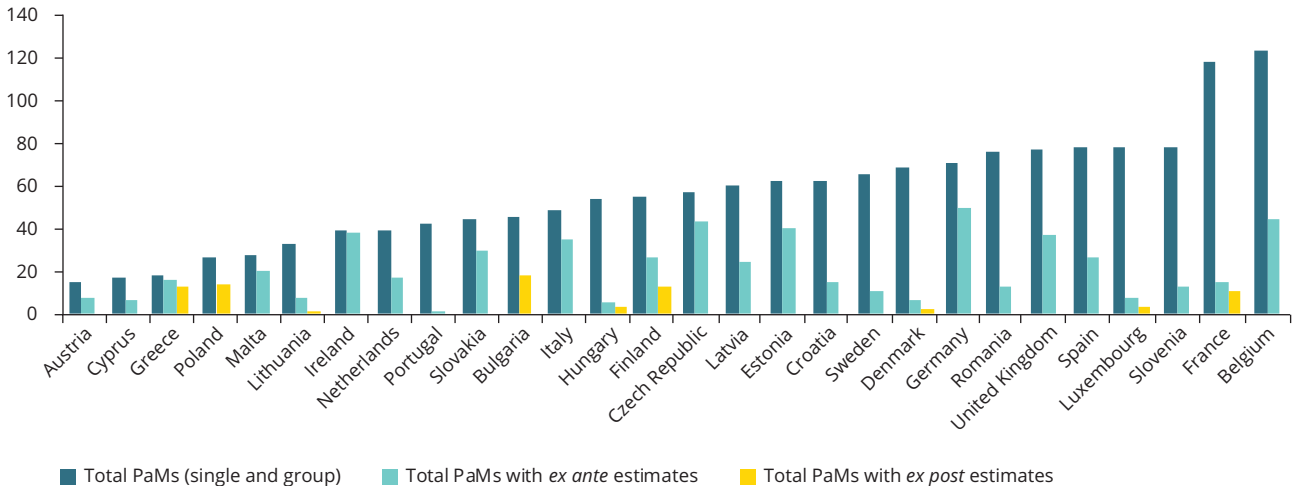
The reporting on *ex post* emission savings remains very incomplete. In 2017, nine countries reported quantitative data on *ex post* emission savings: Bulgaria, Denmark, Finland, France, Greece, Hungary, Lithuania, Luxembourg and Poland (see Figure 4.1).

This is nevertheless an improvement compared with 2015, when only three countries reported *ex post* results. Spain reported *ex post* data for one PaM, but omitted these from the 2017 report. Not only did more countries report *ex post* data, quantitative data were also provided for more PaMs than in 2015:

- **Bulgaria:** data for 18 different PaMs (39 %; and, for two PaMs, data for two different years). *Ex post* impact was mostly assessed for the year 2014.
- **Denmark:** data for two grouped PaMs (all renewable energy and all energy efficiency PaMs, comprising 33 single PaMs). Both cover the emission savings in the year 2014.
- **Finland:** data for 13 different PaMs (24 %; for all PaMs on one year). *Ex post* impact was mostly assessed for the year 2015.
- **France:** data for 11 different PaMs (9 %; in total 17 different combinations of PaM and year). *Ex post* impact was mostly assessed for the year 2015.
- **Greece:** data for 13 different PaMs (72 %; in total 26 different combinations of PaM and year). *Ex post* impact was mostly assessed for the year 2015.
- **Hungary:** data for four different PaMs (6 %; for one PaM data for two different years). *Ex post* impact was mostly assessed for the year 2015.
- **Lithuania:** data for one PaM for the year 2015 (3 %).
- **Luxembourg:** reported data for three different PaMs (4 %; for all PaMs on one year). *Ex post* impact was mostly assessed for the year 2015.
- **Poland:** data for 14 different PaMs (52 %; for all PaMs on one year). *Ex post* impact was mostly assessed for the year 2015.

Compared with 2015, there are 56 more PaMs for which *ex post* data are available (which corresponds to 4 % of all reported PaMs). Some of these PaMs are reported to have resulted in significant emission savings, such as the Hungarian Warmth of Home Programme, the Promotion of Renewable Electricity in Greece and the Energy Efficiency Agreements in Finland. Denmark reported the *ex post* impact of two grouped PaMs covering a significant number of single PaMs. Quantitative data were, however, not restricted to PaMs with a large impact on GHG emissions; the impact of smaller PaMs was also reported.

Figure 4.1 **Number of PaMs reported with *ex post* or *ex ante* emission savings**

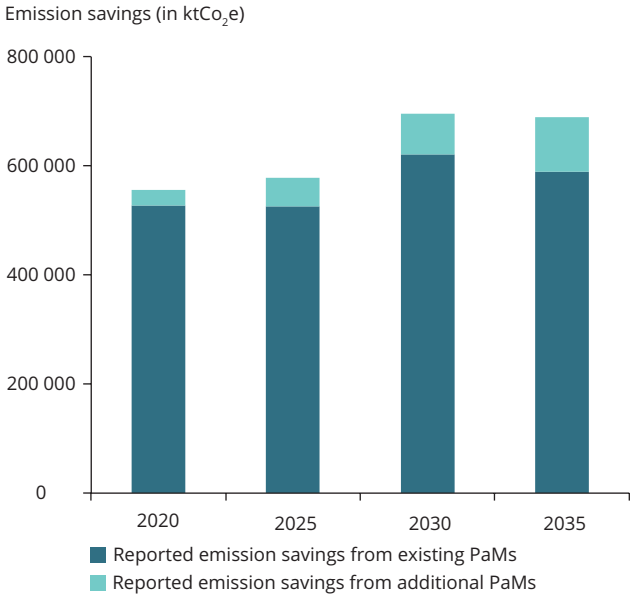


Source: EEA, 2017a.

4.2 Reported expected (*ex ante*) emission savings from policies and measures

Reporting quantitative data is mandatory only when these are available. *Ex ante* estimates of PaMs emission savings have to be reported for a sequence of four years ending with 0 or 5 immediately following the reporting year (i.e. 2020, 2025, 2030 and 2035). This ensures consistency in the years for which data are reported.

Figure 4.2 **Reported expected emission savings of policies and measures from 2020 to 2035**



Note: Only PaMs belonging to WEM or WAM ('with additional measures') scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

Source: EEA, 2017a.

Twenty-six Member States reported quantitative ex ante savings for at least one year and at least one PaM (Figure 4.1). As is the case for *ex post* estimates, no specific guidance is provided on methods for assessment of *ex ante* impacts for MMR reporting, which means that there are considerable differences across Member States in their approach and their assumptions used to calculate the emission savings from PaMs, which makes a comparison particularly difficult. Therefore, the following analyses are subject to caveats in terms of the quality of data provided by Member States. Annex 1 presents information for all individual Member States.

4.2.1 Reported emission savings from existing and additional measures for the period 2020-2035

Member States prioritise the reporting of expected savings from existing PaMs for the year 2020: in numerous cases, Member States present quantified savings for 2020 but not for 2025, 2030 or 2035, although these policies are considered to be in place and delivering at least 2020-level savings. Nevertheless, the completeness of reporting *ex ante* savings for the full time series improved in several Member States compared with 2015.

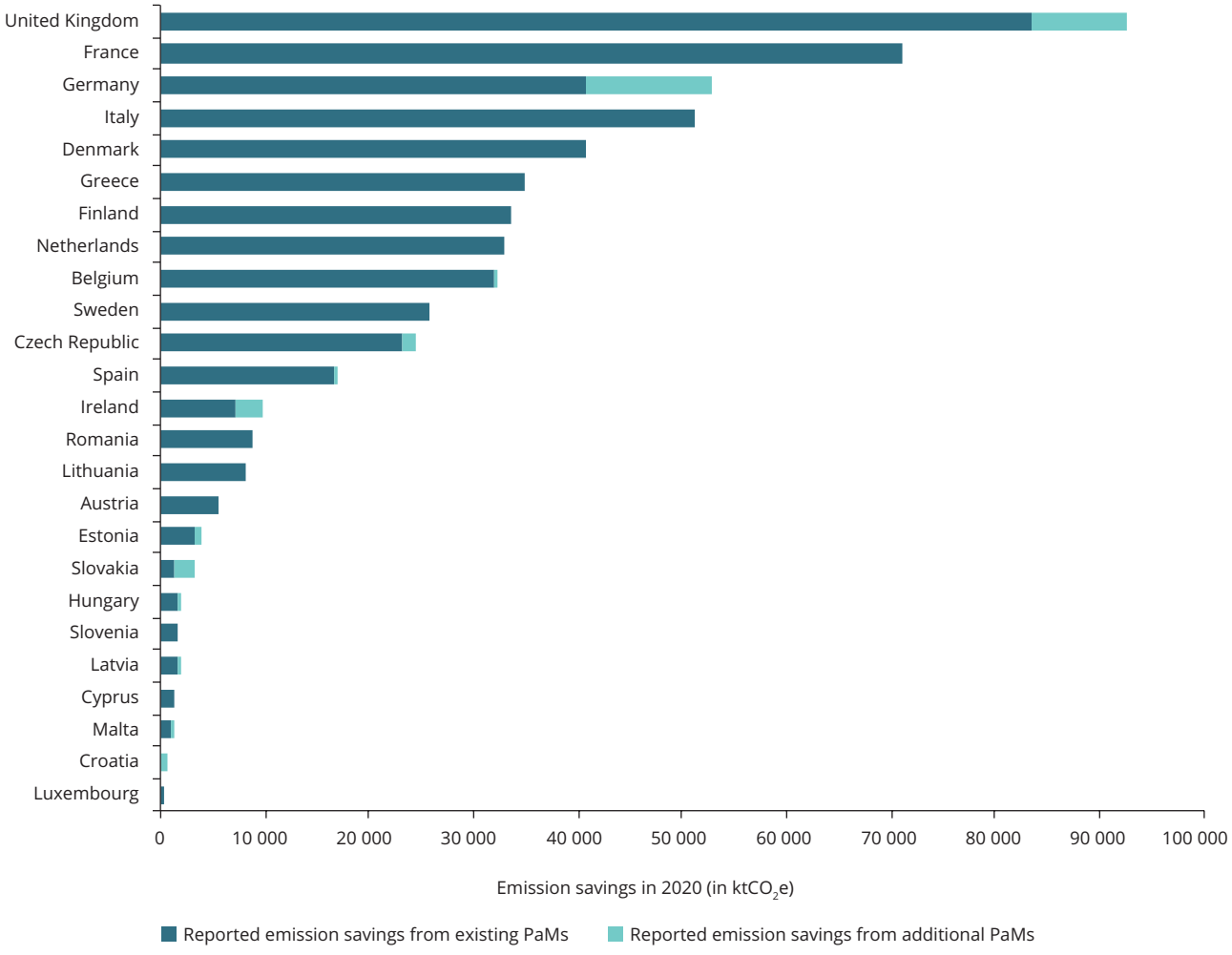
Of the 1 358 PaMs reported as covered under Member States' projections in the 'with existing measures' (WEM) scenario, 460 had *ex ante* emission savings reported for at least one year (usually 2020), and only 314 had emission savings reported for all four years. Despite this, the aggregated savings from existing and additional measures are expected to increase from 2020 until at least 2030 (Figure 4.2). This indicates that, where Member States reported savings from PaMs for all four years,

these savings are actually expected to increase over time. Compared with EU emissions in 2015, the reported annual savings from existing and additional PaMs for 2020-2035 are in the region of 14-17 % (existing measures) and 1-3 % (additional measures).

The most significant contributions from individual Member States to overall EU savings from existing measures come from the United Kingdom, France and Italy, whose savings in 2020 constitute 39 % of the total (see Figure 4.3). Savings from these three countries are equal to a 16 %, 16 % and 12 % saving compared with their 2015 emissions, respectively. Figure 4.3 highlights the relatively low quantification of additional PaMs, with only 12 Member States reporting *ex ante* savings in 2020 for PaMs in the 'with additional measures' (WAM) scenario.

In the 2015 report, data from Germany showed a significant emission reduction in 2020 from existing PaMs. Germany reported adjusted estimates in 2017, which are more comparable with other Member States' reporting in relative terms. As a result, the total emission savings reported in 2017 are lower than in 2015, although the reporting is more complete in 2017. This illustrates the need to interpret data with care, as methodologies and assumptions differ among Member States and can change over time.

Figure 4.3 Reported expected emission savings from existing and additional policies and measures in 2020



Note: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario. Data labels on the figure indicate the sum of PaMs in both WEM and WAM scenarios.

Source: EEA, 2017a.

4.2.2 Contribution of reported policies and measures towards projected emission levels

The following analysis compares:

- reported emission savings from existing (adopted or implemented) measures with total projected emissions for 2020 in the WEM scenario;
- reported emission savings from additional (planned) measures with the difference between the WEM and WAM scenarios.

Information on aggregated, expected emission savings in relation to historical and projected 2020 GHG emissions for the EU is presented in Figure 4.4.

The EU's historical GHG emissions decreased between 1990 and 2015. In the WEM scenario, total GHG emissions (excluding the LULUCF sector) are expected to continue to decrease until 2020. The aggregated expected emission savings from existing PaMs are presented on top of the projected emissions to allow easy comparison. The magnitude of these reported *ex ante* savings appears relatively limited in comparison with both 2015 emissions and 2020 projected emissions, which is consistent with the observed underreporting of *ex ante* estimates by Member States.

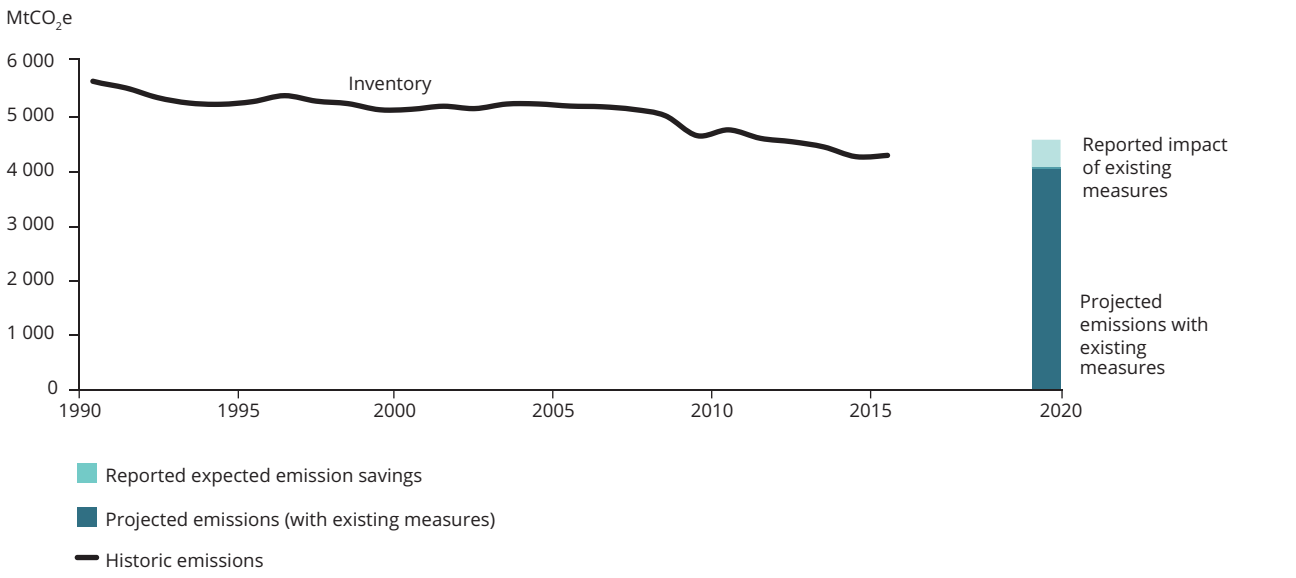
If reporting of policy effects were complete and integrated with reporting on GHG projections, the reported impact of existing measures would represent a scenario excluding all PaMs implemented, adopted or planned, known as a 'without measures' (WOM) scenario.

At national level, existing PaMs are expected to have widely different impacts on total GHG emissions by 2020 (see Figure 4.5). According to the reported estimates, and therefore keeping in mind the lack of completeness of reported savings across the EU, existing PaMs are expected to have only a relatively minor impact on certain countries' projected emissions, while other Member States report estimates showing very high impacts of national PaMs. For example, the data reported by Denmark show that emissions by 2020 would be twice as high without the existing PaMs for which expected savings have been reported.

4.2.3 Emission savings from policies and measures by main sector in 2020

To identify savings related to specific sectors, the savings reported by Member States for each PaM were split and equally allocated to each sector linked to the PaM ([7]). For example, when three sectors have been

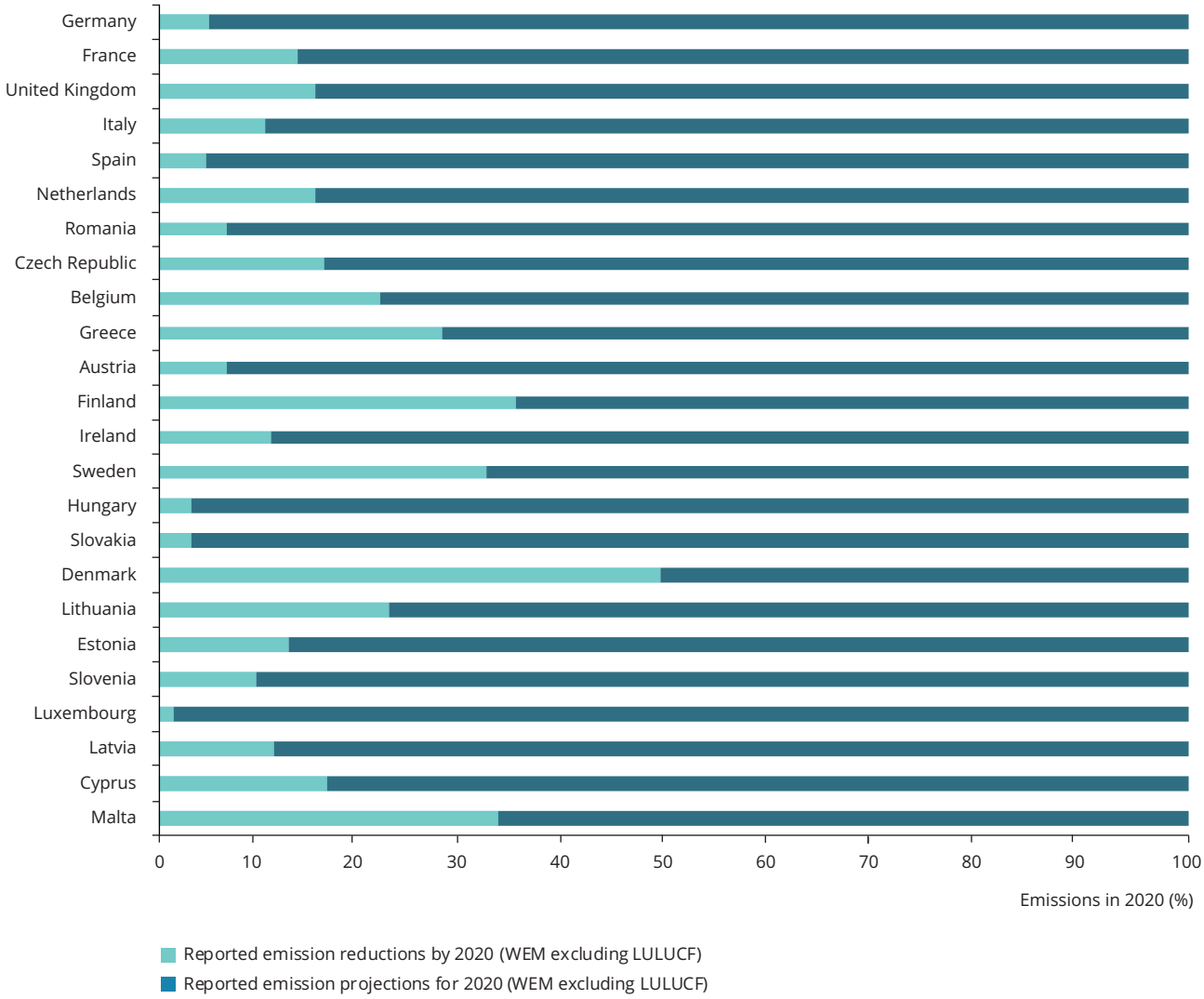
Figure 4.4 Aggregated reported expected emission savings of policies and measures (excluding LULUCF) in 2020 in relation to historical and projected GHG emissions



Sources: EEA, 2017a and 2017c.

([7]) A 'link' means that a Member State indicated that the PaM was implemented in response to an EU policy. This has been quality checked, but ultimately it is the Member State's interpretation of whether or not that is the case.

