

# NATIONAL REPORT BY THE EUROPEAN UNION

MARCH 2020

Enhanced Black Carbon and Methane  
Emissions Reductions

Arctic Council Framework for Action



# National report by the European Union

## 2020

### 1 Introduction

To overcome the challenges of climate change and environmental degradation the European Commission announced the European Green Deal<sup>1</sup> in December 2019. This communication outlines a roadmap to transform EU, reaching the target of no net greenhouse gas emissions by 2050, decoupling economic growth to resource use, enhancing the efficient use of resources, moving to a clean and circular economy and , a zero pollution ambition, including updates to EU regulation on air quality.

The actions that are necessary to reach for the goals include investments in environmental-friendly technologies, decarbonisation of the energy sector, development of a cleaner private and public transport, and an increased energy efficiency in buildings.

### 2 Black carbon emissions and future projections

2.1 Black Carbon emissions have been reduced by almost 40 % since 2000. Major reductions occurred in the road transport sector. where emission levels decreased by almost 60%; a sensible reduction occurred in the off-road sector where 2017 emissions are less than half of 2000 ones. A strong contribution to BC emission in the EU27+UK comes from the residential sector (C\_OtherStationaryComb in the graph) where no significant emission reduction occurred from 2000; in 2017 emissions from this sector accounted for 38 % of the total.

2.2 Figure 1 provide a visual representation of Black Carbon emission trend for the EU27+UK since 2000 aggregated at GNFR level. Projected emissions are not provided due to lack of reporting from some EU Member States which make not relevant the creation of an aggregated projected emission level for the EU27+UK.

---

<sup>1</sup> The European Green Deal, COM(2019) 640; [https://ec.europa.eu/info/sites/info/files/european-green-deal-communication\\_en.pdf](https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf)

## Black Carbon emissions 2000-2017 in EU-27+UK (kt)

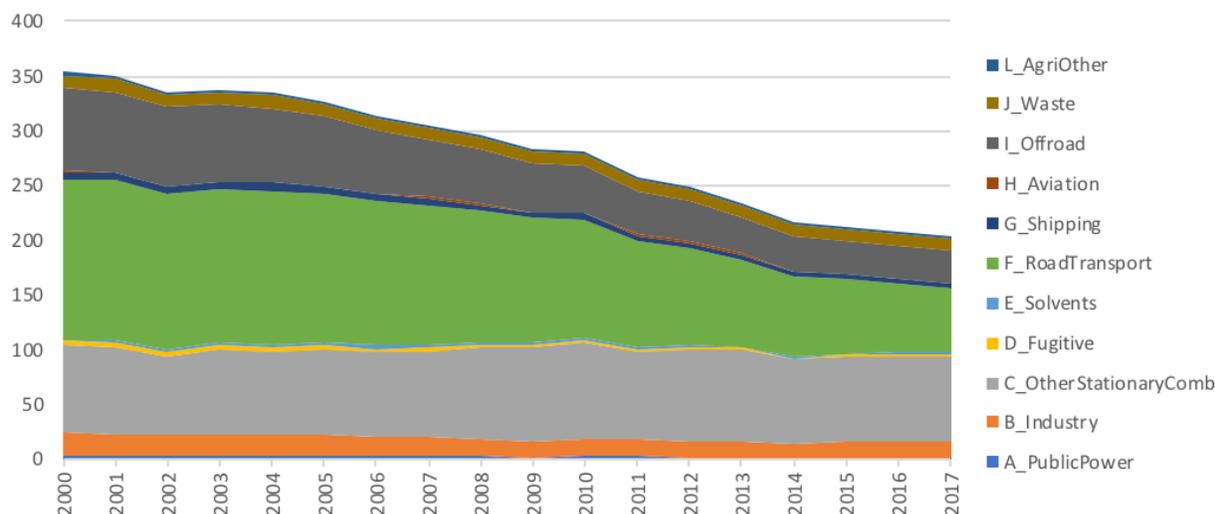


Figure 1 - Black Carbon emissions in the EU27+UK [Source: European Union emission inventory report 2019. Data available here: <https://www.eea.europa.eu/data-and-maps/dashboards/air-pollutant-emissions-data-viewer-2>]

### 3 Methane emissions and future projections

#### 3.1

According to the 2019 EU's GHG inventory submission to UNFCCC, methane emissions have decreased by 38% since 1990 and accounted for about 10% of total GHG emissions in the EU27 + UK in 2017. In absolute terms, the reduction was 274 million tonnes of CO<sub>2</sub> eq. and stood at 453 million tonnes of CO<sub>2</sub> eq. in 2017<sup>2</sup>.

The sectors with the largest share of methane emissions are agriculture, waste and energy. Within these, the largest reductions in methane occurred in managed waste disposal sites, coal mining and handling, enteric fermentation from cattle, and fugitive emissions from natural gas. Overall, reductions in methane emissions have been significant and reflect lower levels of coal mining and post-mining activities, lower agricultural livestock, as well as lower emissions from managed waste disposal on land.