Figure 4.5 **Reported expected emission savings from existing measures by 2020 compared with projected GHG emissions**



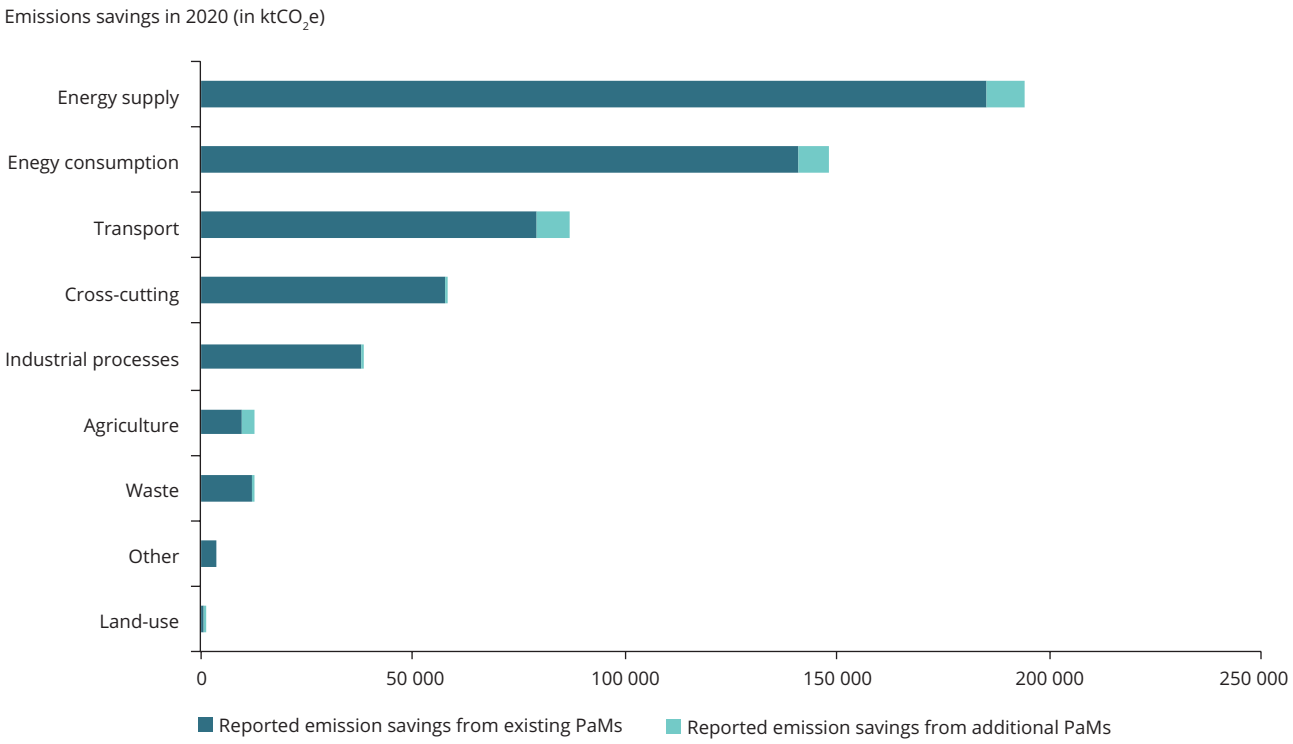
Notes: WEM, with existing measures. The 100 % value represents the sum of 2020 projected emissions in the WEM scenario and the aggregated expected savings from existing PaMs by 2020. The light blu bar represents the reported expected emission savings of existing PaMs by 2020. The dark blu bar represents the reported projected emissions by 2020 in the WEM scenario, i.e. the remaining emissions projected for 2020 after the emission savings from existing PaMs have been taken into account.

Source: EEA, 2017a.

linked to a PaM, the saving is divided by three, and one third is attributed to each sector. Data for 2025-2035 are not considered complete. Therefore, the analysis has focused on the year 2020.

The largest reported savings projected for 2020 are expected to occur in the energy supply and energy consumption sectors. These two sectors together contribute 62 % of total emission savings. The land use and agriculture sectors have the largest relative savings from additional PaMs in 2020, predicting total savings of 37 % and 23 %, respectively. Additional energy supply PaMs contribute the largest absolute additional savings (9.0 million tonnes of CO_2 equivalent, or $MtCO_2e$) but constitute only 5 % of the total energy supply savings in 2020. Energy generation and efficiency policies together make up 47 % of the total savings for 2020 from existing policies (Figure 4.6).

Figure 4.6 Reported expected emission savings of national policies and measures in 2020, by sector



Note: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

Source: EEA, 2017a.

5 Reported contribution of EU policies to expected emission savings

This chapter focuses on the links reported by Member States between national PaMs and EU climate and energy policies affecting GHG emissions.

5.1 National policies implemented in response to EU-wide policies

Member States are required to specify if their reported national policy was implemented in response to an EU-wide instrument. Member States have the option of indicating that there was no link with EU policy or indicating one or more EU policies to which the national PaM is related.

In 400 cases, national PaMs were reported to have been implemented without a direct link to an EU policy. This corresponds to 26 % of all PaMs, a small increase compared with the information reported in 2015 (24 %). The Member States with a high rate of PaMs that are unrelated to EU policy are the Netherlands and Luxembourg. Conversely, several Member States, in particular Bulgaria, Croatia, Greece, Lithuania and Malta, reported very few PaMs unrelated to EU policies.

Large, overarching EU policies are most commonly linked to Member States' PaMs. These include the Energy Efficiency Directive and the Energy End-use Efficiency and Energy Services Directive, the Renewable Energy Directive and the ESD (which sets national targets for GHG emissions from nonETS sectors). EU policies that are more specific or that do not require transposition into national legislation are linked least often (Figure 5.1).

A somewhat different picture emerges, however, when the number of Member States that have linked one or more national PaMs to an EU policy are counted (Figure 5.2). The large overarching EU policies are still important but other, more specific, EU policies are also reported by many countries. This is the case for the recast Energy Performance of Buildings Directive and the Waste Management Framework Directive, which have been linked by most Member States to at least one national PaM.

Some significant EU policies have not been linked to national policies in certain Member States. This is the case of the Emissions Trading Directive, which might be because its transposition into national legislation does not necessarily require many different national PaMs.

The category of 'other' EU policy was also often reported by Member States and contains many different EU policies. Some important examples are:

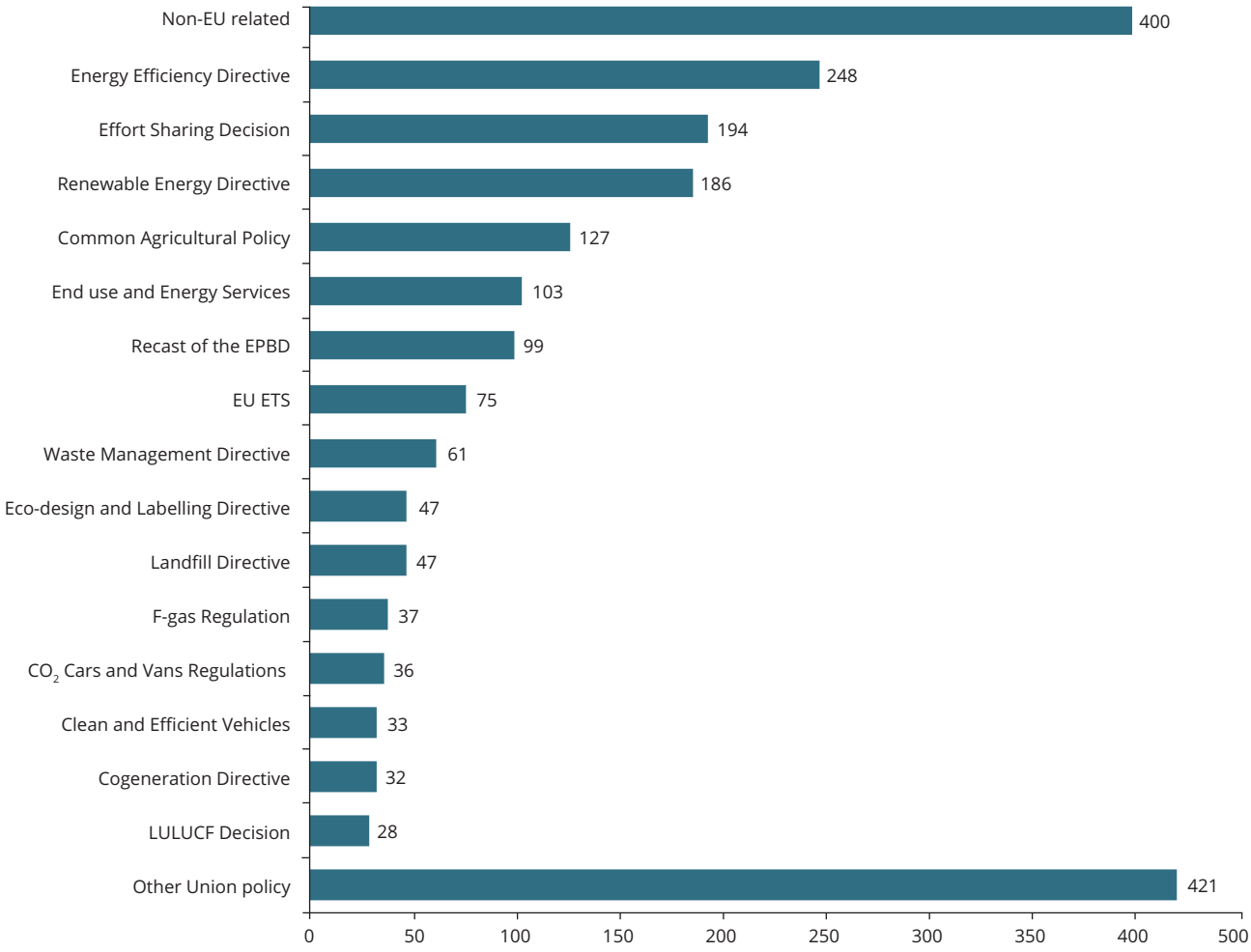
- Directive 2014/94/EU on the deployment of an alternative fuels infrastructure;
- Kyoto Protocol project mechanisms 2004/101/EC;
- Rural Development Programme 2014-2020;
- Waste Incineration Directive 2000/76/EU.

5.2 Emission savings from policies and measures related to EU policies

Emission savings from existing PaMs related to EU policies account for 85 % of the reported quantified savings by 2020. This includes the PaMs linked to EU policies addressing energy efficiency and energy generation (including renewable energy), which represent half of the reported savings by 2020. Other EU policies contribute 35 % of the expected savings, with the remaining 15 % covered by non-EU policies.

The Renewable Energy Directive is expected to drive the single largest emission saving from existing PaMs in 2020 (19 %) (see Figure 5.3). This is consistent with the fact that the Renewable Energy Directive is also the EU policy for which most Member States reported expected emission savings, as already shown in Figure 5.2.

Figure 5.1 **Number of national policies and measures reported to be implemented in response to EU policies**

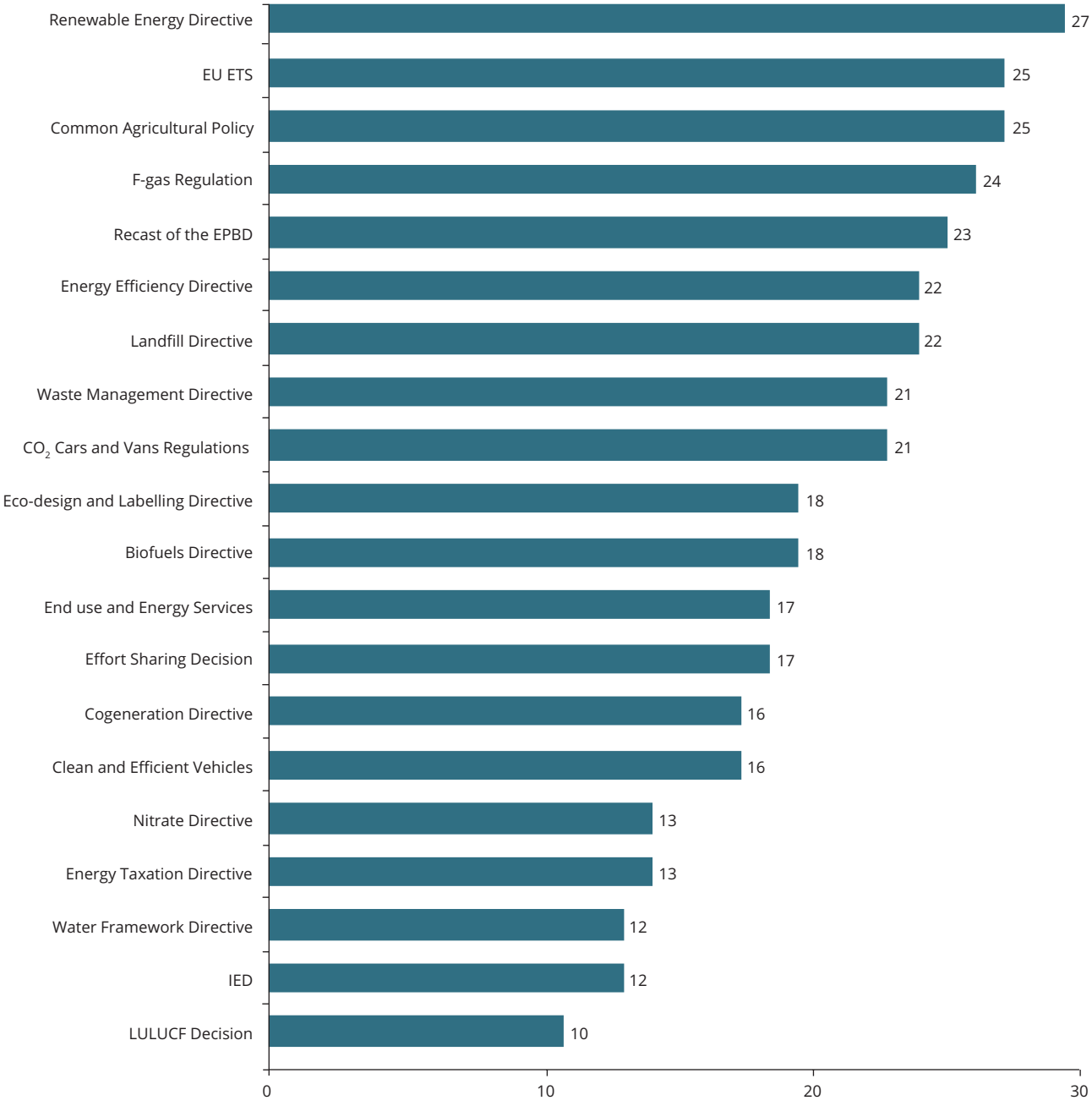


Notes: EU policies with fewer than 25 national PaMs were added to the sector 'other Union policy'.

EPBD, Energy Performance of Buildings Directive.

Source: EEA, 2017a.

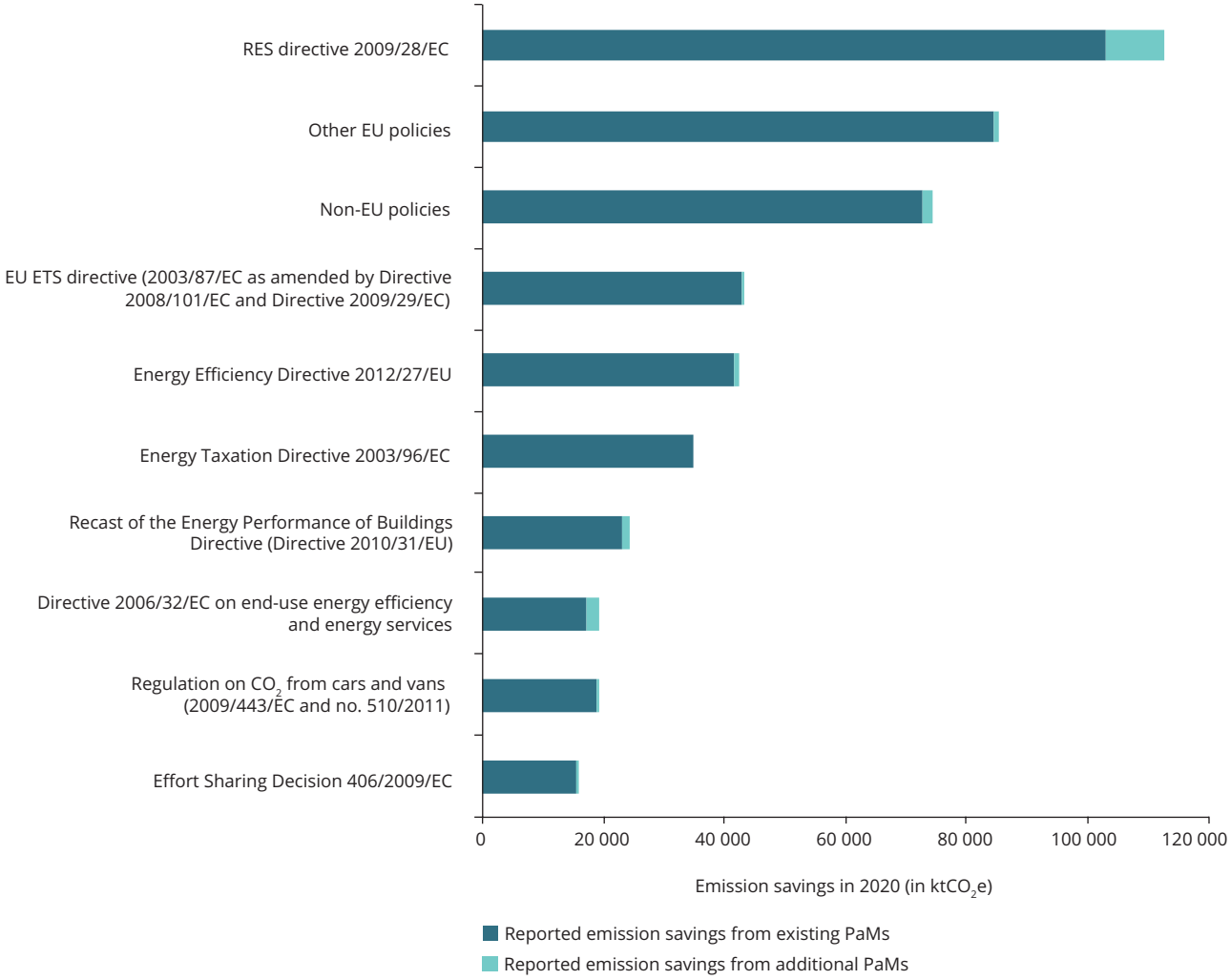
Figure 5.2 **Number of Member States that reported one or more policies and measures to be implemented in response to EU policies (as reported by Member States)**



Note: EPBD, Energy Performance of Buildings Directive; IED, Industrial Emissions Directive.

Source: EEA, 2017a.

Figure 5.3 Eight EU policies resulting in highest reported expected emission savings in 2020



Note: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

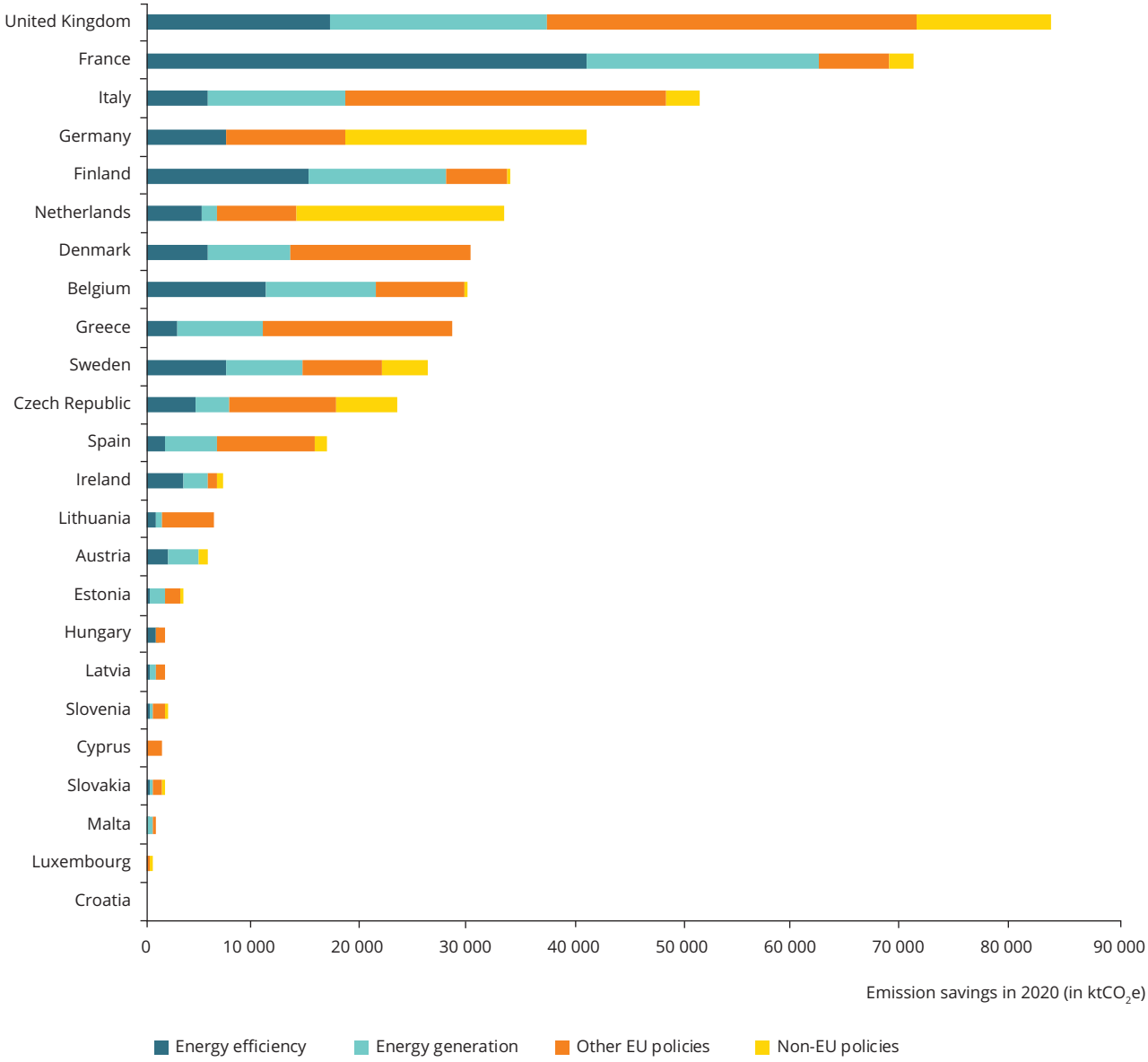
Source: EEA, 2017a.