Regarding the energy sector, fugitive methane emissions have been steadily decreasing since 1990, mainly due to lower underground-mining activities, although emissions from oil and natural gas systems also decreased during the last 27-year period. In addition to lower production of gas and oil, improvements in technology and pipeline networks and lower losses from gas distribution networks contributed to lower methane emissions since 1990.

In the agriculture sector, the first pillar of the Common Agriculture Policy (CAP) on market support had a significant impact on reducing agricultural emissions through the milk quota system. This system led to a strong reduction in animal numbers in the dairy sector to compensate for the increasing animal

<sup>2</sup> EEA 2019, EU's GHG inventory submission under the United Nations Framework Convention on Climate Change and the Kyoto Protocol <https://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2019>

productivity of the last decades. Overproduction control through 'milk quotas' has limited the economic attractiveness of cattle production in the EU and has incentivized higher milk yield to sustain production levels with less cattle. The EU's health check of the CAP in 2009 prepared for the end of the milk quota system, which was effectively abolished in 2015. Methane emissions have also decreased due to changes in the agricultural management of organic manures.

In the waste sector, the amount of municipal waste that is landfilled decreased strongly and other waste treatment methods such as recycling, biological treatment of waste and waste incineration with energy recovery (for heat and electricity) have gained importance in EU Member States. The emission reductions are partly due to the early implementation of the EU landfill waste directive, which requires Member States to reduce the amount of biodegradable waste disposed untreated to landfills and to install landfill gas recovery at all new sites. This has intensified separate collection, recycling and pre-treatment of waste, as well as landfill-gas recovery by Member States, and led to significant reductions in CH<sub>4</sub> emissions from solid waste disposal of biodegradable waste on land.

GHG projections reported by Member States indicate that total methane emissions will continue decreasing up to 2030, although at a lower rate than in the past. The bulk of this reduction is expected to take place in the waste sector, which would account for 80% of all methane emission reductions between 2017 and 2030 at EU level<sup>3</sup>.

Methane is outside the scope of the EU Emissions Trading Scheme and falls under the Effort Sharing legislation where national emission targets apply. The policies and measures at Member State level to achieve GHG emission reductions are available from the EEA's policies and measures database<sup>4</sup>. A summary of some of the key policies to achieve the EU's 2020 and 2030 targets is also included in the EU's fourth Biennial Report to UNFCCC<sup>5</sup>.

---

<sup>3</sup> EEA 2019, Member States' reporting on greenhouse gas emission projections <https://www.eea.europa.eu/data-and-maps/data/greenhouse-gas-emission-projections-for-6>

<sup>4</sup> EEA 2019c, Member States' reporting on policies and measures <https://www.eea.europa.eu/themes/climate/national-policies-and-measures>

<sup>5</sup> EC 2019, Fourth Biennial Report from the European Union under the United Nations Framework Convention on Climate Change <https://unfccc.int/documents/204815>

### Methane emissions 1990-2017, and projections 2020 & 2030 in EU-27+UK (million tonnes CO<sub>2</sub> eq)

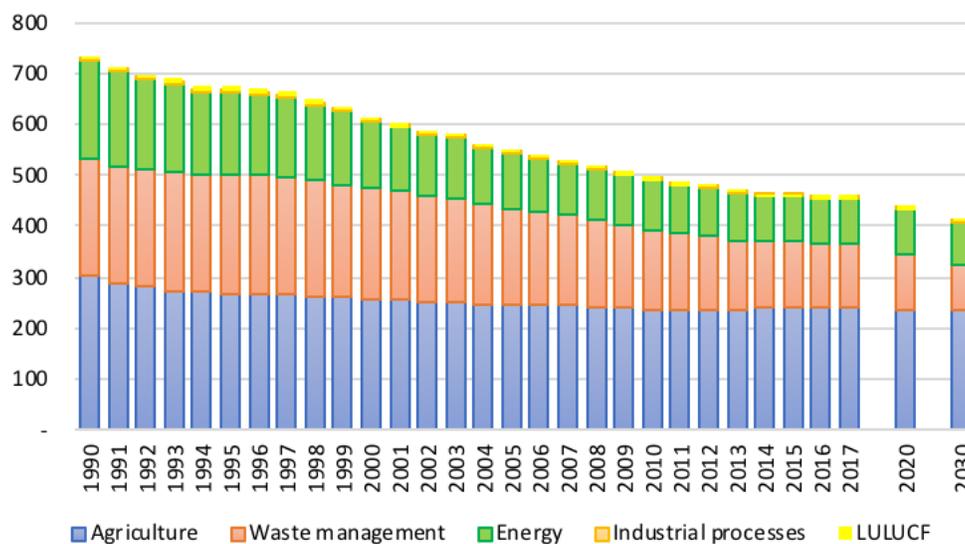


Figure 2 - Methane emissions in the EU27+UK [Source: European Union GHG emission inventories and projections report 2019 under the EU MMR. Data available here: EEA GHG data viewer (based on the EU 2019 GHG inventory submission to UNFCCC). <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>; projections at <https://www.eea.europa.eu/data-and-maps/data/greenhouse-gas-emission-projections-for-6>]

The European Commission hosts the Emission Database for Global Atmospheric Research (EDGAR)<sup>6</sup>, an independent, global database of human emissions of greenhouse gases (including CH<sub>4</sub>) and air pollution (including BC) on Earth. Based on global statistics and state-of-the-art scientific knowledge of emission mechanisms for a wide range of anthropogenic activities it maps the emissions for all world countries.

## 4 National strategies and action plans

### 4.1 Governance Structure

In addition to the governance at national level (Member States), the EU framework for addressing black carbon emissions is mostly linked to the overall clean air policy framework (environment policy with objective also to reduce negative impacts on human health) with relevance also for the climate policy.

The EU's clean air policy is based on three main pillars:

1. Ambient air quality standards in the form of limit values and target values set out in the Ambient Air Quality Directives<sup>7</sup> as regards concentration levels of pollutants in the ambient air with the aim to protect human health and the environment as a whole;

<sup>6</sup> <https://edgar.jrc.ec.europa.eu>

<sup>7</sup> Directive 2008/50/EC on ambient air quality and cleaner air for Europe, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1486474738782&uri=CELEX:02008L0050-20150918> and Directive 2004/107/EC relating to

2. Overall national emissions of certain air pollutants are addressed in the National Emission Reduction Commitments (NEC) Directive<sup>8</sup>. This directive outlines requirements e.g. for the national emission inventories, the national emission reduction commitments for five key pollutants and the national air pollution control programmes to ensure compliance with these commitments;

3. Emission and energy efficiency standards for key sources of air pollution, including vehicle emissions, products and industry. These standards are set out in EU legislation targeting e.g. industrial emissions, emissions from power plants, vehicles and transport fuels, as well as the energy performance of products and non-road mobile machinery.

All of these include some relevance for reducing emissions and concentrations of black carbon as part of the overall particulate matter emissions.

In the European Commission DG ENV is the *chef de file* of Black Carbon matters, while DG CLIMA and DG ENER of Methane.

#### 4.2 National strategies

An European climate law<sup>9</sup> has been proposed to ensure a climate neutral European Union by 2050. The proposal fixes in legislation the EU's climate-neutrality objective.<sup>10</sup> In addition, the EU examines options to decrease its GHG emissions from 40% to 50-55% in 2030 compared with 1990 levels. Results will be published in a communication in 2020 followed by legislation, when appropriate in 2021. This legislation covers all methane emissions in the EU. In addition, the Commission is looking if and how energy related methane emissions could be further regulated.

To support industries towards the climate neutrality, building a more circular economy the new European industrial Strategy<sup>11</sup> has been adopted.

The proposal for the new Circular Economy Action Plan contains new initiatives along the products' life cycle modernising and transforming our economy while protecting the environment<sup>12</sup>.

The European Green Deal roadmap contains also key actions for a 'Sustainable and smart mobility' including a review of the Alternative Fuels Infrastructure Directive<sup>13</sup>, the intention to align EU air quality standards more closely to WHO guidelines, a 'Farm to Fork Strategy' by 2020 and a zero-pollution ambition for a toxic-free environment, which includes a zero pollution action plan for air, water and soil

---

arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1486475021303&uri=CELEX:02004L0107-20150918>, as amended by Commission Directive (EU) 2015/1480

<sup>8</sup> Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2016.344.01.0001.01.ENG&toc=OJ:L:2016:344:TOC](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.344.01.0001.01.ENG&toc=OJ:L:2016:344:TOC)

<sup>9</sup> European Climate Law, COM(2020) 80, [https://ec.europa.eu/info/sites/info/files/commission-proposal-regulation-european-climate-law-march-2020\\_en.pdf](https://ec.europa.eu/info/sites/info/files/commission-proposal-regulation-european-climate-law-march-2020_en.pdf)

<sup>10</sup> A Clean Planet for all – A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy. COM(2018)773

<sup>11</sup> [https://ec.europa.eu/commission/presscorner/detail/en/fs\\_20\\_425](https://ec.europa.eu/commission/presscorner/detail/en/fs_20_425)

<sup>12</sup> [https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF)

<sup>13</sup> Directive 2014/94/EU on the deployment of alternative fuels infrastructure

and a revision of measures to address air pollution from large industrial installations, both to be finalised in 2021<sup>14</sup>.

#### 4.3 National action plans

The National Emission reduction Commitment (NEC) Directive<sup>15</sup> has entered into its full implementation phase and the Commission is currently working at analysing the National Air Pollution Control Programmes (NAPCPs) submitted for the April 2019 deadline. In these NAPCPs, black carbon measures shall be prioritised among the PM<sub>2.5</sub> reduction measures to reach the emission reduction commitments. The Member States should also inform in these plans how they implement the black carbon from agriculture measures in Annex III, part 2, section B. This analysis results will be published and communicated once ready and notably in connection to the Commission report to the European Parliament and the Council on the implementation of the NECD in 2020.