Some countries, such as Denmark, France and Italy reported emission savings from PaMs implemented in response to a wide range of EU legislation, indicated by the high share of 'other EU policies' in Figure 5.4. Other countries, such as Germany, the Netherlands and United Kingdom reported significant emission savings from PaMs unrelated to EU legislation, indicated by the high share of 'non-EU policies' in Figure 5.4.

5.3 Reported contributions of EU climate and energy policies to emission savings in the ETS and ESD sectors

The emission savings that PaMs are expected to deliver will contribute to achieving the EU's GHG targets, whether in the ETS (covering the energy sector and large industries) or in the other sectors covered under

Figure 5.4 **Reported expected emission savings from existing policies and measures by Member State and group of policies in 2020**



Note: Only PaMs belonging to the WEM scenario have been considered. All grouped PaMs have been included in the WEM scenario.

Source: EEA, 2017a.

the ESD ([8]), such as buildings, agriculture and waste (excluding LULUCF). In addition, PaMs targeting the energy sector are expected to contribute to achieving policy targets and objectives on energy efficiency and renewable energy.

The information reported by Member States on the links between their national policies and EU policies, as well as on the sectors in which emission savings are expected to occur (ETS or ESD) ([9]), makes it possible to explore the interactions between the different EU targets on renewable energy, energy efficiency and GHG emissions and the mutual contributions of the Renewable Energy Directive, the Energy Efficiency Directive and the ESD towards these targets.

([8]) The ESD sets annual limits for individual Member States for emissions that do not fall under the EU ETS.

([9]) Where known, countries should allocate the expected savings from each PaM between the EU ETS and ESD sectors. When the savings in ETS and ESD sectors did not match the total reported saving, the difference has been categorised as 'no split available'.

Figure 5.5 presents reported savings from PaMs attributed to the Renewable Energy Directive, the Energy Efficiency Directive or the ESD, split between the sectors in which they occur (ETS, ESD or not divided). As highlighted in the previous section, PaMs linked to the Renewable Energy Directive are expected to have the highest impact on emissions in 2020. These PaMs have a combined reported impact of 103 $MtCO_2e$, compared with 42 $MtCO_2e$ for PaMs linked to the Energy Efficiency Directive and 15 $MtCO_2e$ for PaMs directly linked to the ESD. PaMs implemented in response to the Renewable Energy Directive, the Energy Efficiency Directive and the ESD are expected to have impacts on both ETS and ESD emissions, for the following reasons:

- For PaMs implemented in response to the Renewable Energy Directive, emission savings under the ETS can be attributed to the substitution of fossil fuels by renewable energy sources, while emission savings in ESD sectors can be attributed to energy savings in the residential and transport sectors.
- For PaMs implemented in response to the Energy Efficiency Directive, emission savings under the ETS can be attributed to reduced electricity demand (and subsequently reduced emissions from energy supply), while emission savings from the ESD can be attributed to energy efficiency measures in different sectors, such as buildings.
- PaMs implemented in response to the ESD may have impacts on emissions that fall outside the scope of the ESD sector. This concerns, for example, energy efficiency measures (see above), or measures that may result in increased ETS emissions (e.g. electrification of transport).

The following sections explore, in further detail, the links between reported emission savings and key EU policies relevant to Member State action to achieve 2020 and 2030 targets (renewable energy policies, energy efficiency policies and the ESD).

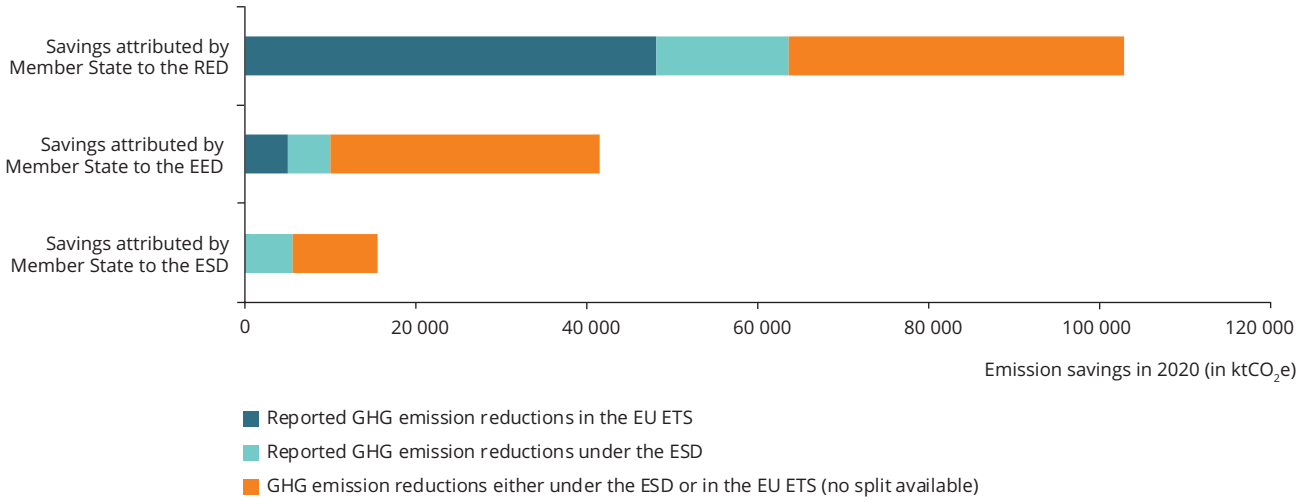
5.3.1 Reported contribution of EU renewable energy policies to expected emission savings from national policies and measures

This section presents data on PaMs expected to deliver carbon savings while also contributing to the related Europe 2020 targets for renewable energy generation. This contribution has been estimated by identifying the national policies implemented in response to the following EU policies:

- Renewable Energy Directive 2009/28/EC;
- Biofuels Directive 2003/30/EC;
- completion of the internal energy market.

The total emission savings from existing PaMs that have been linked to the EU policies listed above is 112 $MtCO_2e$ in 2020. Including additional measures, the

Figure 5.5 Reported emission savings from existing policies and measures expected in 2020 linked by Member States to EU policies on the Renewable Energy Directive (RED), the Energy Efficiency Directive (EED) or the ESD

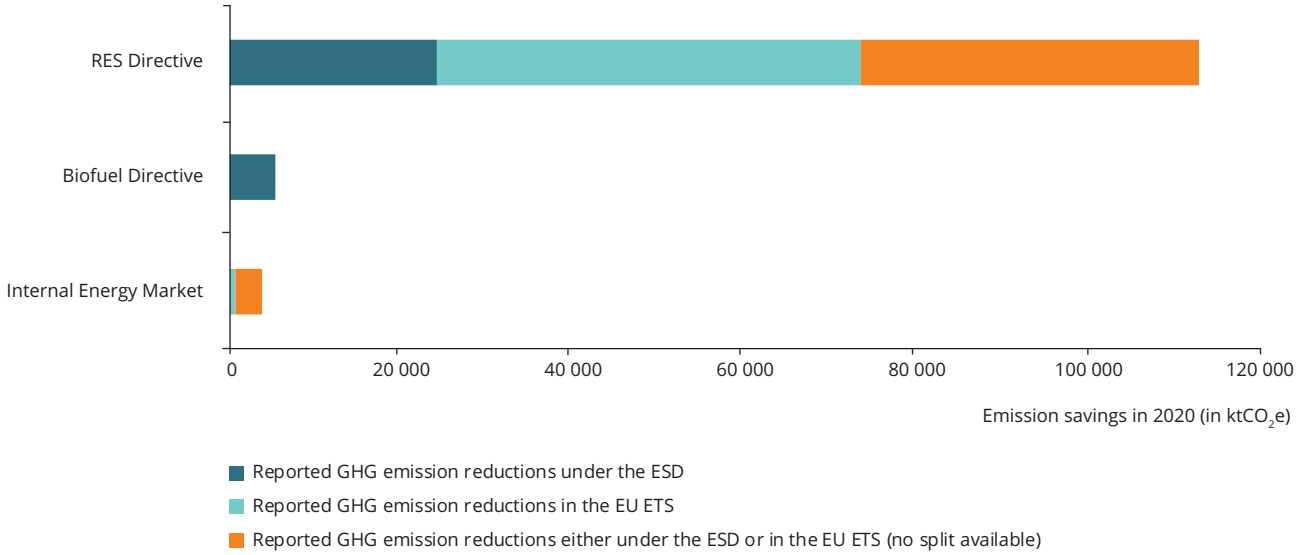


Notes: Only PaMs belonging to the WEM scenario have been considered. All grouped PaMs have been included in the WEM scenario.

A 'link' means that a Member State indicated that the PaM was implemented in response to an EU policy. This has been quality checked but ultimately it is the Member State's interpretation of whether or not that is the case.

Source: EEA, 2017a.

Figure 5.6 **Reported emission savings expected in 2020 from national policies and measures deriving from key EU renewable energy policies**



Notes: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

A 'link' means that a Member State indicated that the PaM was implemented in response to an EU policy. This has been quality checked, but ultimately it is the Member State's interpretation of whether or not that is the case.

Source: EEA, 2017a.

savings increase by 10 $MtCO_2e$. Most of this impact is expected to be achieved in the ETS sectors: 44 % of the total impact in 2020 is reported to take place in the ETS, 19 % in the ESD sectors, and 38 % was not split between ETS and ESD (Figure 5.6). PaMs linked to the Renewable Energy Directive will achieve by far the largest emission reductions in 2020 at 103 $MtCO_2e$ (Figure 5.6). In total, 21 Member States reported emission reductions (Figure 5.7), but France reported the largest emission reductions that will be achieved through PaMs linked directly to the EU renewable energy targets.

This assessment does not take into account the national PaMs that are not linked to any of the EU policies mentioned above, but which may have impacts on renewable energy. The total impact of EU policies on emission reductions may, therefore, be significantly larger.

5.3.2 Reported contribution of EU energy efficiency policies to expected emission savings from national policies and measures

This section considers PaMs that will deliver carbon savings while also contributing to the related Europe 2020 targets for energy efficiency. This has been done by identifying the national policies that are linked to the following EU policies:

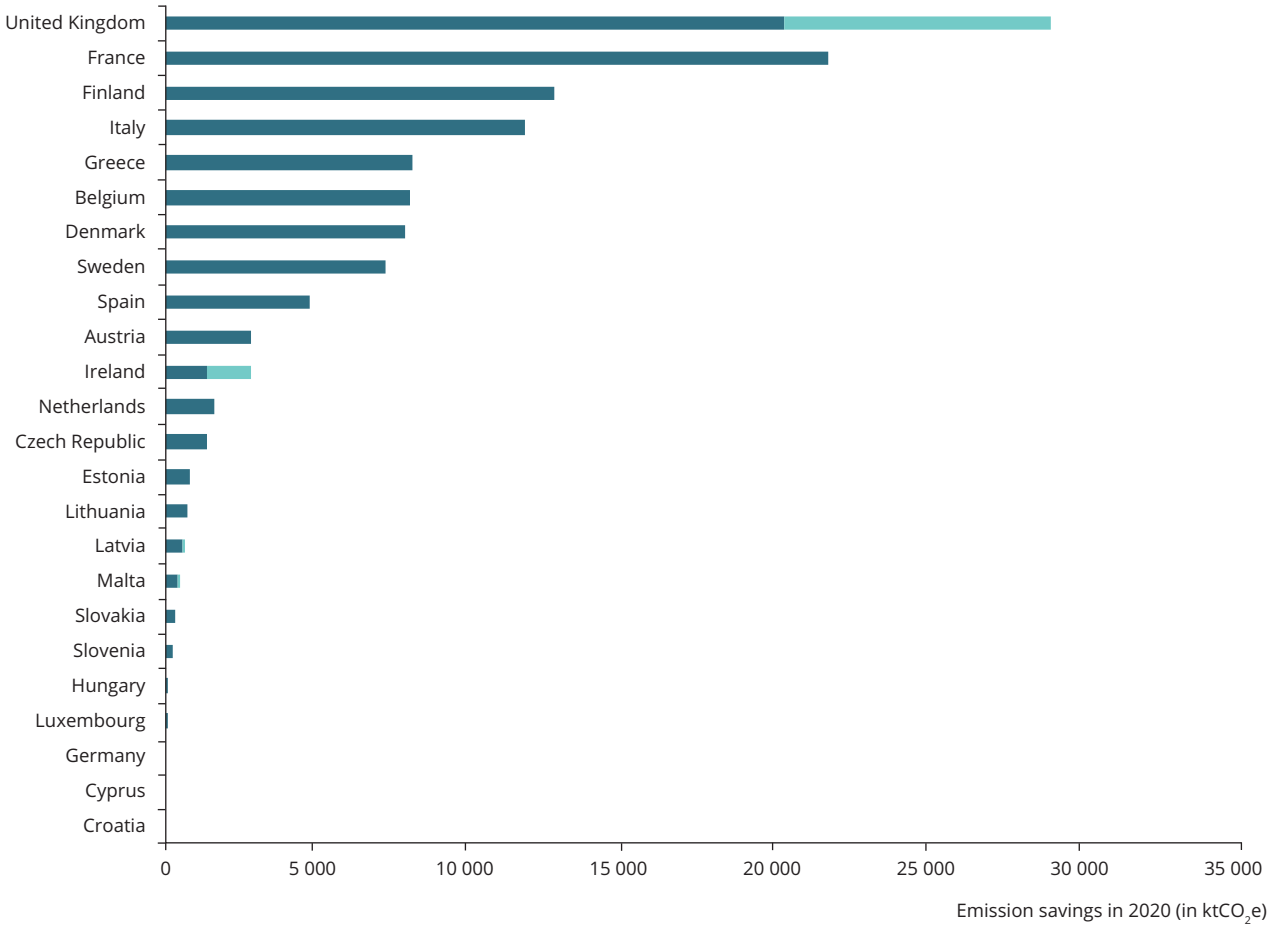
- Energy Efficiency Directive 2012/27/EU;
- Energy Performance of Buildings Directive 2002/92/EC and the recast version;
- Energy Star Programme;
- Ecodesign and Energy Labelling Directives and related implementing acts.

The total impact of existing PaMs that have been linked to any of the EU policies listed above is 96 $MtCO_2e$ and an additional 4 $MtCO_2e$ from planned PaMs. PaMs linked to the Energy Efficiency Directive are projected to achieve the largest emission reductions by 2020 (Figure 5.8). In total, 19 Member States reported emission reductions from PaMs linked to EU energy efficiency policies (Figure 5.9). Again, national PaMs that contribute to the energy efficiency target but that have not been linked by the Member State to any of the EU policies above are not included here. The total impact of the EU policies on emission reductions may, therefore, be significantly larger.

5.3.3 Expected emission savings from national policies and measures specifically linked to the ESD

The ESD sets annual limits for individual Member States for emissions that do not fall under the EU ETS

Figure 5.7 **Reported emission savings expected in 2020 from national policies and measures linked to EU renewable energy policies, by country**



Notes: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

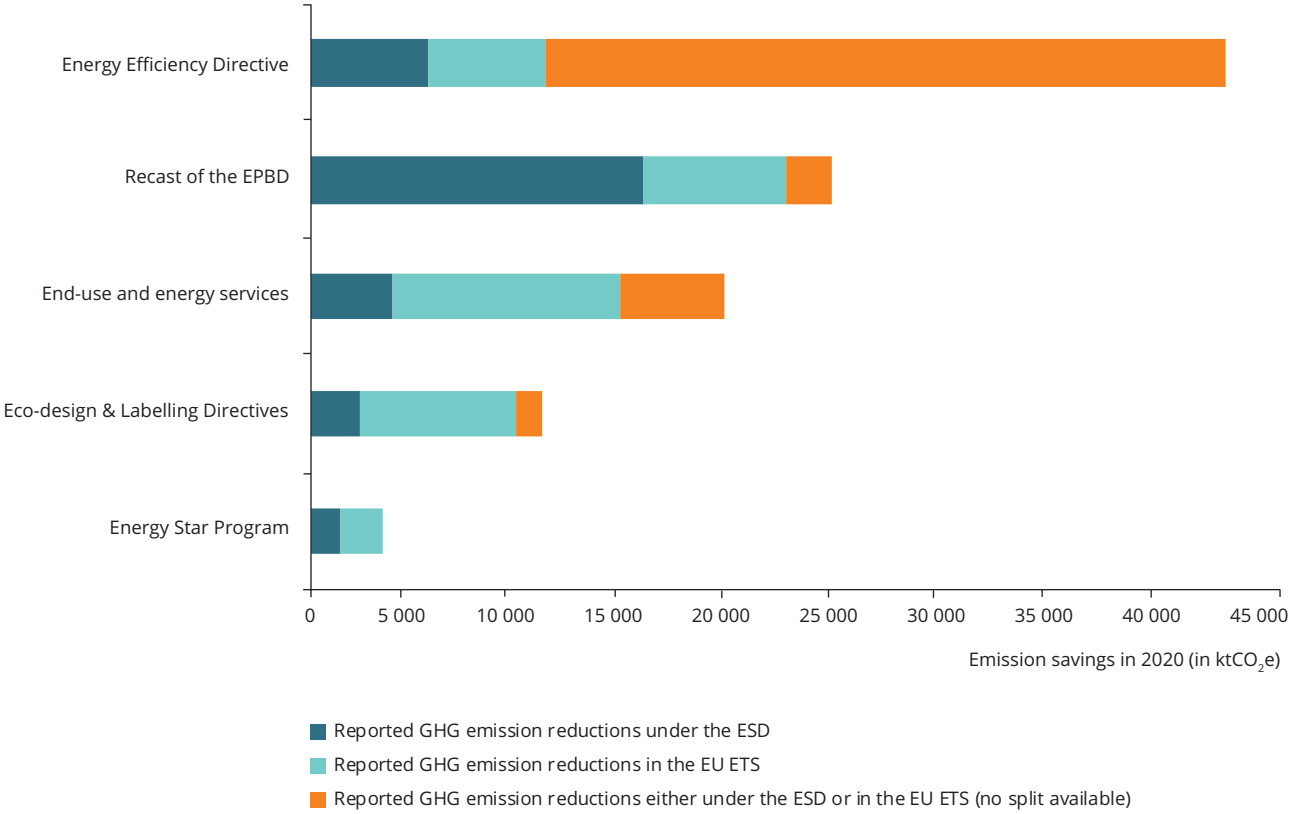
A 'link' means that a Member State indicated that the PaM was implemented in response to an EU policy. This has been quality checked, but ultimately it is the Member State's interpretation of whether or not that is the case.

Source: EEA, 2017a.

(LULUCF is not included in the ESD). Eleven Member States reported quantified emission savings from PaMs specifically linked to the implementation of the ESD. The reported savings by 2020 from ESD-linked existing policies amount to 15 $MtCO_2e$ (3 % of the total impact of existing PaMs). Taking into account savings from additional measures reported by Croatia, Estonia and Hungary the overall ESD-linked savings in 2020 increase to 16 $MtCO_2e$. Most of this reported additional impact comes from PaMs in Estonia and Croatia.

Interestingly, in some cases PaMs that have been linked to the ESD also contribute to emission reductions in the ETS (0.1 $MtCO_2e$ in total). However, the combined impact is relatively small, especially compared with other EU policies. This is also reflected in the fact that only 11 Member States have quantified PaMs that have been implemented in response to the ESD (Figure 5.10). There could be several reasons for this. It could be that reporting is incomplete, quantitative assessments of the impacts of ESD-linked PaMs have not been performed, or that relatively few PaMs have been implemented in direct response to the ESD at this stage. However, PaMs have been implemented in response to other EU initiatives that are already reducing emissions in sectors under the ESD and are contributing to achieving the ESD target.

Figure 5.8 **Reported emission savings expected in 2020 from national policies and measures deriving from key EU energy efficiency policies**



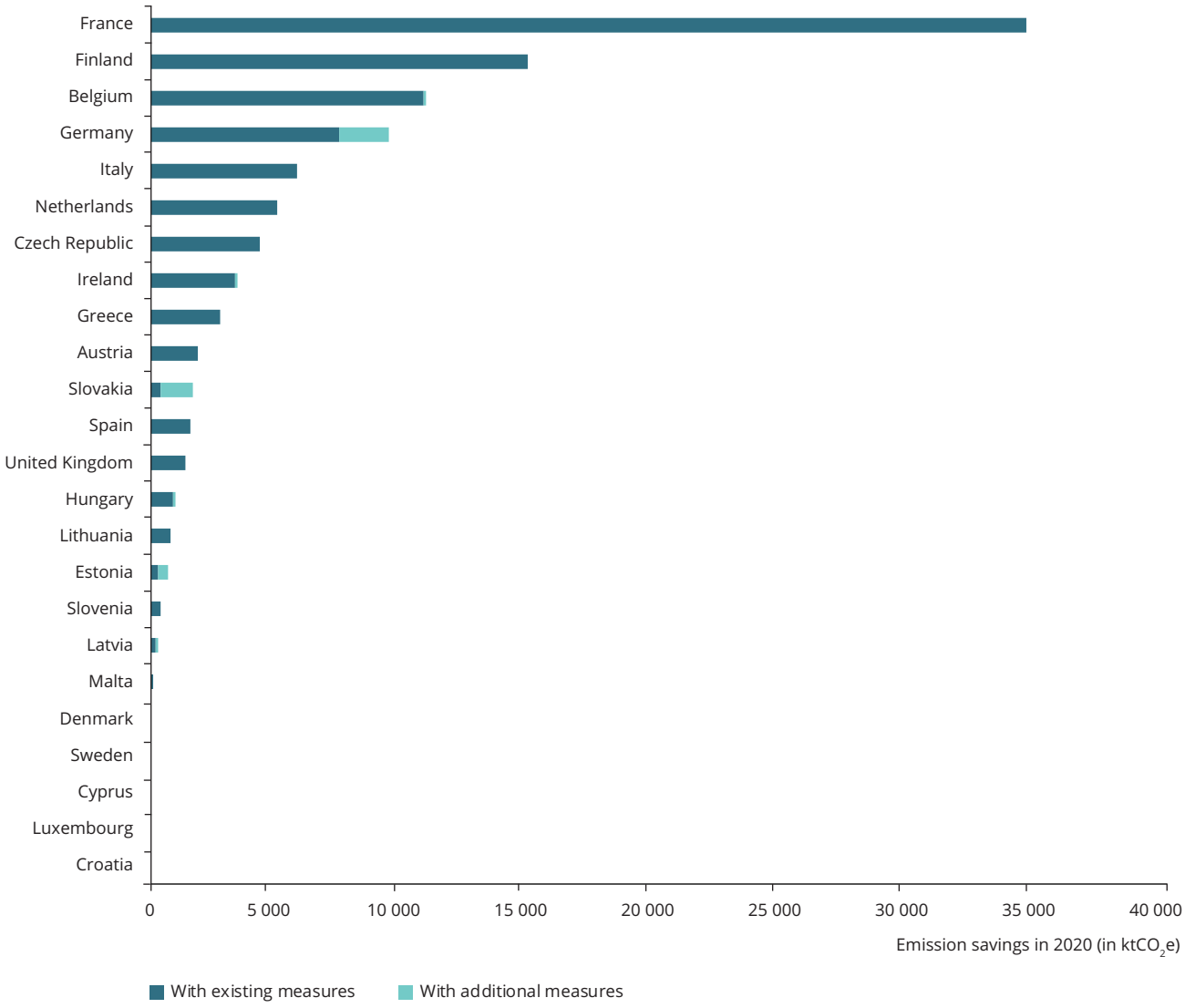
Notes: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

A 'link' means that a Member State indicated that the PaM was implemented in response to an EU policy. This has been quality checked, but ultimately it is the Member State's interpretation of whether or not that is the case.

EPBD, Energy Performance of Buildings Directive.

Source: EEA, 2017a.

Figure 5.9 **Reported emission savings expected in 2020 from national policies and measures linked to EU energy efficiency policies, by country**

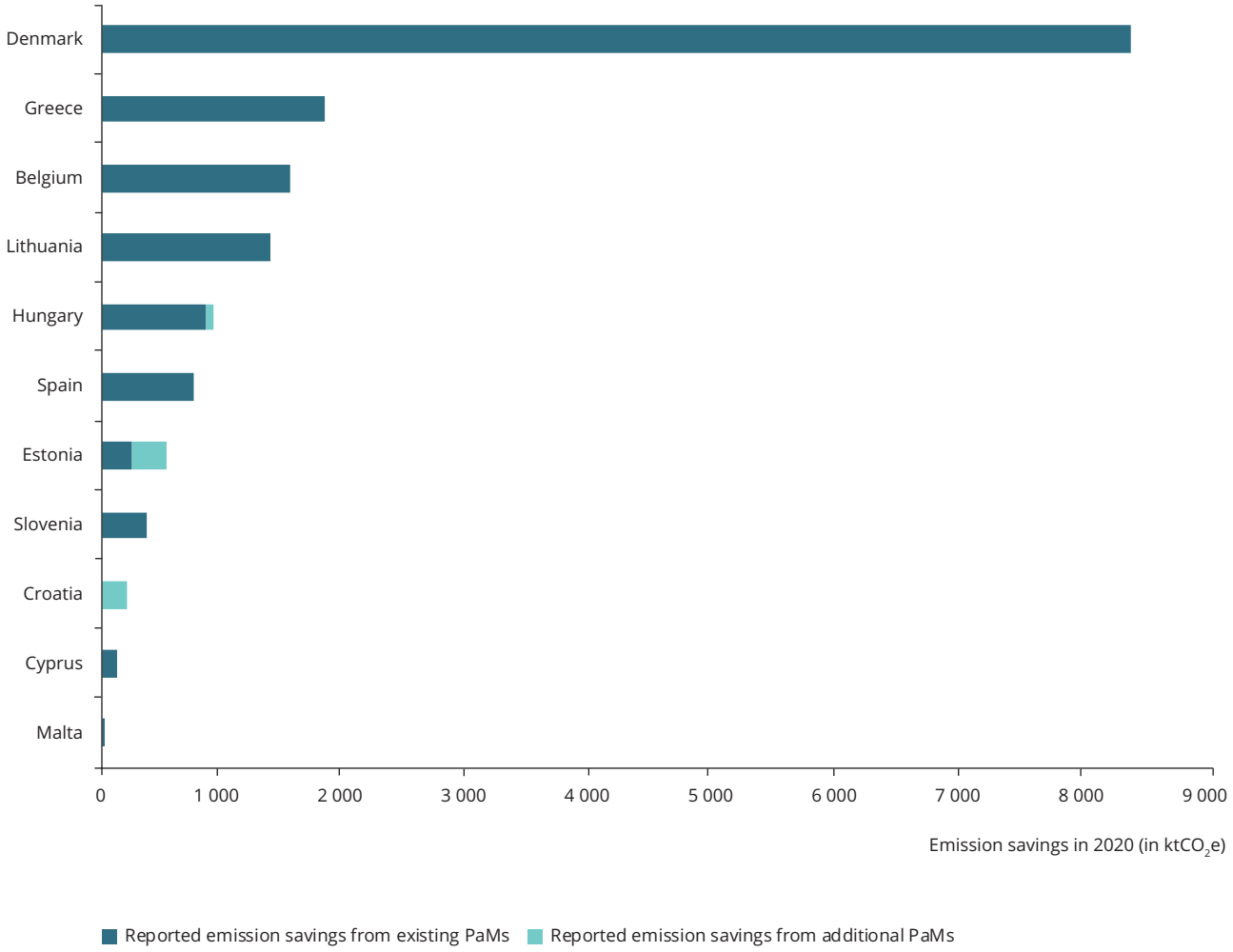


Notes: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

A 'link' means that a Member State indicated that the PaM was implemented in response to an EU policy. This has been quality checked, but ultimately it is the Member State's interpretation of whether or not that is the case.

Source: EEA, 2017a.

Figure 5.10 Reported expected emission savings from policies and measures linked to the EU ESD in 2020



Notes: Only PaMs belonging to WEM or WAM scenarios have been considered. All grouped PaMs have been included in the WEM scenario.

A 'link' means that a Member State indicated that the PaM was implemented in response to an EU policy. This has been quality checked, but ultimately it is the Member State's interpretation of whether or not that is the case.

Source: EEA, 2017a.

6 Reported costs and benefits of policies and measures

The MMR also requests that Member States report information on the projected (*ex ante*) and realised (*ex post*) costs of climate PaMs, when available. In 2015, five Member States reported quantitative information on the costs of some of their climate PaMs. In 2017, the number of Member States had increased to 10:

- **Belgium:** projected costs for four single PaMs. For three PaMs, only the net cost was reported (in euros and EUR/tonne) and, for one PaM, the gross cost was reported (in euros and EUR/tonne).
- **Croatia:** projected costs for 11 PaMs. Only net costs in EUR/tonne were reported.
- **Czech Republic:** projected costs for most of its PaMs, 31 in total.
- **Estonia:** projected costs for 34 PaMs and realised costs for four PaMs.
- **Finland:** realised costs for one PaM.
- **France:** realised costs for one PaM and realised and projected costs for another PaM.
- **Hungary:** projected costs for 10 PaMs and realised costs for three PaMs.
- **Latvia:** projected costs for 14 PaMs.
- **Luxembourg:** realised costs for two PaMs.
- **Spain:** projected benefits for two PaMs.

When Member States reported information on costs, they did not provide all of the information required to assess the comparability of their estimates. The wide range in reported costs indicates large potential differences in Member States' definitions of costs:

Projected gross costs were reported in euros and in EUR/tonne for 65 and 34 PaMs, respectively. The values ranged from EUR 0/tonne to EUR 169 160/tonne ([10]), with a median value of EUR 83.5/tonne. A comparison of total costs is not relevant, as this depends on the importance of the PaM and the size of the Member State.

Realised gross costs were reported in euros and in EUR/tonne for 10 and 6 PaMs, respectively. The values ranged from EUR 16.8 to EUR 69 636/tonne ([11]), with a median value of EUR 95.5/tonne.

Projected gross benefits were reported in euros and EUR/tonne for eight PaMs, with a median value of minus EUR 66/tonne. Realised gross benefits were reported for only three PaMs.

Projected net costs were reported in euros and in EUR/tonne for 61 and 33 PaMs, respectively. However, in most cases, Member States reported the same value for gross and net costs, suggesting that the benefit would be zero. In the cases in which projected net costs were reported, values ranged between EUR –536/tonne and EUR 169 110/tonne ([12]), with a median value of EUR 5/tonne. Realised net costs were reported for only four PaMs.

([10]) Cost reported by Hungary of the improvement of its railway vehicle fleet. The cost includes the price of new electric trains and trams. Without this measure, the highest reported projected gross cost would be EUR 48 694/tonne, reported by the Czech Republic for its programme on transport infrastructure.

([11]) Cost reported by Hungary of the improvement of its railway vehicle fleet. Without this measure, the highest reported realised gross cost would be EUR 469/tonne, also reported by Hungary, for the improvement of bicycle transport.

([12]) Cost reported by Hungary of the improvement of its railway vehicle fleet. The benefits take into account the estimated energy savings and avoided external costs. Without this measure, the highest reported projected net cost would be EUR 469/tonne, reported by the Czech Republic for its programme on transport infrastructure.

7 Indicators used to monitor progress of policies and measures

The role of an indicator is to better understand progress in implementing PaMs. The MMR requires Member States to report indicators used to monitor and evaluate progress over time. Indicators shall be reported by providing a description and values, in which the values can be either *ex post* or *ex ante*. It must be specified for which year the value applies.

In total, 22 countries provided information on indicators for at least one PaM (see Figure 7.1). However, Member States tend to focus on qualitative information, such as the indicator description with a unit, without reporting quantitative data (values and years). This is the case in the reporting of Belgium, Cyprus, the Czech Republic, Greece, Germany, Latvia, Portugal and Romania, for which less than 50 % of PaMs with an indicator also include quantitative data.

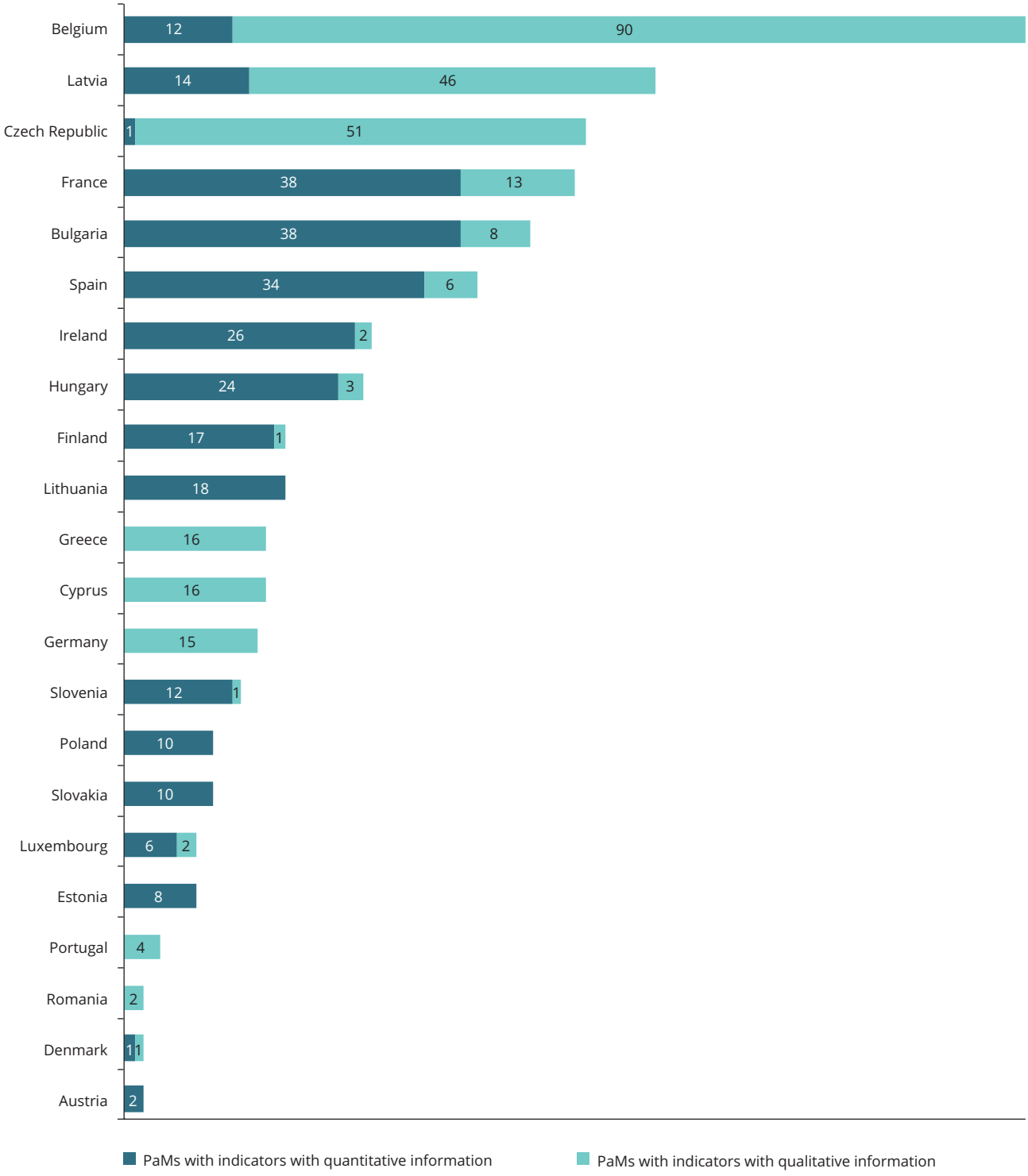
In total 17 Member States reported quantitative information on indicators for at least one PaM, which is an improvement compared with 2015 (10 Member States). One barrier to more complete reporting, as specifically mentioned by one Member State, is that many indicators could be used to monitor the progress of certain PaMs and that reporting on each would require significantly greater effort.

Most Member States chose to report *ex post* data (64 % of the reported values were before 2017), although, when looking at single years, 2020 reporting occurred most often (see Figure 7.2). This is clearly different from the report in 2015, in which *ex ante* values were reported on most. It is not clear whether such *ex ante* values for indicators are used for monitoring purposes or whether they represent target values.

As in 2015, an assessment of the available indicators shows that the reporting is not consistent across countries, and that the reporting on monitoring of PaMs can be improved. As the MMR states, the reporting of indicators is required only when they are used for monitoring purposes; it can be speculated that the national PaMs are either not monitored in Member States or not reported. A quantitative assessment of indicators — namely an aggregation at EU level for similar PaMs — is not possible, owing to the limited and inconsistent information available at Member State level.

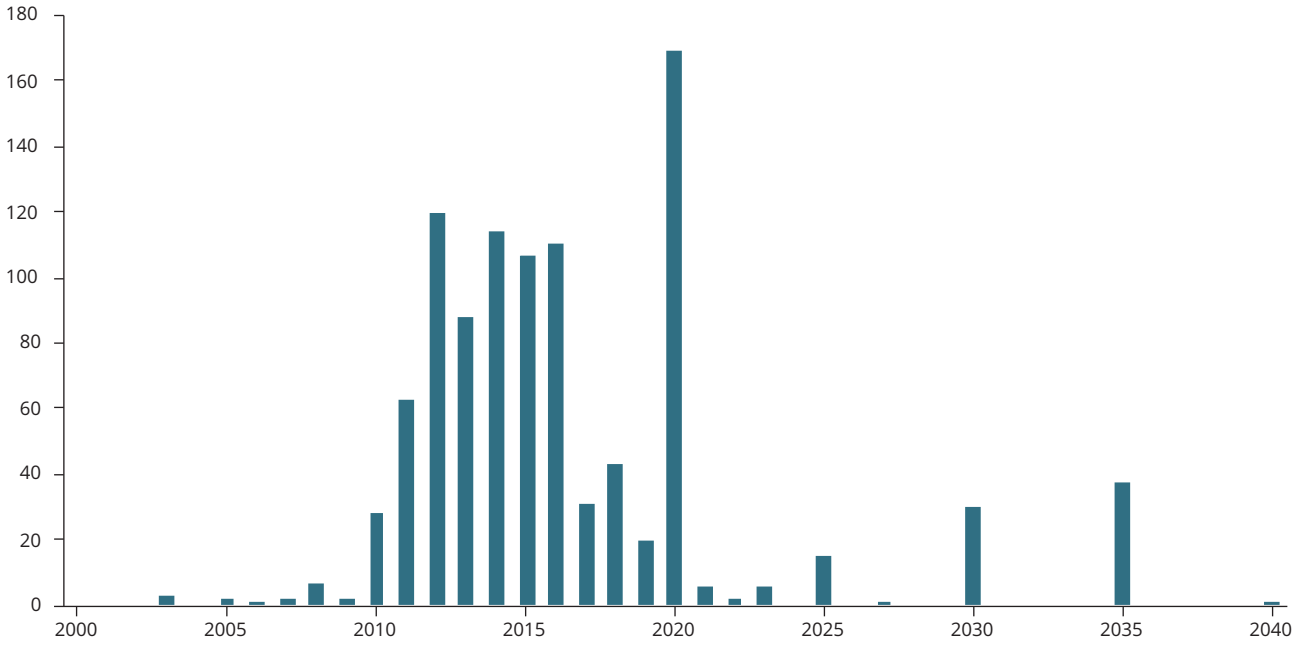
The main reason for the inconsistent approaches by the Member States is that there is no general monitoring concept or guidelines for the *ex ante* and *ex post* progress assessment of PaMs. The reporting is also flexible (regarding years, units, etc.) which inevitably leads to a heterogeneous data set.

Figure 7.1 **Number of policies and measures reported with indicators**



Source: EEA, 2017a.