The most important measure to reduce CH<sub>4</sub> from agriculture is investment to build biogas installations at farm or rural area level to process manure and producing CH<sub>4</sub> for energy uses of the farm or to supply the national CH<sub>4</sub> network. Covering the manure storage facilities will avoid the volatilisation not only of the NH<sub>3</sub>, but also CH<sub>4</sub>. As regards the agricultural sector in some Member States is very well developed the adaptation of diet for ruminants to reduce the enteric fermentation producing CH<sub>4</sub>. However this initiative is not currently compensated by the Common Agricultural Policy.

All methane emissions are covered under EU legislation – the Regulation setting national greenhouse gas emission reductions targets up to 2030 for the sectors outside the EU Emission Trading System. Methane emissions will also drop as a result of our energy efficiency and renewable energy policies.

EU current legislation is expected to cut methane emissions from waste by 70% in 2030 compared to 2005. Methane emissions from energy use in the EU could be 50% lower in the same period.

Although making progress, given the scale of the challenge, EU explores other options to better measure and report methane emissions across all hydrocarbon industries and works to cut methane emissions from energy production and use. Improving reporting on methane emissions across all hydrocarbon industries might also help in this.

## 5 International work

### 5.1

Under the European Green Deal, EU will continue to promote ambitious climate, energy and environmental policies across the world and engage more with all international partners to increase the collective effort under the Paris Agreement. The EU is developing a green agenda for the Western Balkans to support in the environmental and climate neutral transition. During the 2020 EU-China summits EU will take the opportunity to reinforce the partnership on climate and environmental issues. The summits between African Union and the EU will provide the forum to tackle climate and environmental issues.

---

<sup>14</sup> The European Green Deal, Annex, COM(2019) 640, [https://ec.europa.eu/info/sites/info/files/european-green-deal-communication-annex-roadmap\\_en.pdf](https://ec.europa.eu/info/sites/info/files/european-green-deal-communication-annex-roadmap_en.pdf)

<sup>15</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2284&from=EN>

EU finances the project *Action on Black Carbon in the Arctic region*<sup>16</sup>, an PI-funded initiative to support work to reduce black carbon and its negative effects on the Arctic (health, climate and environment). The project is led by AMAP and implemented by a consortium of partners. It provides both scientific/technical work to support reduction of black carbon emissions from major BC sources (gas flaring, domestic heating, maritime shipping) by e.g. producing technical reports with evaluation of 'best available techniques' and at enhancing international cooperation on black carbon policy in the Arctic region, e.g. by organising workshops and dialogue events.

The EU is committed to work with Oil and Gas Methane Partnership and it is also involved in and support the work of the Climate and Clean Air Coalition on short lived climate pollutants (including methane and black carbon).

5.2

## 6 Sector based plans and projects

### 6.1. Mobile and stationary sources

#### 6.1.1. Specific national strategies

Clean Mobility Packages were adopted in 2017<sup>17</sup> and 2018<sup>18</sup> by the European Commission to reinforce EU's global leadership in clean vehicles and aims to help accelerate the transition to low and zero emission vehicles and have focus on clean mobility and connected and automated mobility. Clean mobility measures focus on alternative fuels, new technologies and smart road charging.

With the introduction of the Real Driving Emissions testing in the EURO 6 regulation<sup>19</sup> and in particular with the requirement to test particle numbers from passenger cars, and light commercial vehicles (for Diesel and Gasoline Direct Injection engines), the level of black carbon emitted by the road sector in Europe is expected to further decrease in the coming years.

Furthermore, as a result of the dieselgate scandal and the increased awareness of Members States of the increased emissions in real life, actions were taken at local level to limit the circulation of either diesel vehicles, or all vehicles equipped with internal combustion engines in areas with air quality problems.

#### 6.1.2. Existing regulatory instruments

European legislation on emissions from transport has introduced increasingly stringent requirements for emissions of pollutants and new more stringent CO2 targets for light commercial vehicles

---

<sup>16</sup> <https://eua-bca.amap.no>

<sup>17</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017DC0675&from=EN>

<sup>18</sup> [https://eur-lex.europa.eu/resource.html?uri=cellar:0e8b694e-59b5-11e8-ab41-01aa75ed71a1.0003.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:0e8b694e-59b5-11e8-ab41-01aa75ed71a1.0003.02/DOC_1&format=PDF)

<sup>19</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R1154>

(COM/2017/676<sup>20</sup>) and heavy-duty vehicles (COM/2018/284<sup>21</sup>) for post 2020. The aim is to develop zero and low emission vehicles thus decreasing black-carbon emissions.

Regulation (EC) 715/2007<sup>22</sup> of the European Parliament and of the Council of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, sets the emission limits for cars for regulated pollutants. This regulation is implemented and amended by Regulation (EU) 2017/1151<sup>23</sup>, which includes new testing methodologies in the laboratory (WLTP) and on the road (RDE).

Regulation (EC) 595/2009<sup>24</sup> of the European Parliament and of the Council regulates emissions from heavy duty vehicles Euro VI. It's implementing Commission Regulation (EU) 582/2011<sup>25</sup> was amended recently by Commission Regulation (EU) 2019/1939<sup>26</sup> to introduce testing during driving on the road for particle numbers. This is expected to reduce further the contribution of road transport to black carbon emission in the coming years.

Current GHG reduction target for transport does not take CH<sub>4</sub> into consideration. The efficiency of the catalytic converters to oxidize CH<sub>4</sub> is limited and the highest emissions of CH<sub>4</sub> are associated to cold start events of vehicles. Studies done in light duty vehicles with catalytic converter shown that the catalyst light-off for methane was systematically longer than for the overall hydrocarbons<sup>27</sup>. Therefore, methane emissions from transport are expected to be higher over short trips in which cold-start events are repeated, as well as due to vehicles start up at low ambient temperature during cold seasons.

Another source of CH<sub>4</sub> are the engines fuelled with natural gas. There are estimations that these vehicles could exceed by a factor of 10 the emission factors from conventional gasoline passenger cars<sup>28, 29</sup>.

Therefore, since CH<sub>4</sub> is not a regulated compound in vehicle emissions it might be expected that there is an underestimation of CH<sub>4</sub> emissions from these sources.

EU contributed to submission to IMO sub-committee Pollution Prevention and Response 5 on efficient enforcement practices and strategies for compliance with the 0,50% Sulphur requirements from 2020 that also will reduce BC emissions.

### **6.1.3. Follow up of EGBMC recommendation (1.a-1.e)**

The EC intends to propose more stringent air pollutant emissions standards for vehicles with a combustion-engine<sup>1</sup>. The European Green Deal priority on “accelerating the shift to sustainable and smart mobility” contains a proposal to adopt a strategy to shift toward a cleaner alternative to current

---

<sup>20</sup> <https://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-676-F2-EN-MAIN-PART-1.PDF>

<sup>21</sup> [https://eur-lex.europa.eu/resource.html?uri=cellar:f38df734-59da-11e8-ab41-01aa75ed71a1.0001.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:f38df734-59da-11e8-ab41-01aa75ed71a1.0001.02/DOC_1&format=PDF)

<sup>22</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R0715&from=EN>

<sup>23</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1553789751781&uri=CELEX:02017R1151-20190101>

<sup>24</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R0595&from=EN>

<sup>25</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0582&from=EN>

<sup>26</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1939&from=EN>

<sup>27</sup> Clairotte, 2013, *Appl. Energy* 102, 44-54

<sup>28</sup> Lipman and Delucchi 2002, *Clim. Change* 53, 477-516

<sup>29</sup> Nilrit 2013, *Am. J. Environ. Sci.* 9 38-44

mobility. The European Commission intends by 2021 to propose measures to manage better and increase capacities of railway and inland waterways. A support to development of smart systems for traffic management through EC funding instruments is foreseen.

During the revision of the Energy taxation Directive the EC will look at current prices of transport, including aviation and maritime transport, to reflect its impact on environment and health. There will be a proposal to extend the emissions trading to the maritime sector.

EU is taking part (closely monitoring) in the IMO discussions linked to reporting, measurement methodologies and best practices with a view of developing addressing the reduction PM and BC emissions from international maritime transport.

#### **6.1.4. Best practices and projects (Toolbox)**

##### **6.1.5 Story box**

Particles and black carbon are emitted from all vehicles with internal combustion engines to a varying degree. The best available technology to limit those emission is a particle filter. Particle filters were introduced in the early 2000's in some diesel vehicles in Europe, and were necessary in order to comply with the EURO 6 Regulation. At the time, particles from gasoline vehicles were not an issue. Still it was decided to introduce a particle number limits also for Gasoline Direct Injection (GDI) vehicles, which were emitting particles in medium quantities. With the introduction of the Real Driving Emissions (RDE) test in 2017, Europe has been the first region world-wide to enforce the introduction of Gasoline Particle Filters for GDI vehicles, further limiting black carbon emissions.

## [6.2 Oil and gas \(2.a-2.d\)](#)

### **6.2.1. Specific national strategies**

EU is committed to work with the Oil and Gas Methane Partnership and the Climate and Clean Air Coalition.

### **6.2.2. Existing regulatory instruments**

### **6.2.3. Follow up of EGBMC recommendation (1.a-1.e)**

If a recommendation doesn't apply. state "NA".

### **6.2.4. Best practices and projects (Toolbox)**

#### **6.2.5 Story box**

## [6.3 Residential combustion \(3a -3c\)](#)

### **6.3.1. Specific national strategies**

### **6.3.2. Existing regulatory instruments**

The European Union's Eco-design directive and following regulations<sup>30</sup> provide consistent EU-wide rules for improving the environmental performance of products. It contains minimum required energy efficiency for space heaters and solid fuel boilers setting emission standards for Particulate Matter, CO, Organic Gaseous Compounds and NOX for boilers<sup>31</sup> from 2020 and for space heaters from 2022.