Figure 7.2 Number of quantified indicators reported per year



Source: EEA, 2017a.

8 Quality of reported information on policies and measures

Reporting information on PaMs is essential for monitoring the actions taken at national level to reduce GHG emissions and for evaluating their effects. Timely, transparent and detailed information on PaMs provides an essential piece of the knowledge base to understand and analyse GHG emission trends at national and EU levels.

8.1 Timeliness of 2017 submissions and quality control process

The information Member States report is checked by the EEA before being compiled and disseminated. This process aims to identify potential quality issues in Member States' submissions and allows Member States to revise their reports if necessary (EEA, 2016).

For this quality control (QC) process to take place under the best conditions, it requires the timely delivery of all Member States' submissions. Under the MMR, Member States must report on PaMs by 15 March every two years (2015, 2017, etc.). In 2017, nine Member States met the reporting deadline (15 March 2017). All other Member States submitted their reports after this deadline. The reporting was complete by 19 June 2017. Although still insufficient, this is an improvement compared with 2015, when only four Member States met the legal reporting deadline.

The checks performed on Member States' submissions focus on the quality 'TACCC' criteria (transparency, accuracy, completeness, consistency and comparability), which consist of the following:

- **Transparency:** verifying the provision of references, supporting information and description of the PaM.
- **Accuracy:** comparing emission savings with total emissions and, when available, differences between WOM, WEM and WAM projections.
- **Completeness:** verifying if all mandatory reporting requirements have been fulfilled and comparing with other official reporting such as second biennial progress reports, national energy efficiency action plans (NEEAPs) and national renewable energy action plans (NREAPs).
- **Consistency and comparability:** verifying the consistency of the information between the different fields (e.g. whether the selected sector(s) or GHG(s) corresponded with the description and name of the PaM).

After this QC process, all findings are communicated to the Member States with, if needed, a request for clarification or revision of the reported information.

8.2 Quality of reporting on policies and measures in 2017

The information reported in 2017 shows improvements in quality compared with the 2015 reporting exercise. However, further improvements remain necessary to improve the timeliness of delivery and to make this information more complete, consistent, comparable, accurate and transparent.

8.2.1 Completeness

Completeness improved compared with the 2015 reporting, in relation to not only qualitative information but also quantitative information. The continued use of a single online questionnaire and improvements in reporting by the Member States, together with automatic and manual checks to point out missing information, clearly contributed to this. Luxembourg and Portugal reported significantly more PaMs than in 2015/2016. Several others expanded the information that was provided per PaM. Nevertheless, a comparison with the information reported under other requirements suggests that some Member States might not report all relevant PaMs under the MMR. Reporting on *ex post* assessments improved, with respect to both the number of Member States and the number of PaMs, but reporting is still very incomplete.

As specified in the MMR, the reporting should include all relevant PaMs, including instruments that are not

specifically intended to reduce GHG emissions but that do have an effect on these. The number of reported PaMs increased by almost 10 %, from 1 382 in 2015 (EEA, 2015) to 1 513 in this reporting cycle. Some Member States clearly managed to report more completely on their climate PaMs. Comparison with other data sources, such as the NEEAPs and NREAPS, indicated that reporting under the MMR could be made more complete and consistent. There is clearly a need for better alignment of the reporting on PaMs under these different official reporting streams to ensure completeness.

Although, in general, Member States report complete qualitative information, quantitative information such as indicators, costs and benefits, and emission savings could be further expanded. This applies in particular for *ex post* emission savings and costs. There are several barriers to more complete reporting by Member States in this respect. In cases where information is missing, guidelines to further support Member States in evaluating the effectiveness and cost-efficiency of climate PaMs could be beneficial. Additional knowledge-sharing activities (e.g. workshops) for Member States could provide opportunities to exchange experiences of policy evaluation and of reporting this information, which could also increase completeness in the longer term. In cases where quantitative data are reported, Member States are requested to provide all relevant information (including links to external sources) as completely and transparently as possible.

Seventeen Member States reported quantitative data on indicators, while five Member States reported only qualitative information on indicators and six Member States did not report any information on indicators.

8.2.2 Transparency

When quantitative data are reported, including references to technical reports and documents increases transparency and enables checking of the underlying methods and assumptions. Most Member States (23) accompany the online questionnaire with a technical report. However, descriptions of, references to or links to technical reports supporting quantitative data are missing for *ex post* (64 %) and *ex ante* (66 %). For costs and benefits, transparency is better (for 96 % of reported projected costs, a description and/or reference is reported; in the cases in which only realised costs are reported for each, a description and/or reference is reported). However, the description of cost estimates is often very brief, and transparency in this respect could be further improved.

Further harmonisation would improve the transparency and comparability of the reported information.

8.2.3 Consistency and comparability

There are differences in consistency and comparability across Member States, e.g. in the level of detail provided in the description of PaMs, ranging from a link to an external data source to exhaustive descriptions of the PaM, or in the selection of the appropriate implementation status. While this is part of the QC, not all issues could be addressed during the QC and it is recommended that Member States adhere as much as possible to the reporting guidelines (EEA, 2016).

Overall, consistency of reporting has improved compared with 2015, as most Member States started reporting from their existing questionnaire. There are still some issues with consistency and comparability, and these relate to the following:

- The interpretation of what is a single PaM, which partly explains the differences among countries in the number of PaMs. While some Member States (e.g. Poland) clearly aggregated individual measures into one entry of a group of PaMs in the questionnaire, other Member States (e.g. France) clearly reported on individual measures. While this was flagged during the QC procedure, it is not always possible for Member States to address this during the QC process.

- The level of detail in the description of the PaMs.

- The interpretation of what is meant by implementation in response to a Union policy. For some Member States this means that national PaMs implemented before the Union policy, by default, cannot have been implemented in response to a Union policy. For other Member States this is interpreted less stringently. This partly explains differences among Member States in the number of Union policies that are linked to national PaMs.

- Status, start- and end-year and projection scenario also result in some inconsistencies in initial submissions, especially if the start year is near the reporting year.

Some of these issues were identified and corrected by Member States during the QC process. However, on some issues, such as what constitutes a single PaM, Member States were more reluctant to adjust their reporting.

Of the quantitative data, *ex ante* emission savings are reported most completely. The fact that emission savings are estimated using different methods and assumptions, however, complicates the comparison between Member States. It also makes any EU-wide assessment of the total effects of national PaMs difficult.

8.2.4 Accuracy

Member States use different approaches in assessing the impact of PaMs on GHG reductions. This exercise is particularly difficult in the absence of robust harmonised methodologies and because of the number and type of assumptions involved. This complicates comparisons between Member States and even comparisons of impacts between different PaMs from the same Member State.

Assessing the accuracy of these estimates is no less challenging, as there is no agreed reference against which results or calculations can be checked. Without a detailed analysis of the methodologies used and the assumptions made, limited checks on quantitative estimates can still be performed, focusing on potential double counting and reporting in the incorrect unit.

Box 8.1 Taking incremental steps to improve reporting quality

In September 2016, the EEA organised a workshop for Member States on PaMs evaluation and reporting. During this workshop, numerous stakeholders emphasised the importance of the information reported on climate mitigation PaMs and on the availability of policy evaluation results for these PaMs. For example, this information can be used for tracking national climate action, identifying effective policies and supporting policymaking. Participants recognised the need to further improve the quality of reporting and committed to taking incremental steps to make this reporting more timely, complete, consistent, comparable, accurate and transparent. The 2017 reporting cycle shows that progress has been made along these lines, and this can be further achieved with continued effort from Member States, the European Commission and the EEA, based on the existing reporting framework on climate mitigation PaMs.

Abbreviations, symbols and units

CH_4	Methane
CO_2	Carbon dioxide
ESD	Effort Sharing Decision
ETC/ACM	European Topic Centre for Air Pollution and Climate Change Mitigation
EU	European Union
EU ETS	European Union Emissions Trading System
GHG	Greenhouse gas
HFC	Hydrofluorocarbon
kt CO_2e	Kilotonnes of carbon dioxide equivalent
LULUCF	Land use, land use change and forestry
MMR	Monitoring Mechanism Regulation
MtCO_2e	Mega (million) tonnes of carbon dioxide equivalent
N_2O	Nitrous oxide
NEEAP	National Energy Efficiency Action Plan
NF_3	Nitrogen trifluoride
NREAP	National Renewable Energy Action Plan
PaM	Policy and measure
QC	Quality control
SF_6	Sulfur hexafluoride
TTACCC	Timeliness, transparency, accuracy, completeness, consistency and comparability
UNFCCC	United Nations Framework Convention on Climate Change
WAM	With additional measures
WEM	With existing measures
WOM	Without measures

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EU, 2013, 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 and repealing Decision No 280/2004/EC (OJ L 165, 18.6.2013, p. 13-40).

EU, 2014, Commission Implementing Regulation (EU) No 749/2014 of 30 June 2014 on structure, format, submission processes and review of information reported by Member States pursuant to regulation (EU) No 525/2013 of the European Parliament and of the Council (OJ L 203, 11.7.2014, p. 23–90).

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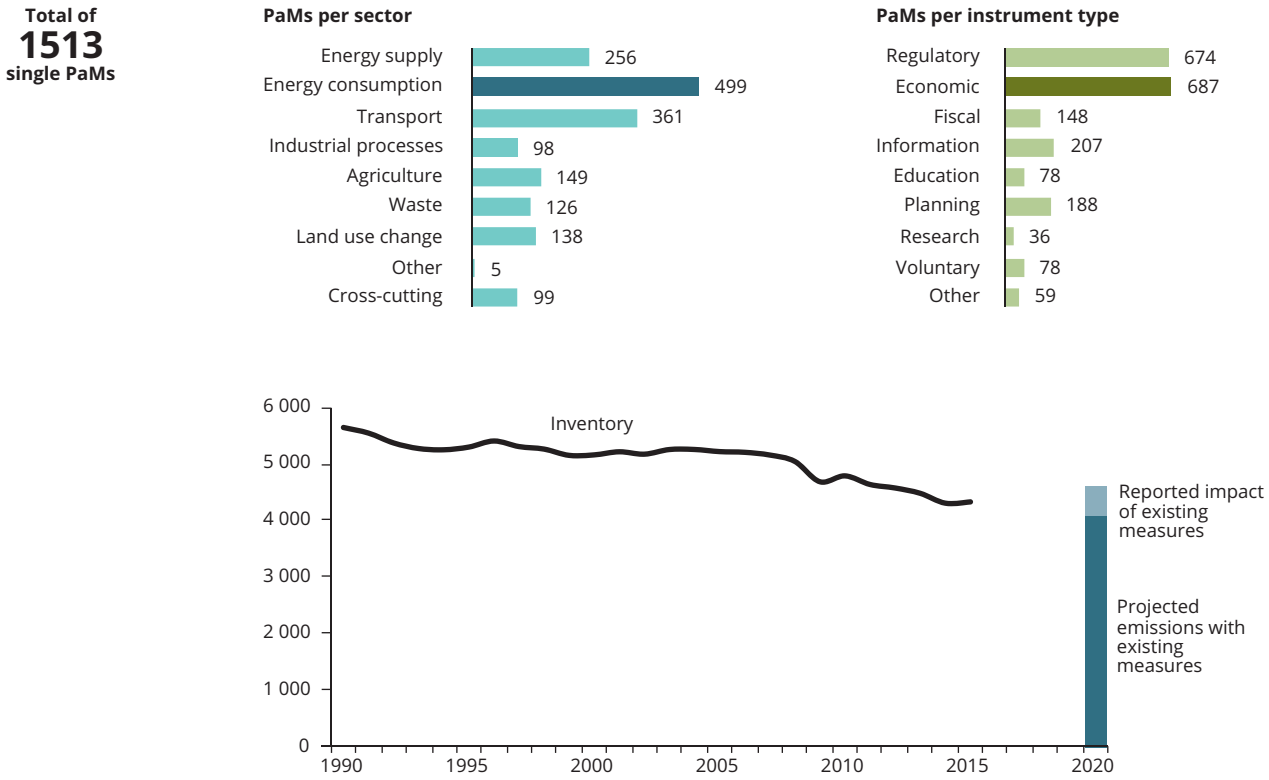
Annex 1 Country-specific information reported in 2017 under the MMR

EU-28



The small bar charts in the top half of the figure represent an overview of the information reported by all Member States, aggregated at EU level. The total number of PaMs per sector and the total number of PaMs per instrument type can be larger than the total number of single PaMs, because a single PaM can affect more than one sector or can be more than one instrument type.

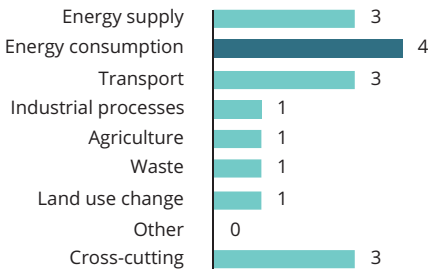
The graph in the bottom half of the figure presents the historical GHG emissions between 1990 and 2015 (black line), the projected total GHG emissions in 2020 excluding the LULUCF sector (WEM scenario; dark blue bar) and the reported emission savings from existing PaMs in 2020 (expired, implemented or adopted; light blue bar). The emission savings from existing PaMs are presented on top of the projected emissions to allow easy comparison between expected savings, projected emissions and historical GHG emissions. The expected savings by 2020 that Member States reported in 2017 represent a 12 % decrease in emissions in 2020 compared with a scenario in which these measures would not exist. However, this is likely to be a large underestimation, as it results from the aggregation of quantified information from only 534 PaMs, 36 % of all reported PaMs.

Country-specific information is presented below for all Member States. The estimated impact of existing measures is not available for all Member States.