Revised Energy Performance of Buildings Directive (2018) focusing on long-term renovation strategies, aiming at decarbonising the national building stocks by 2050. Existing directive already set the target that all new buildings from 2021 should be nearly zero-energy buildings<sup>32</sup>.

### **6.3.3. Follow up of EGBMC recommendation (1.a-1.e)**

If a recommendation doesn't apply, state "NA".

### **6.3.4. Best practices and projects (Toolbox)**

LIFE Programme funded project in Malopolska region of Poland, focusing on reducing air pollution from combustion of solid fuels in obsolete household boilers<sup>33</sup> runs until December 2023.

Peer-to-peer workshop on policies and measures to reduce pollution from domestic solid fuel combustion<sup>34</sup>.

### **6.3.5 Story box**

## 6.4 Solid waste (4a-4c)

### **6.4.1. Specific national strategies**

### **6.4.2. Existing regulatory instruments**

Circular Economy Package (2018) set recycling targets for all EU member states and decides that by 2035 land filling should maximum be 10 % of the total municipal waste generation<sup>35</sup>. The new Circular Economy action plan sets the regulatory framework to accelerate the transition required by the European Green Deal<sup>5</sup>.

### **6.4.3. Follow up of EGBMC recommendation (1.a-1.e)**

The Farm to Fork initiative aims to reduce the food environmental impact, targeting transport, storage, packaging and food waste<sup>1</sup>

### **6.4.4. Best practices and projects (Toolbox)**

---

<sup>30</sup> EU regulation 2015/1186 and 2015/1187

<sup>31</sup> EU regulation 2009/125/EC

<sup>32</sup> <https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings>

<sup>33</sup> [https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n\\_proj\\_id=5440#RM](https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5440#RM)

<sup>34</sup> [http://ec.europa.eu/environment/eir/p2p/index\\_en.htm](http://ec.europa.eu/environment/eir/p2p/index_en.htm)

<sup>35</sup> [http://europa.eu/rapid/press-release\\_IP-18-3846\\_en.htm](http://europa.eu/rapid/press-release_IP-18-3846_en.htm)

#### **6.4.5. Story box**

### 6.5 Agriculture and animal husbandry (5a-5c)

#### **6.5.1. Specific national strategies**

#### **6.5.2. Existing regulatory instruments**

Directive (EU) 2016/2284<sup>36</sup> includes optional measures for reducing black carbon emissions from agriculture (field burning of agricultural residue) in Annex III.

#### **6.5.3. Follow up of EGBMC recommendation (1.a-1.e)**

Addressed by Annex III of Directive (EU) 2016/2284; Annex II, Cross-compliance, of Regulation 1306/2013<sup>37</sup>, GAEC (Global Agriculture and Environmental Conditions) 6, “Maintenance of soil organic matter level through appropriate practices including ban on burning arable stubble, except for plant health reasons”

#### **6.5.4. Best practices and projects (Toolbox)**

#### **6.5.5. Story box**

### 6.6 Management of wildfires (6a-6d)

#### **6.6.1. Specific national strategies**

Countries in the EU have already established protocols for the sharing of resources under the Union Civil Protection Mechanism<sup>38</sup>, which has been recently reinforced by new rescEU legislation<sup>39,40</sup>.

National strategies on wildfire prevention and wildfire risk assessment exist. In the EU framework, the European Commission is currently assessing best practices on wildfire risk assessment in support of national strategies. The European Commission is collaborating with its Member States on improving coherence and consistency among the wildfire risk assessments undertaken at national level, which must be linked with wildfire risk management plans and be comparable among countries.

#### **6.6.2. Existing regulatory instruments**

In December 2019 the JRC published the report on “Recommendations for National Risk Assessment for Disaster Risk Management in the EU”, which is cited in the EU legislation on “Reporting Guidelines on Disaster Risk Management, Art. 6(1) of Decision No.1313/2013/EU2019/C 428/07”<sup>41</sup> In the coming

---

<sup>36</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2284&from=EN>

<sup>37</sup> <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:347:0549:0607:en:PDF>

<sup>38</sup> Decision No 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism Text with EEA relevance, OJ L 347, 20.12.2013, p. 924–947

<sup>39</sup> Decision (EU) 2019/420 of the European Parliament and of the Council of 13 March 2019 amending Decision No 1313/2013/EU on a Union Civil Protection Mechanism

<sup>40</sup> Commission Implementing Decision (EU) 2019/1930 of 18 November 2019 amending Implementing Decision (EU) 2019/570 as regards rescEU capacities (notified under document C(2019) 8130) (Text with EEA relevance).

<sup>41</sup> <http://publications.jrc.ec.europa.eu/repository/handle/JRC114650>

months revised guidelines for pan-European wildfire risk assessment<sup>42</sup>, which have been elaborated with the EC Expert Group on Forest Fires<sup>43</sup> will be published. At the global scale, work on global wildfire risk assessment is ongoing within the activities of the Global Wildfire Information System, in collaboration with the Group on Earth Observations (GEO) and the UN Disaster Risk Reduction initiatives.

European Commission actions and initiatives are embedded in the recent Communication on (2019) on Stepping up EU Action to Protect and Restore the World's Forests<sup>44</sup>, aiming at reducing forest degradation, deforestation and monitoring and assessing wildfire impacts. There, the European Forest Fire Information System and the Global Wildfire Information Systems, aim at assessing fire regimes and impacts in Europe and globally.

Although no regulatory instruments on reporting on wildfire emissions at the global level exist, information on greenhouse gas emissions from agriculture, forestry and land use (AFOLU) have been computed by the UN Food and Agriculture Organization up to 2016<sup>45</sup>. GHG emissions are computed from official national activity data and geo-spatial analyses, applying international standard methodologies of the Intergovernmental Panel on Climate Change (IPCC) to ensure consistency with GHG Inventory processes established under the climate convention. Up to date information on biomass burning emissions from wildfires will shortly be available under the umbrella of activities of the Global Wildfire Information System (GWIS).

### **6.6.3. Follow up of EGBMC recommendation (1.a-1.e)**

International arrangements for exchange of resources (6a) exist under the reinforced resEU civil protection mechanism for EU and neighbor countries mentioned above, which are thus applicable for Arctic countries. It's recommended to take stock of existing knowledge on forest management practices on wildfire prevention, safety and education campaigns in the pan-European region as an alternative to define specific measures for the Arctic region (recommendations 6b & 6c). The JRC activities on wildfire risk assessment under current conditions and future climate change scenarios<sup>46</sup> contribute substantially to recommendation 6d.

### **6.6.4. Best practices and projects (Toolbox)**

The European Forest Fire Information System (EFFIS) provides early warning for forest fires, often evidenced by fire danger anomalies, and monitors wild fire regimes and impact in EU and the pan-European region<sup>47</sup>.

The Global Wild fire Information System (GWIS) aims at providing information on wild fire regimes and impacts at the global scale. Each system provides estimates of wild fire emissions in Europe and at the global scale, respectively. GWIS, developed in close cooperation with the Group on Earth Observations

---

<sup>42</sup>[https://publications.jrc.ec.europa.eu/repository/bitstream/JRC113923/jrc\\_tech\\_rep\\_basic\\_criteria\\_for\\_wildfire\\_risk\\_assessment\\_2018\\_onlinefinal\\_pdf.pdf](https://publications.jrc.ec.europa.eu/repository/bitstream/JRC113923/jrc_tech_rep_basic_criteria_for_wildfire_risk_assessment_2018_onlinefinal_pdf.pdf)

<sup>43</sup> <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=416>

<sup>44</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1565272554103&uri=CELEX:52019DC0352>

<sup>45</sup> <http://www.fao.org/faostat/en/#data/GI/metadata>

<sup>46</sup> <http://publications.jrc.ec.europa.eu/repository/handle/JRC108974>

<sup>47</sup> <http://effis.jrc.ec.europa.eu>

(GEO) and the United State’s National Aeronautics and Space Administration (NASA) allows for a comprehensive assessment of wild fire impacts at the global scale<sup>48</sup>.

As mentioned above, both initiatives are included in the recent EC initiative on Stepping up EU Action to Protect and Restore the World’s Forests.

### 6.6.5 Story box

## 7 Annexes

### Annex 1: Black carbon emission tables 2010-2017. EU27+UK (kt)

GNFR	2010	2011	2012	2013	2014	2015	2016	2017	2025
A_PublicPower	2.42	3.00	1.86	2.01	1.91	2.04	1.97	1.75	
B_Industry	15.45	14.64	13.87	13.28	13.18	13.73	13.51	14.89	
C_OtherStationaryComb	88.83	79.66	85.03	84.32	75.72	77.65	78.45	78.11	
D_Fugitive	2.26	2.42	1.84	1.96	1.83	1.65	1.59	46.94	
E_Solvents	2.40	2.58	1.87	1.77	1.77	1.77	1.62	1.59	
F_RoadTransport	108.49	97.38	88.71	79.88	73.09	67.96	62.97	57.93	
G_Shipping	4.91	4.34	4.23	3.88	3.84	3.88	3.98	4.12	
H_Aviation	0.96	0.97	1.00	0.95	0.98	1.04	1.14	1.24	
I_Offroad	42.14	40.04	37.06	33.79	31.95	30.65	29.14	29.33	
J_Waste	10.40	10.37	10.36	10.37	10.39	10.43	10.66	10.59	
L_AgriOther	2.22	2.22	2.25	2.21	2.19	2.18	2.11	2.13	
Total	280.47	257.62	248.08	234.41	216.87	213.00	207.14	203.32	