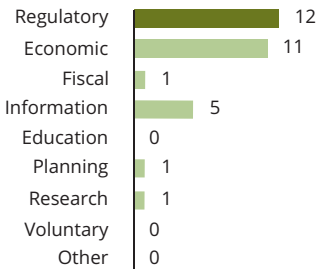
Austria

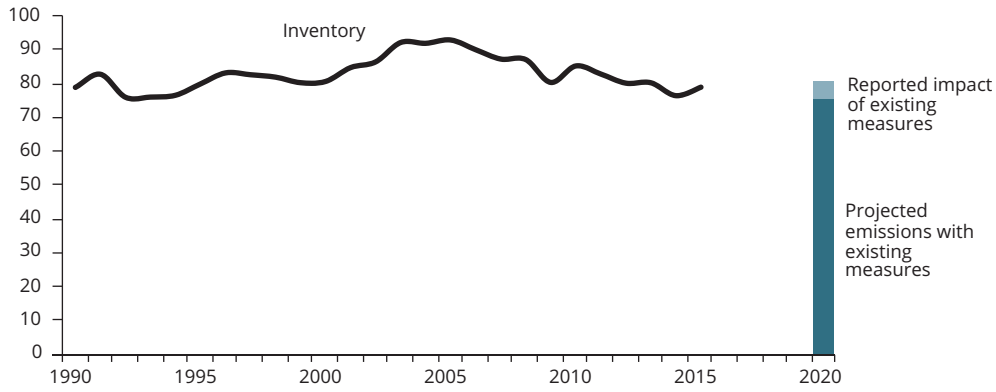
Total of **15** single PaMs

PaMs per sector



PaMs per instrument type

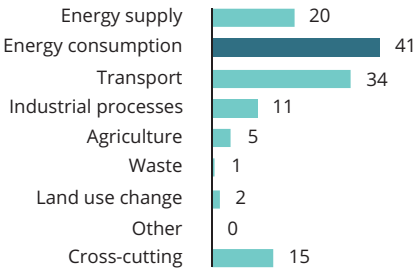




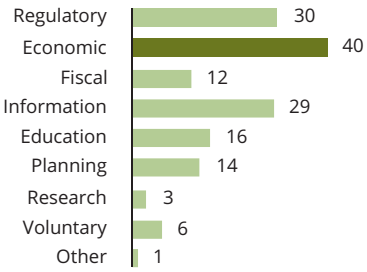
Belgium

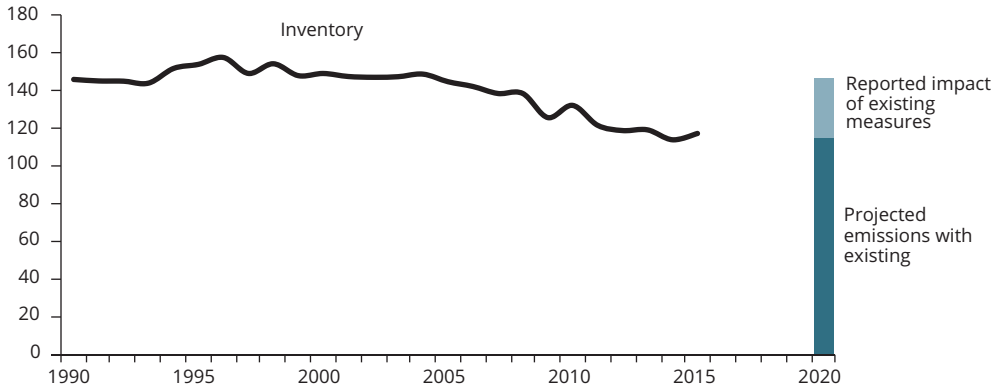
Total of **114** single PaMs

PaMs per sector



PaMs per instrument type

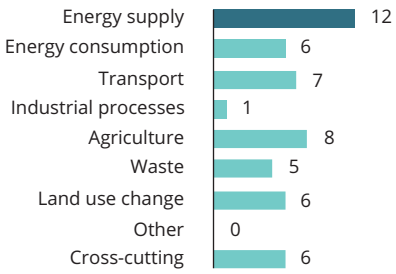




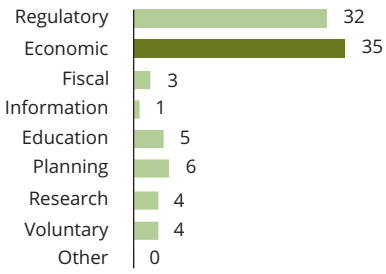
Bulgaria

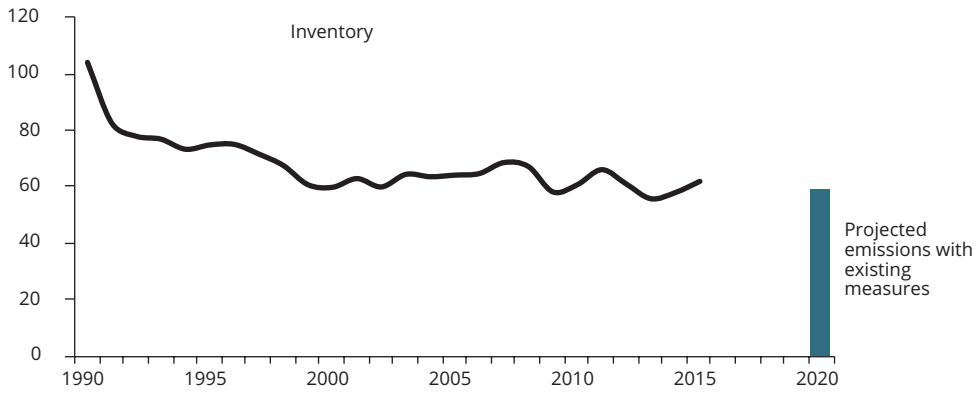
Total of
46
single PaMs

PaMs per sector



PaMs per instrument type

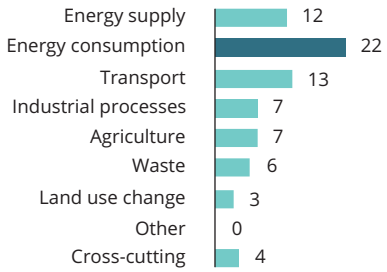




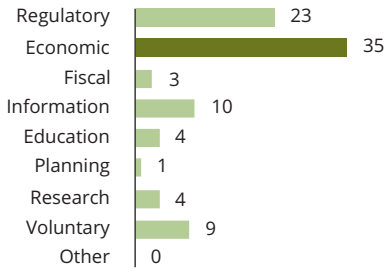
Croatia

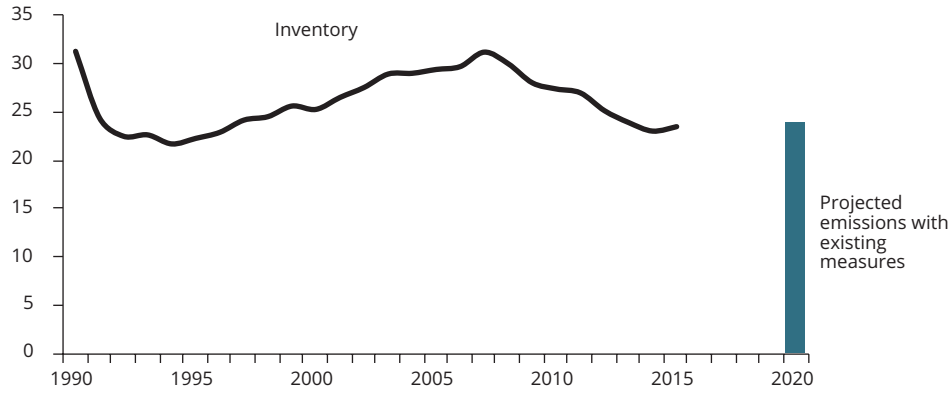
Total of
62
single PaMs

PaMs per sector



PaMs per instrument type

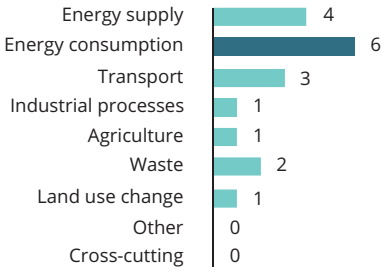




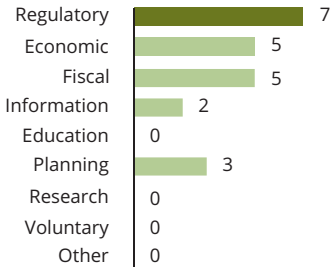
Cyprus

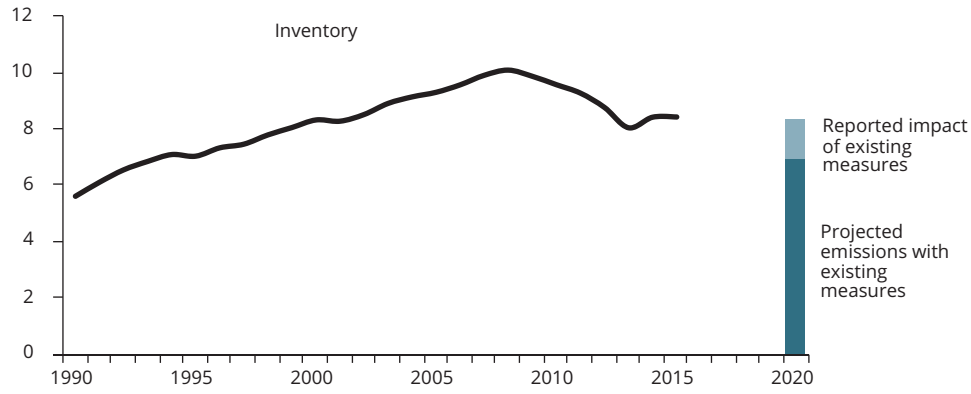
Total of **17** single PaMs

PaMs per sector



PaMs per instrument type

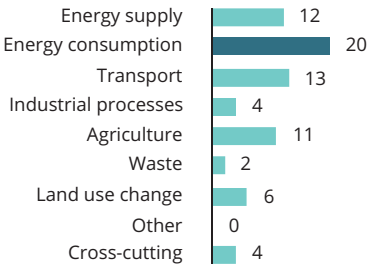




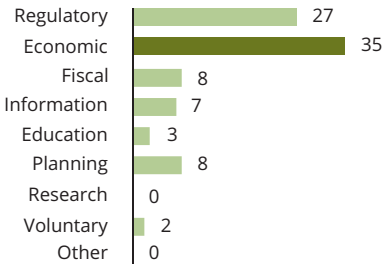
Czech Republic

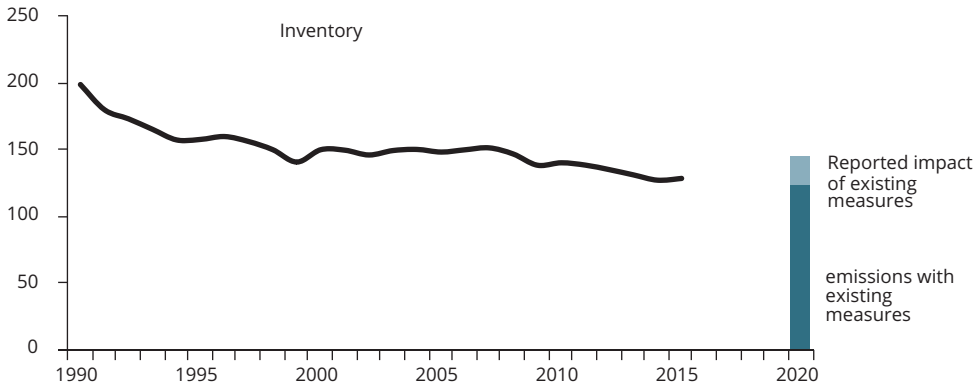
Total of **57** single PaMs

PaMs per sector



PaMs per instrument type

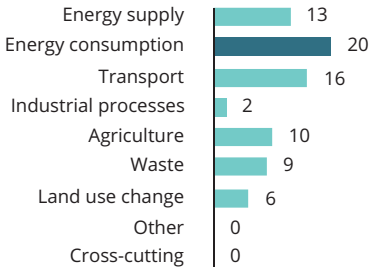




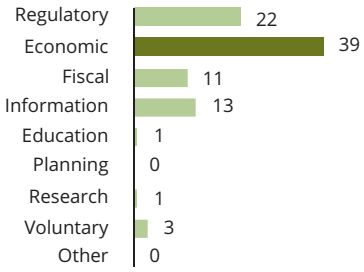
Denmark

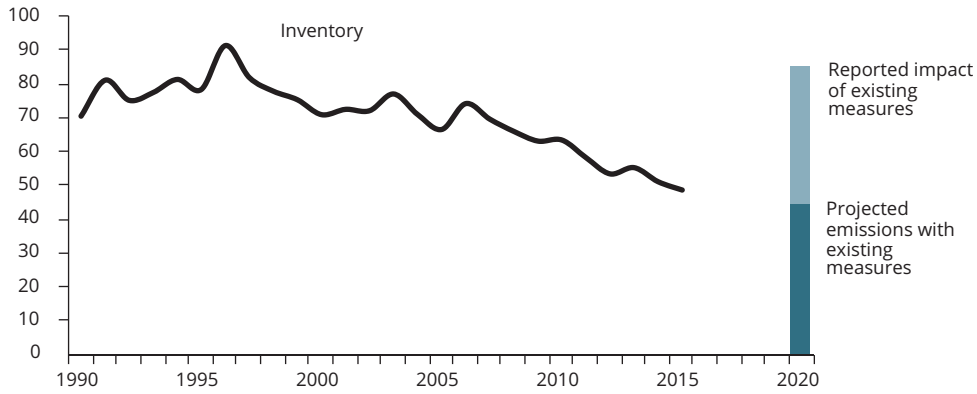
Total of
65
single PaMs

PaMs per sector



PaMs per instrument type

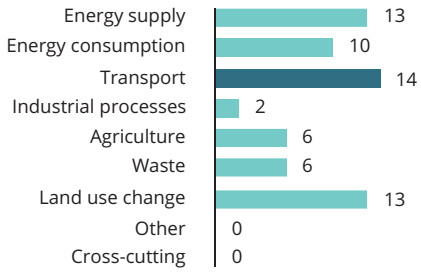




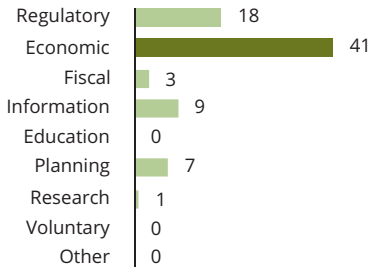
Estonia

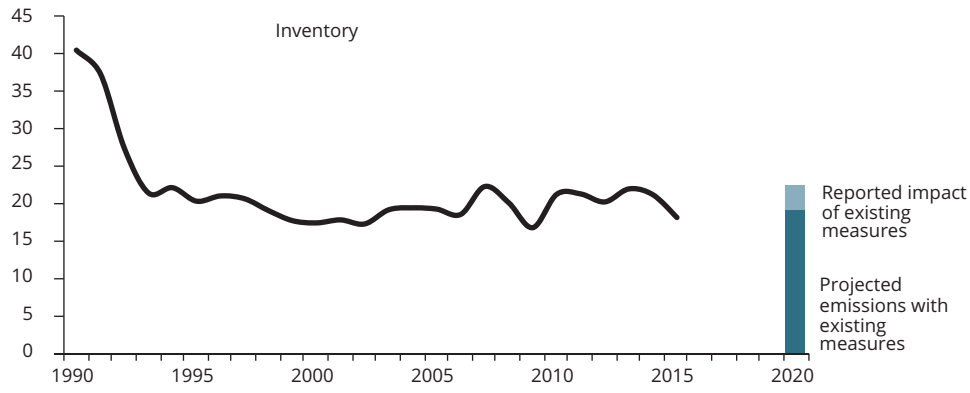
Total of
69
single PaMs

PaMs per sector



PaMs per instrument type

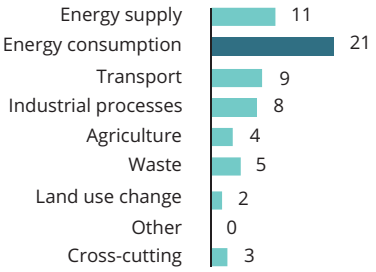




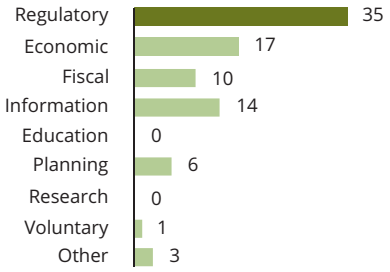
Finland

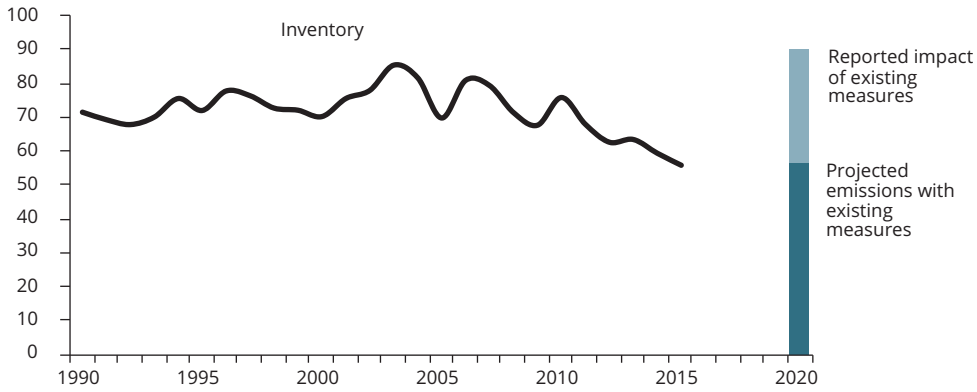
Total of **52** single PaMs

PaMs per sector



PaMs per instrument type

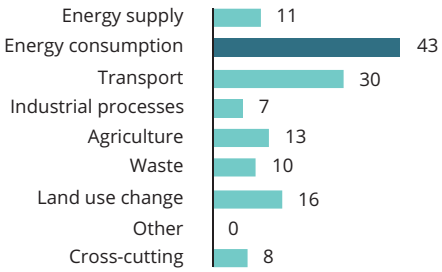




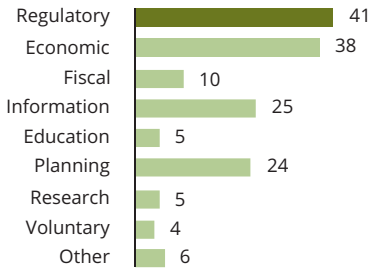
France

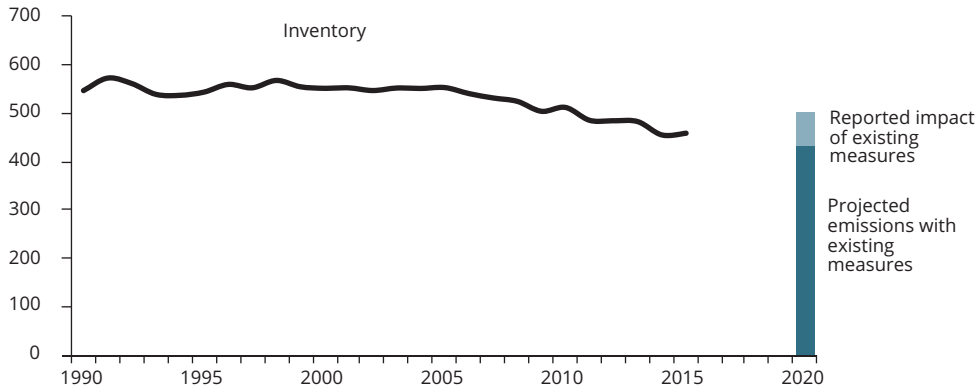
Total of **115** single PaMs

PaMs per sector



PaMs per instrument type

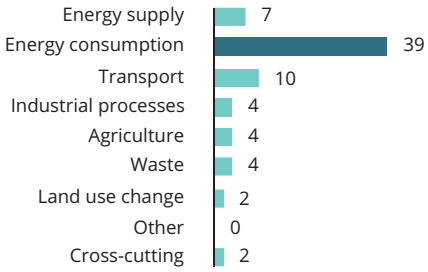




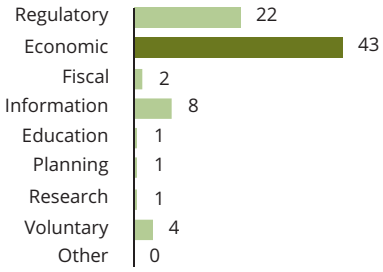
Germany

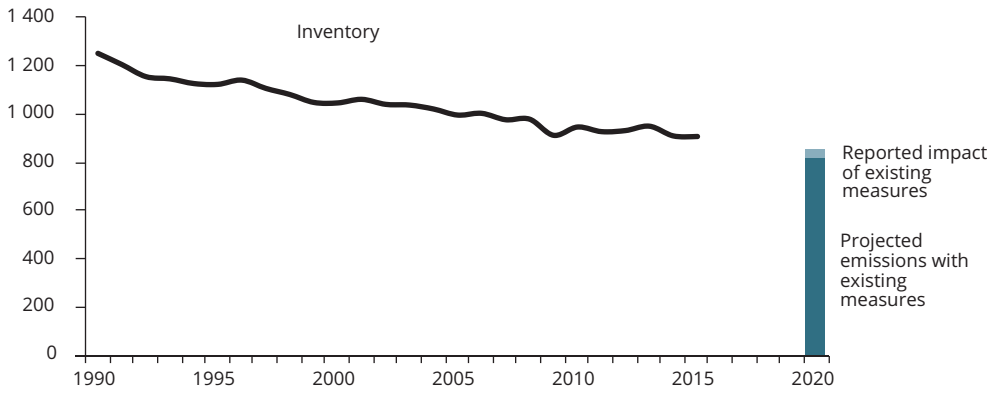
Total of **69** single PaMs

PaMs per sector



PaMs per instrument type

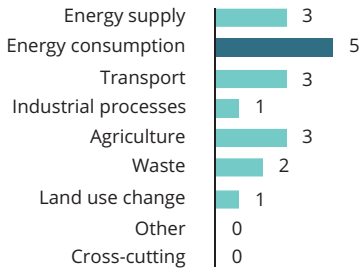




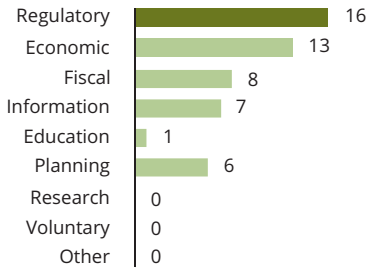
Greece

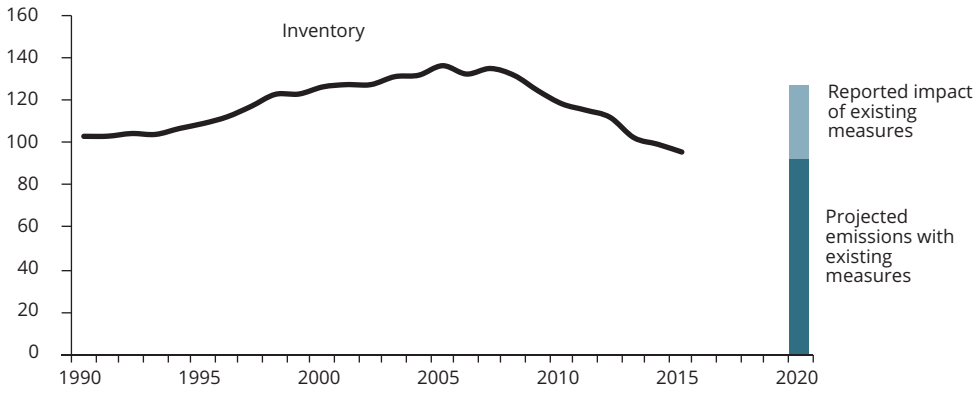
Total of **17** single PaMs

PaMs per sector



PaMs per instrument type

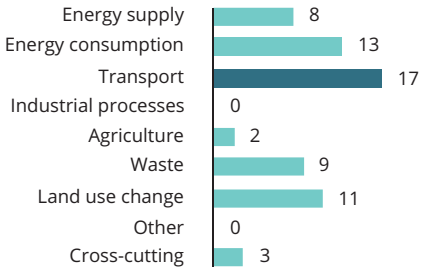




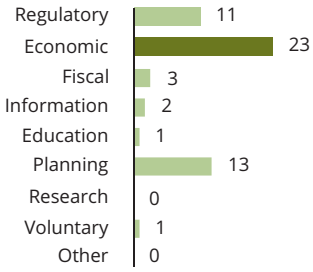
Hungary

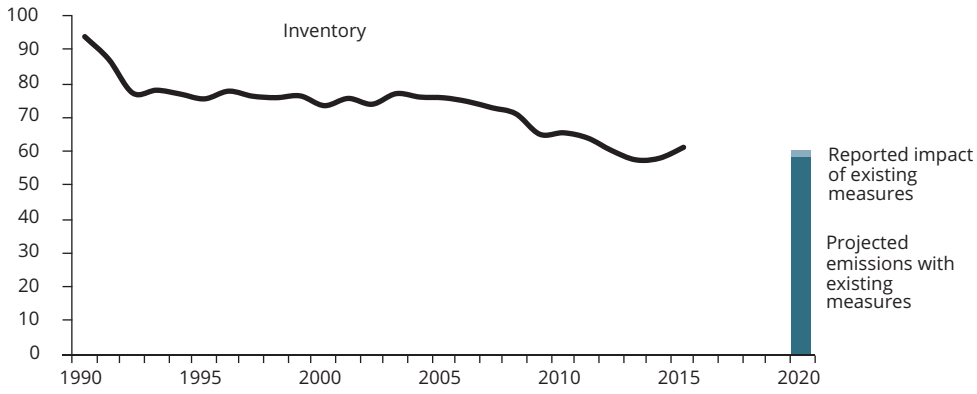
Total of
52
single PaMs

PaMs per sector



PaMs per instrument type

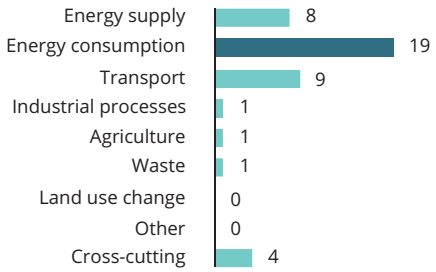




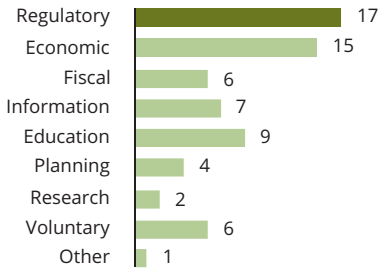
Ireland

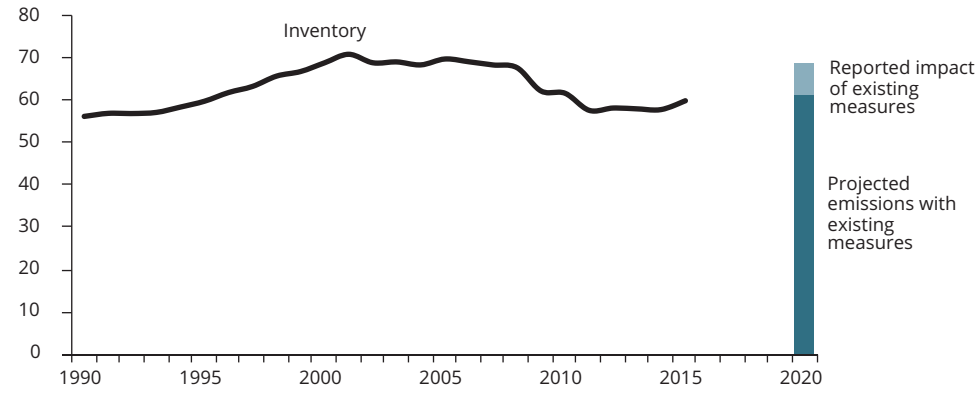
Total of
39
single PaMs

PaMs per sector



PaMs per instrument type

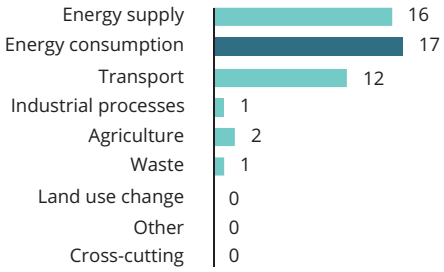




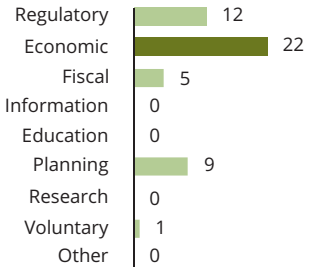
Italy

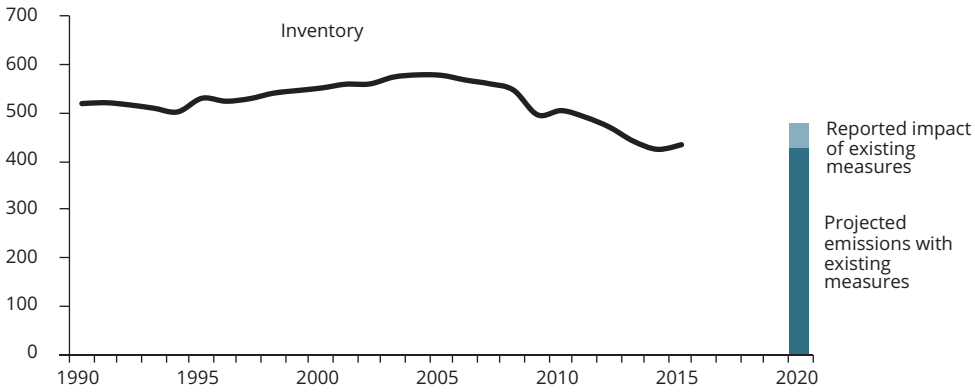
Total of **49** single PaMs

PaMs per sector



PaMs per instrument type

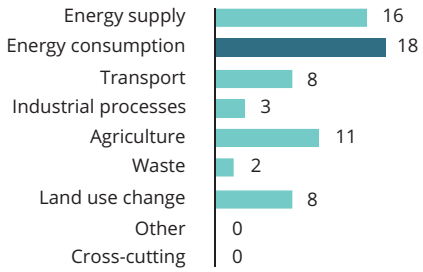




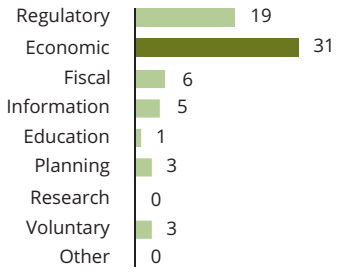
Latvia

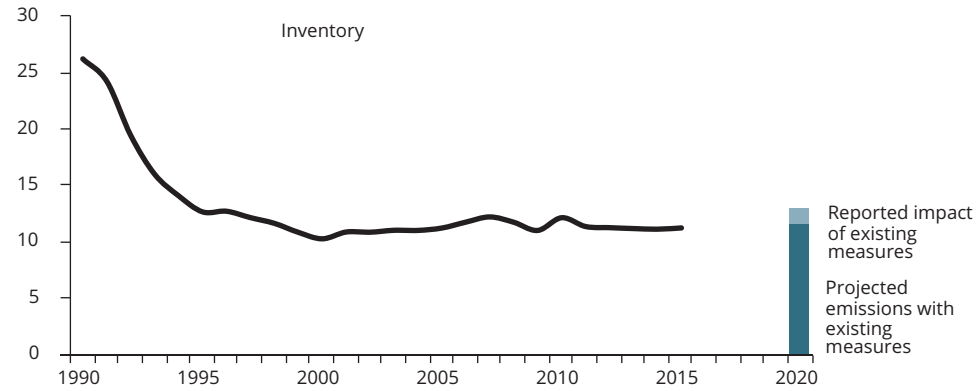
Total of **60** single PaMs

PaMs per sector



PaMs per instrument type

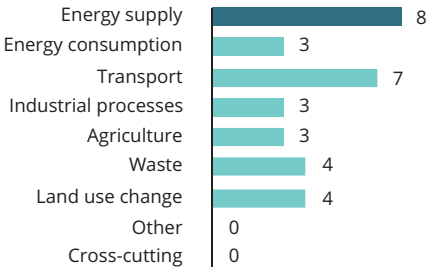




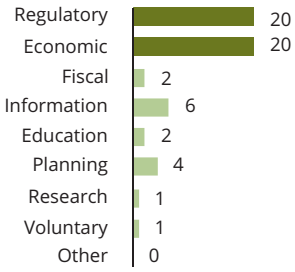
Lithuania

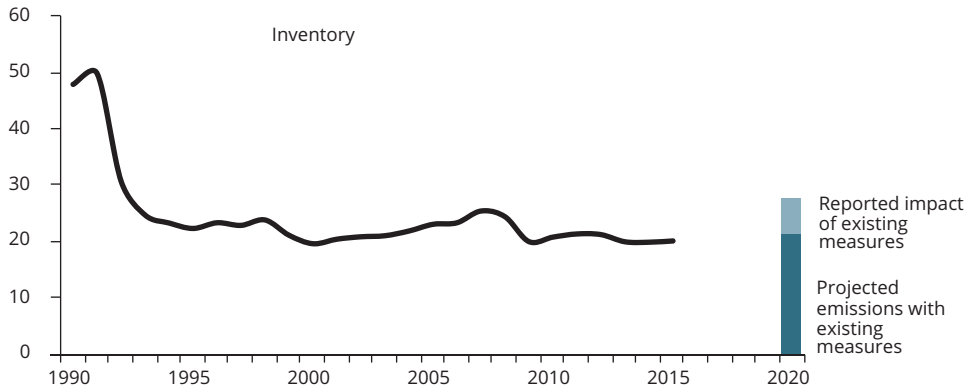
Total of **29** single PaMs

PaMs per sector



PaMs per instrument type

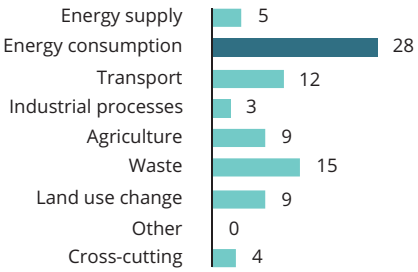




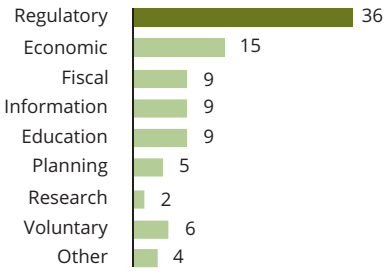
Luxembourg

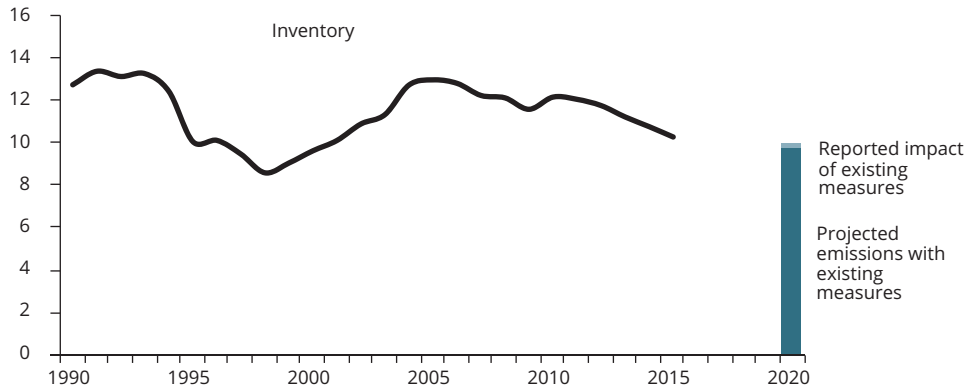
Total of **75** single PaMs

PaMs per sector



PaMs per instrument type

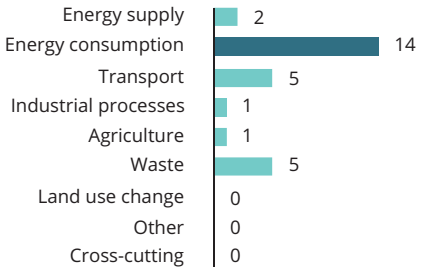




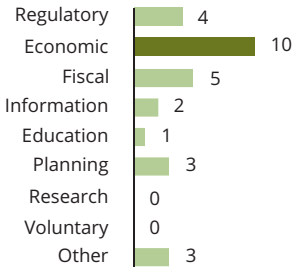
Malta

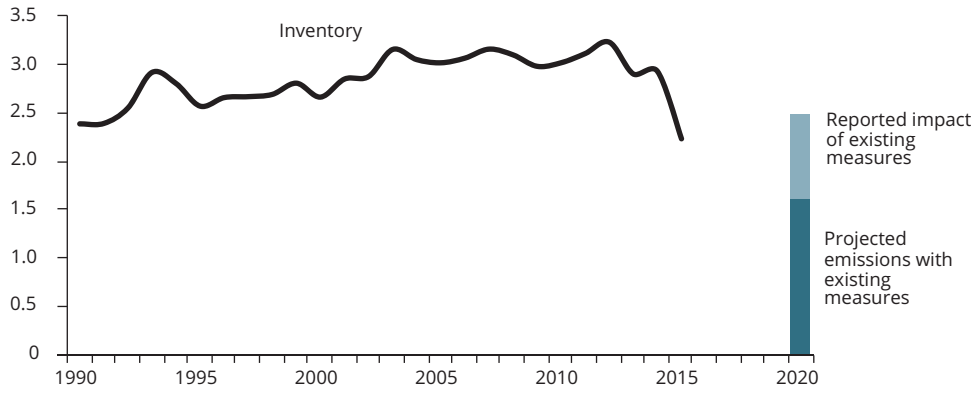
Total of **27** single PaMs

PaMs per sector



PaMs per instrument type

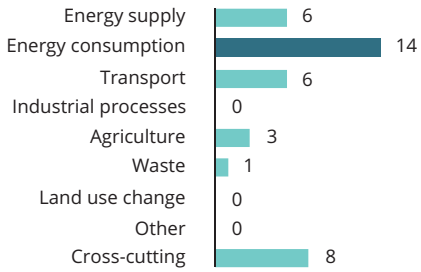




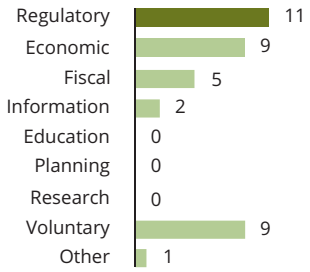
Netherlands

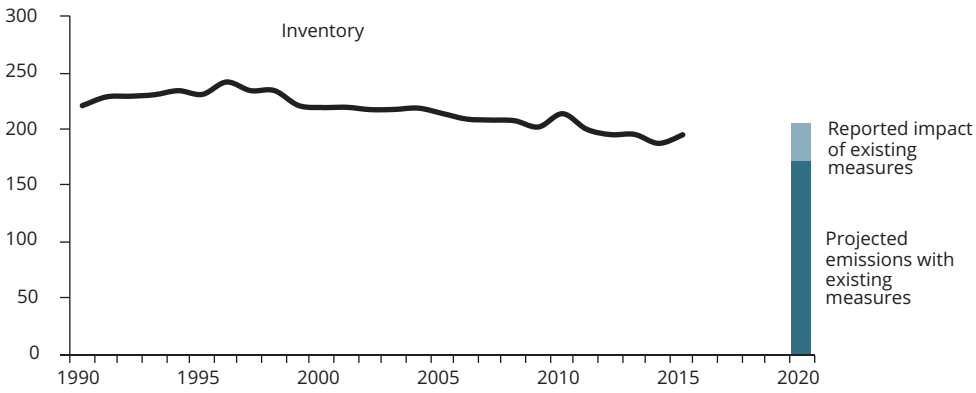
Total of **35** single PaMs

PaMs per sector



PaMs per instrument type

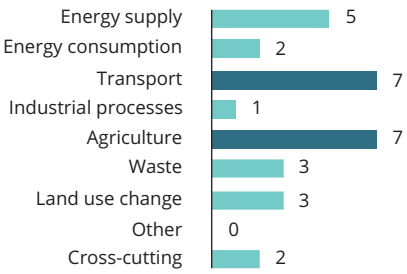




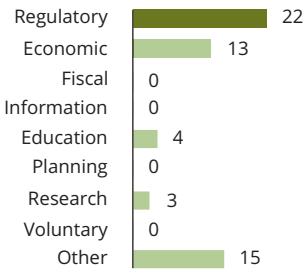
Poland

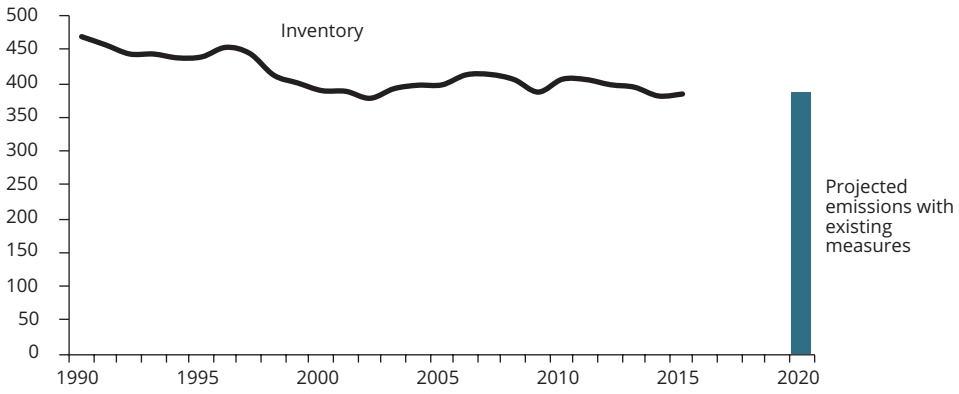
Total of **27** single PaMs

PaMs per sector



PaMs per instrument type

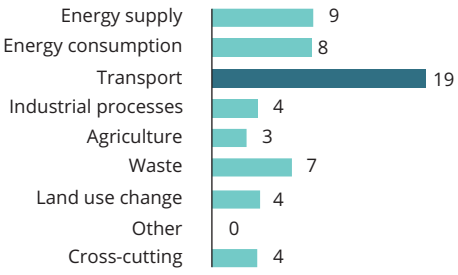




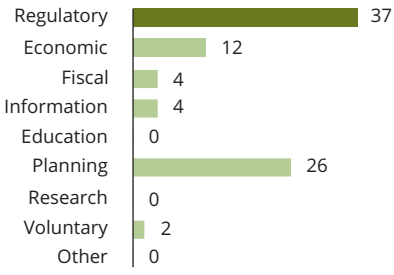
Portugal

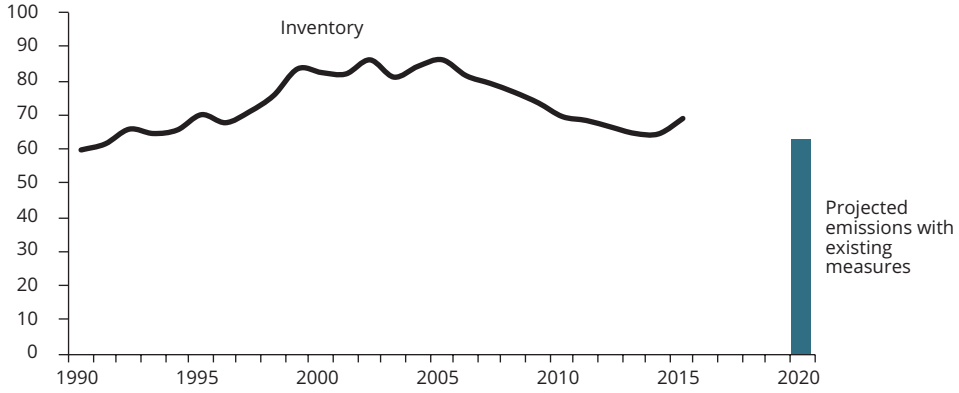
Total of **42** single PaMs

PaMs per sector



PaMs per instrument type

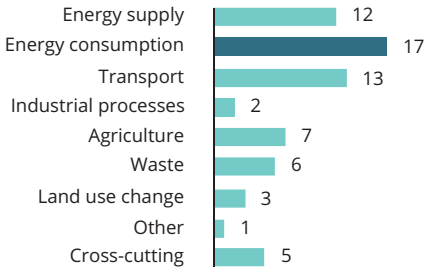




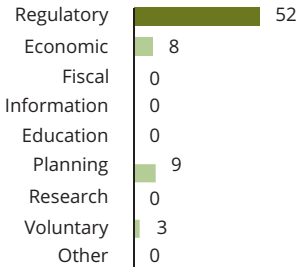
Romania

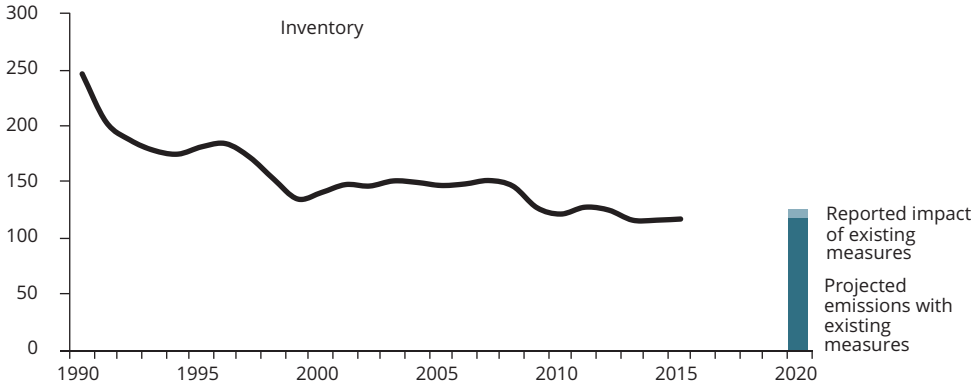
Total of **61** single PaMs

PaMs per sector



PaMs per instrument type

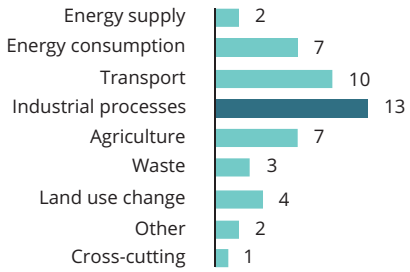




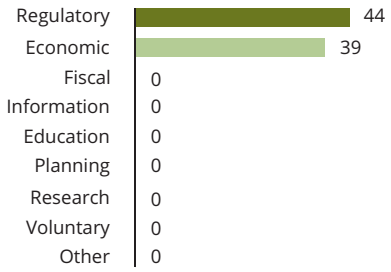
Slovakia

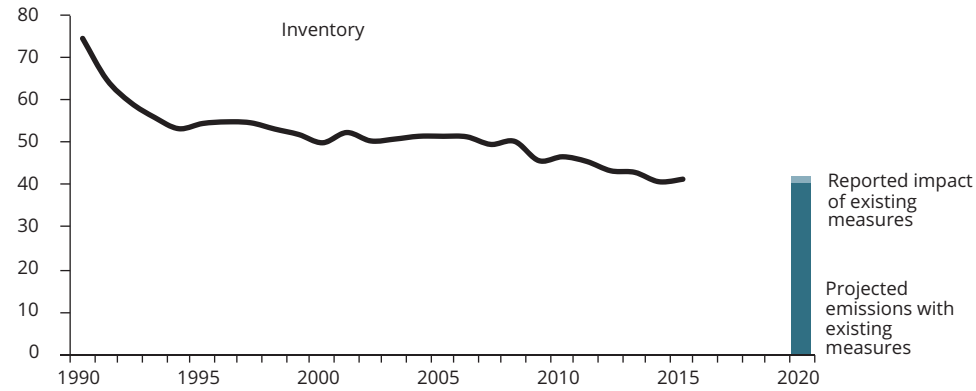
Total of **45** single PaMs

PaMs per sector



PaMs per instrument type

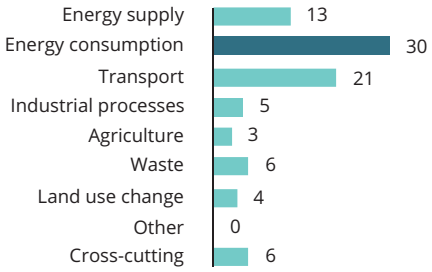




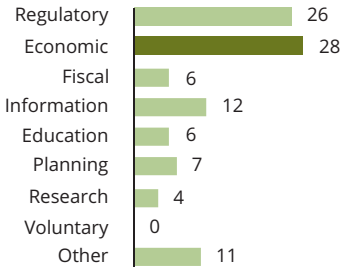
Slovenia

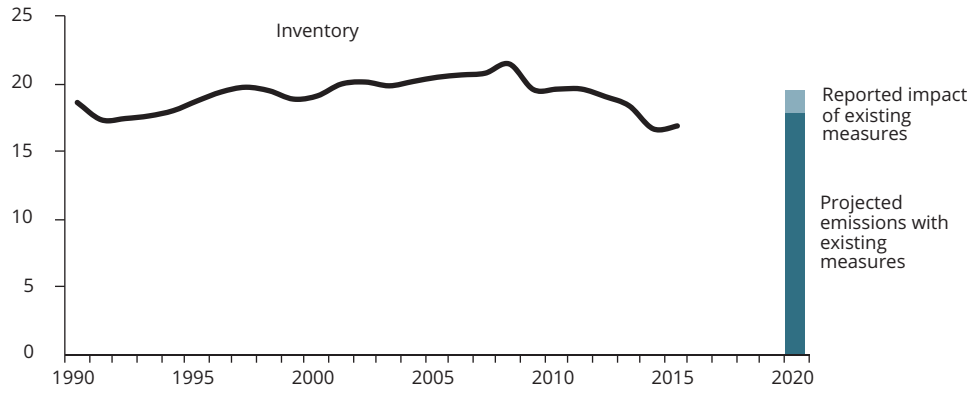
Total of
70
single PaMs

PaMs per sector



PaMs per instrument type

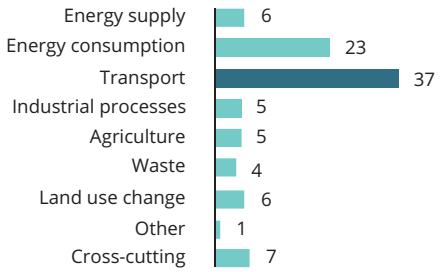




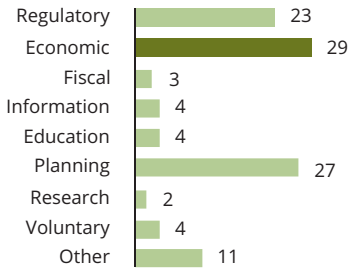
Spain

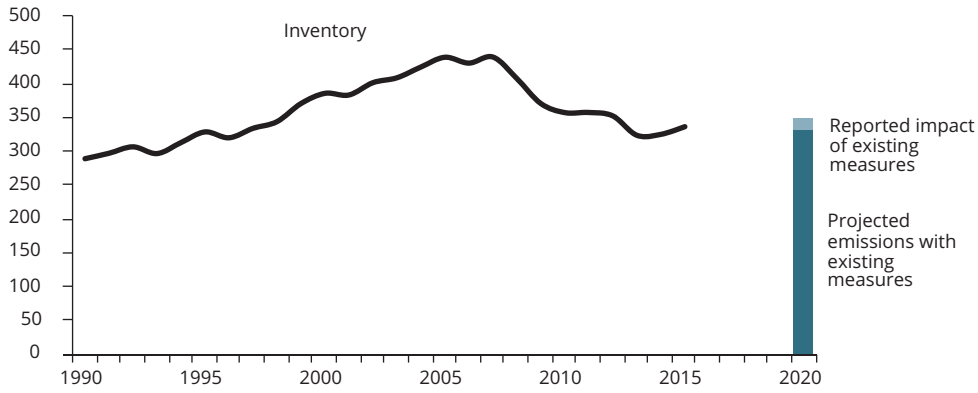
Total of
75
single PaMs

PaMs per sector



PaMs per instrument type

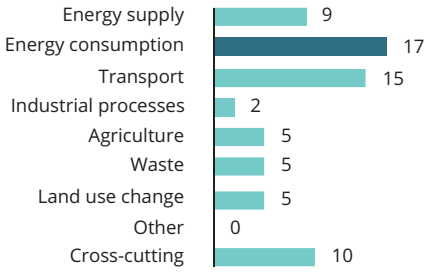




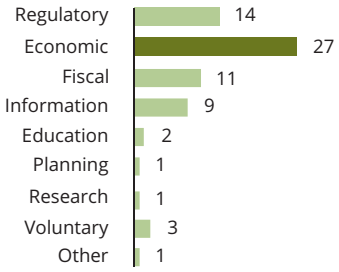
Sweden

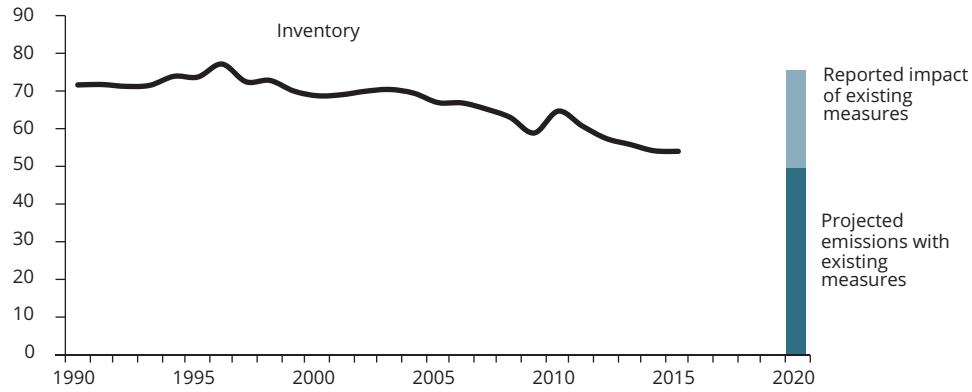
Total of **63** single PaMs

PaMs per sector



PaMs per instrument type

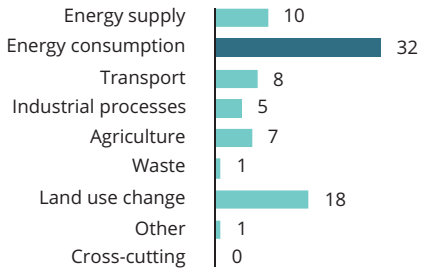




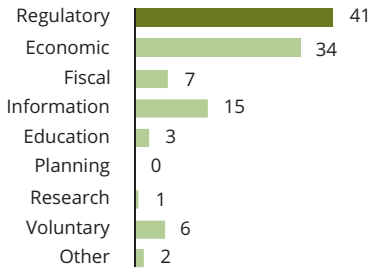
United Kingdom

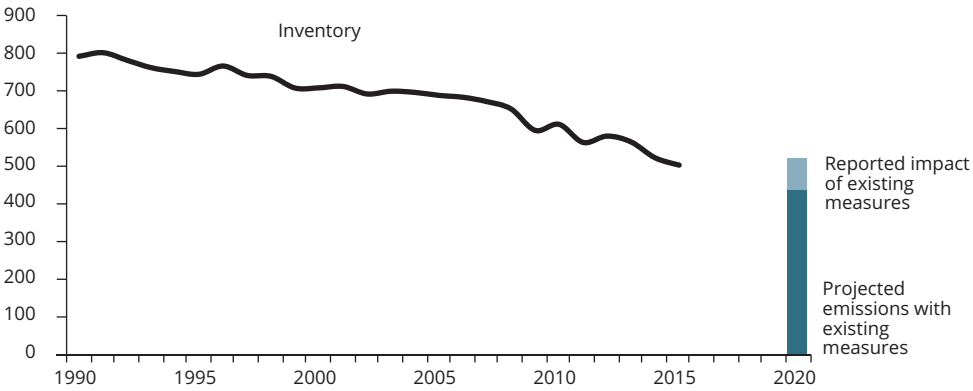
Total of **75** single PaMs

PaMs per sector



PaMs per instrument type





Annex 2 Reporting requirements under the MMR

A2.1 Regulation (525/2013) on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change

Article 13, Reporting on policies and measures

1. By 15 March 2015, and every two years thereafter, Member States shall provide the Commission with the following:

   a. a description of their national system for reporting on policies and measures, or groups of measures, and for reporting on projections of anthropogenic greenhouse gas emissions by sources and removals by sinks pursuant to Article 12(1), where such description has not already been provided, or information on any changes made to that system where such a description has already been provided;

   b. updates relevant to their low-carbon development strategies referred to in Article 4 and progress in implementing those strategies;

   c. information on national policies and measures, or groups of measures, and on implementation of Union policies and measures, or groups of measures, that limit or reduce greenhouse gas emissions by sources or enhance removals by sinks, presented on a sectoral basis and organised by gas or group of gases (HFCs and PFCs) listed in Annex I. That information shall refer to applicable and relevant national or Union policies and shall include:

      (i) the objective of the policy or measure and a short description of the policy or measure;

      (ii) the type of policy instrument;

      (iii) the status of implementation of the policy or measure or group of measures;

      (iv) where used, indicators to monitor and evaluate progress over time;

      (v) where available, quantitative estimates of the effects on emissions by sources and removals by sinks of greenhouse gases broken down into:

      — the results of *ex ante* assessments of the effects of individual or groups of policies and measures on the mitigation of climate change. Estimates shall be provided for a sequence of four future years ending with 0 or 5 immediately following the reporting year, with a distinction between greenhouse gas emissions covered by Directive 2003/87/EC and those covered by Decision No 406/2009/EC;

      — the results of *ex post* assessments of the effects of individual or groups of policies and measures on the mitigation of climate change, with a distinction between greenhouse gas emissions covered by Directive 2003/87/EC and those covered by Decision No 406/2009/EC;

      (vi) where available, estimates of the projected costs and benefits of policies and measures, as well as estimates, as appropriate, of the realised costs and benefits of policies and measures;

      (vii) where available, all references to the assessments and the underpinning technical reports referred to in paragraph 3;

   d. the information referred to in point (d) of Article 6(1) of Decision No 406/2009/EC;

e. information on the extent to which the Member State's action constitutes a significant element of the efforts undertaken at national level as well as the extent to which the projected use of joint implementation, of the CDM and of international emissions trading is supplemental to domestic action in accordance with the relevant provisions of the Kyoto Protocol and the decisions adopted thereunder.

2. A Member State shall communicate to the Commission any substantial changes to the information reported pursuant to this Article during the first year of the reporting period, by 15 March of the year following the previous report.

3. Member States shall make available to the public, in electronic form, any relevant assessment of the costs and effects of national policies and measures, where available, and any relevant information on the implementation of Union policies and measures that limit or reduce greenhouse gas emissions by sources or enhance removals by sinks along with any existing technical reports that underpin those assessments. Those assessments should include descriptions of the models and methodological approaches used, definitions and underlying assumptions.

A2.2 Implementing Regulation (749/2014) on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) No 525/2013 of the European Parliament and of the Council

Article 22, Reporting on policies and measures

1. Member States shall report the information on policies and measures referred to in Article 13(1)(c), (d) and (e) of Regulation (EU) No 525/2013 in accordance with the tabular formats set out in Annex XI to this Regulation and using the reporting template provided and the submission process introduced by the Commission.

2. Member States shall report qualitative information regarding the links between the different policies and measures reported pursuant paragraph 1 and the way such policies and measures contribute to the different projection scenarios including an assessment of their contribution to the achievement of a low-carbon development strategy, in a textual format in addition to the tabular format referred to in paragraph 1.

Annex XI, Reporting information on policies and measures pursuant to Article 22

Table 1: Sectors and gases for reporting on policies and measures and groups of measures, and type of policy instrument

PAM number	Name of policy or measure	Sector(s) affected([a])	GHG(s) affected([b])	Objective([c])	Quantified objective([d])	Short description([e])	Type of policy instrument([f])	Union policy which resulted in the implementation of the PAM		Status of implementation([i])	Implementation period		Projections scenario in which the PAM is included	Entities responsible for j implementing the policy ([j])		Indicators used to monitor and evaluate progress over time					Reference to assessments and underpinning technical reports	General comments
								Union policy([g])	Other([h])		Start	Finish		Type	name	Description	Values ([k])					
																	[Year]	[Year]	[Year]	[Year]		

Notes: Abbreviations: GHG = greenhouse gas; LULUCF = land use, land-use change and forestry.

([a]) Member States must select from the following sectors: energy supply (comprising extraction, transmission, distribution and storage of fuels as well as energy and electricity production), energy consumption (comprising consumption of fuels and electricity by end users such as households, services, industry and agriculture), transport, industrial processes (comprising industrial activities that chemically or physically transform materials leading to greenhouse gas emissions, use of greenhouse gases in products and non-energy uses of fossil fuel carbon), agriculture, forestry/LULUCF, waste management/waste, cross-cutting, other sectors.

([b]) Member States must select from the following GHGs (more than one GHG can be selected): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulphur hexafluoride (SF_6), nitrogen trifluoride (NF_3).

([c]) Member States must select from the following objectives (more than one objective can be selected, additional objectives could be added and specified under 'other'):
For **energy supply** — increase in renewable energy; switch to less carbon-intensive fuels; enhanced non-renewable low carbon generation (nuclear); reduction of losses; efficiency improvement in the energy and transformation sector; carbon capture and storage; control of fugitive emissions from energy production; other energy supply.
For **energy consumption** — efficiency improvements of buildings; efficiency improvement of appliances; efficiency improvement in services/tertiary sector, efficiency improvement in industrial end-use sectors, demand management/reduction; other energy consumption.
For **transport** — efficiency improvements of vehicles; modal shift to public transport or non-motorized transport; low carbon fuels/electric cars; demand management/reduction; improved behaviour; improved transport infrastructure; other transport.
For **industrial processes** — installation of abatement technologies; reduction of emissions of fluorinated gases; replacement of fluorinated gases by other substances; improved control of fugitive emissions from industrial processes; other industrial processes.
For **waste management/waste**– demand management/reduction; enhanced recycling; enhanced CH_4 collection and use; improved treatment technologies; improved landfill management; waste incineration with energy use; improved wastewater management systems; reduced landfilling; other waste.
For **agriculture** — reduction of fertilizer/manure use on cropland; other activities improving cropland management, improved livestock management, improved animal waste management systems; activities improving grazing land or grassland management, improved management of organic soils,; other agriculture.

For **forestry/LULUCF** — afforestation and reforestation; conservation of carbon in existing forests, enhancing production in existing forests, increasing the harvested wood products pool, enhanced forest management, prevention of deforestation, strengthening protection against natural disturbances, substitution of GHG intensive feedstocks and materials with harvested wood products; prevention of drainage or rewetting of wetlands, restoration of degraded lands, other LULUCF.