All BC emissions are based on the European Union emission inventory as described in the European Union emission inventory report 1990-2017 (<https://www.eea.europa.eu/publications/european-union-emissions-inventory-report-2017>). All the data are available at: <https://www.eea.europa.eu/data-and-maps/dashboards/air-pollutant-emissions-data-viewer-2>

### Annex 2: Methane emissions 1990-2017 & projections 2020 & 2030. EU27+UK (million tons CO<sub>2</sub> eq)

	2010	2011	2012	2013	2014	2015	2016	2017	2020	2030
Energy	97.35	94.20	94.91	91.68	87.30	87.25	84.91	85.01	85.52	81.55
Industrial Processes	1.66	1.60	1.55	1.54	1.61	1.55	1.55	1.58	1.23	1.28
Agriculture	237.51	236.05	234.91	235.13	238.20	240.32	241.08	241.59	237.30	236.15
Land Use, Land-Use Change and Forestry	5.76	5.67	6.65	5.27	5.21	5.37	5.79	8.01	5.37	5.32
Waste	153.84	148.31	144.22	137.55	131.80	129.78	126.55	125.24	109.37	90.10
Total (without LULUCF)	490.36	480.15	475.60	465.91	458.91	458.90	454.08	453.42	433.42	409.08
Total (without LULUCF, with int. aviation)	490.38	480.17	475.62	465.93	458.93	458.92	454.10	453.44	433.43	409.10

Methane emissions are based on the European Union emission inventory and projections as described in the European Union GHG emission inventories and projections report 2019 under the EU Monitoring Mechanism Regulation (MMR). Data available here: <https://www.eea.europa.eu/data-and->

<sup>48</sup> <https://gwis.jrc.ec.europa.eu>

[maps/data/data-viewers/greenhouse-gases-viewer](https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer); projections at <https://www.eea.europa.eu/data-and-maps/data/greenhouse-gas-emission-projections-for-6>].

### Annex 3:

#### Mobile and stationary diesel-powered sources

**Table A1:** Table A1: Status of recommended actions 2019 related to the reduction of emissions from diesel engines.

<b>Recommendation 1a</b>	The EC intends to propose more stringent air pollutant emissions standards for vehicles with a combustion-engine. <sup>1</sup>
<b>Recommendation 1b</b>	
<b>Recommendation 1c</b>	The European Green Deal priority on “accelerating the shift to sustainable and smart mobility” contains a proposal to adopt a strategy to shift toward a cleaner alternative to current mobility. The European Commission intends by 2021 to propose measures to manage better and increase capacities of railway and inland waterways. A support to development of smart systems for traffic management through EC funding instruments is foreseen. <sup>1</sup>
<b>Recommendation 1d</b>	During the revision of the Energy taxation Directive the EC will look at current prices of transport, including aviation and maritime transport, to reflect its impact on environment and health. There will be a proposal to extend the emissions trading to the maritime sector. <sup>1</sup>
<b>Recommendation 1e</b>	EU is taking part (closely monitoring) in the IMO discussions linked to reporting, measurement methodologies and best practices with a view of developing addressing the reduction PM and BC emissions from international maritime transport.

#### Oil and gas

**Table A2:** Status of the recommended actions 2019 to reduce emissions from on oil and gas production

<b>Recommendation 2a</b>	
<b>Recommendation 2b</b>	
<b>Recommendation 2c</b>	
<b>Recommendation 2d</b>	

#### Residential combustion

**Table A3:** Status of the recommended actions 2019 to reduce emissions from residential combustion

<b>Recommendation 3a</b>	
<b>Recommendation 3b</b>	
<b>Recommendation 3c</b>	

#### Solid Waste

**Table A4:** Status of the recommended actions 2019 to reduce emissions from solid waste

<b>Recommendation 4a</b>	The Farm to Fork initiative aims to reduce the food environmental impact, targeting transport, storage, packaging and food waste <sup>1</sup>
<b>Recommendation 4b</b>	
<b>Recommendation 4c</b>	

### Agriculture and animal husbandry

**Table A5:** Status of the recommended actions 2019 to reduce emissions from agriculture and animal husbandry

<b>Recommendation 5a</b>	
<b>Recommendation 5b</b>	
<b>Recommendation 5c</b>	Addressed by Annex III of Directive (EU) 2016/2284; Annex II, Cross-compliance, of Regulation 1306/2013, GAEC (Global Agriculture and Environmental Conditions) 6, “Maintenance of soil organic matter level through appropriate practices including ban on burning arable stubble, except for plant health reasons”

### Management of wildfires

**Table A6:** Status of the recommended actions 2019 to reduce emissions from management of wildfires

<b>Recommendation 6a</b>	
<b>Recommendation 6b</b>	
<b>Recommendation 6c</b>	
<b>Recommendation 6d</b>	The European Forest Fire Information System (EFFIS) and Global Wild Fire Information System (GWIS) provides early warning for forest fires, often evidenced by fire danger anomalies, and monitors wild fire regimes and impact in EU, the pan-European region and global scale, respectively.