For **cross-cutting** –framework policy, multi-sectoral policy, other cross-cutting.
For **Other** Member States must provide a brief description of the objective.

([d]) Member States must include the figure(s) if the objective(s) is(are) quantified.

([e]) Member States must indicate in the description if a policy or measure is envisaged with a view to limiting GHG emissions beyond Member State commitments under Decision No 4 06/2009/EC in accordance with Article 6(1)(d) of Decision No 406/2009/EC.

([f]) Member States must select from the following policy types: economic; fiscal; voluntary/negotiated agreements; regulatory; information; education; research; planning; other.

([g]) Union policy implemented through the national policy or where national policies are aimed directly at meeting objectives of Union policies. Member State should select a policy from a list provided in the electronic version of the tabular format

([h]) Secondary Union policy: Member State must indicate any Union policy not listed in the previous column or an additional Union policy if the national policy or measure relates to several Union policies.

([i]) Member States must select from the following categories: planned; adopted; implemented; expired.
Expired policies and measures must be reported in the template only if they have an effect, or they are expected to continue to have an effect,on greenhouse gas emissions

([j]) Member States must enter the name/s of entities responsible for implementing the policy or measure under the relevant headings of: National government; Regional entities; Local government; Companies/businesses/industrial associations; Research institutions; Others not listed (more than one entity can be selected)..

([k]) Member States must provide any indicator used and values for such indicators that they use to monitor and evaluate progress of policies and measures. Those values can be either *ex-post* or *ex-ante* values and Member States must specify the year for which the value applies.

Table 2: Available results of ex-ante and ex-post assessments of the effects of individual or groups of policies and measures on mitigation of climate change ([a])

Policy or measure or groups of policies and measures	Policy impacting EU ETS or ESD emissions (both can be selected)			Ex-ante assessment												Ex-post assessment				
				GHG emissions reductions in t (kt CO_2-equivalent per year)			GHG emissions reductions in t+5 (kt CO_2-equivalent per year)			GHG emissions reductions in t+10 (kt CO_2-equivalent per year)			GHG emissions reductions in t+15 (kt CO_2-equivalent per year)			Year for which reduction applies	Average emission reduction (kt CO_2- equivalent per year)	Explanation of the basis for the mitigation estimates	Factors affected by PAM	Documentation/Source of estimation if available (provide a weblink of the report where the figure is referenced from)
	EU ETS	ESD	LULUCF	Total	EU ETS	ESD	Total	EU ETS	ESD	Total	EU ETS	ESD	Total	EU ETS	ESD					

([a]) — Member States are to include all the policies and measures or their groups of policies and measures for which such assessment is available.

Notation: t signifies the first future year ending with 0 or 5 immediately following the reporting year

Annex XI, Reporting information on policies and measures pursuant to Article 22 (cont.)

Table 3: Available projected and realised costs and benefits of individual or groups of policies and measures on mitigation of climate change

Policy or measure or groups of policies and measures	Projected costs and benefits						Realised costs and benefits				
	Costs in EUR per tonne CO_2eq reduced/ sequestered	Absolute costs per year in EUR (specify year cost has been calculated for)	Description of cost estimates (Basis for cost estimate, what type of costs are included in the estimate, methodology)	Price year	Year for which calculated	Documentation/Source of cost estimation	Costs in EUR per tonne CO_2eq reduced/ sequestered	Price year	Year for which calculated	Description of cost estimates (Basis for cost estimate, what type of costs are included)	Documentation/Source of cost estimation

Note: Member States are to include all the policies and measures or their groups where such assessment is available.

A benefit must be indicated in the template as a negative cost.

If available, costs and benefits for the same PAM or group of PAMs should be entered in two separate rows, with the net-cost in a separate third row for the PAM or group of PAMs. If the costs reported is net-costs covering both positive costs and benefits (= negative costs) this should be indicated.

Annex 3 Links to Member States' 2017 reports on policies and measures under the MMR

Member State	Url
Austria	Not available – Austria did not use the online questionnaire
Belgium	http://cdr.eionet.europa.eu/be/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwbkk9a
Bulgaria	http://cdr.eionet.europa.eu/bg/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwa07fa
Croatia	http://cdr.eionet.europa.eu/hr/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwzwozg
Cyprus	http://cdr.eionet.europa.eu/cy/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwafucw
Czech Republic	http://cdr.eionet.europa.eu/cz/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwavk2q
Denmark	http://cdr.eionet.europa.eu/dk/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwaqrjw
Estonia	http://cdr.eionet.europa.eu/ee/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwaac7a
Finland	http://cdr.eionet.europa.eu/fi/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwmaa2q
France	http://cdr.eionet.europa.eu/fr/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwm_t7a
Germany	http://cdr.eionet.europa.eu/de/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwaq1sa
Greece	http://cdr.eionet.europa.eu/gr/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwnokxq
Hungary	http://cdr.eionet.europa.eu/hu/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwmf7ga
Ireland	http://cdr.eionet.europa.eu/ie/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwsgjzq
Italy	http://cdr.eionet.europa.eu/it/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwagrtg
Latvia	http://cdr.eionet.europa.eu/lv/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwa1t0g
Lithuania	http://cdr.eionet.europa.eu/lt/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwaenlw
Luxembourg	http://cdr.eionet.europa.eu/lu/eu/mmr/art04-13-14_lcds_pams_projections/colvbug4w/envwn5wra
Malta	http://cdr.eionet.europa.eu/mt/eu/mmr/art04-13-14_lcds_pams_projections/colwkw8yg/envwz0nxw
Netherlands	http://cdr.eionet.europa.eu/nl/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwau0kg
Poland	http://cdr.eionet.europa.eu/ec/mmr/art04-13-14_lcds_pams_projections/colvzkuna/envwcpta
Portugal	http://cdr.eionet.europa.eu/pt/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwawa6q
Romania	http://cdr.eionet.europa.eu/ro/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwaaw7q
Slovakia	http://cdr.eionet.europa.eu/sk/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwz6ija
Slovenia	http://cdr.eionet.europa.eu/si/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwzwxia
Spain	http://cdr.eionet.europa.eu/es/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwakraq
Sweden	http://cdr.eionet.europa.eu/se/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwmmncw
United Kingdom	http://cdr.eionet.europa.eu/gb/eu/mmr/art04-13-14_lcds_pams_projections/pams/envwqcriq

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