

## Global sulphur pollution decreasing

In 2019, emissions of sulphur dioxide from large point sources decreased in all of the top three emitter countries – India, Russia and China.

► Page 4

## Revision of the Energy Efficiency Directive for stronger climate action

A bold energy efficiency policy is the precondition for successful climate action.

► Page 12

## EU agriculture policy not in line with the Green Deal

The current reform of the Common Agricultural Policy has been criticised for failing to live up to the Green Deal.

► Page 14

## Air quality is slowly improving

Better air quality in Europe has led to a reduction in premature deaths over the past decade.

► Page 18

## Combustion-engine cars need to be phased out in Europe by 2025

With a view to limiting global warming to 1.5°C, internal-combustion-engine (diesel and petrol) cars need to be phased out in Europe.

► Page 24

## Emissions from ships and planes continue to rise

Air and sea transport must reduce GHG emissions at the same rate as land transport by 2040 at the latest in industrialised countries, and by 2050 globally.

► Page 27



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## Ocean acidification is poorly governed

The problems associated with and the solutions needed to address OA are unique and cannot be bundled together with traditional climate change responses and measures.

**Ocean acidification (OA)** occurs as the result of increased atmospheric CO<sub>2</sub> which is taken up by the oceans. About 30% of the CO<sub>2</sub> that has been emitted to the atmosphere because of human activity has ended up in waterbodies. Reactions between CO<sub>2</sub> and water eventually result in a higher concentration of hydrogen ions – i.e. lowered pH – in the oceans. Organisms in the oceans are adapted to the pH conditions that prevailed in the seas prior to this human-driven acidification process. Calcifying organisms in particular are sensitive to acidification, but the physiology of many other organisms can be affected as well, as can the

complex ecological interactions between organisms. In a global setting, ongoing and projected effects of OA have been extensively described in several IPCC reports and their summaries for policy makers (e.g. IPCC, 2018<sup>1</sup>, 2019<sup>2</sup>).

It is obvious that OA “is a global problem with profoundly negative environmental, social and economic consequences”, as stated in a recent review by Galdies and co-authors<sup>3</sup>. This review specifically focuses on the governance framework relating to OA, particularly in Europe. At the global level, OA is included in the Sustainable Development Goals (SDGs) of the United Nations. It is specifically mentioned in Life



# Acid News

A newsletter from the Air Pollution & Climate Secretariat, the primary aim of which is to provide information on air pollution and its effects on health and the environment.

Anyone interested in these matters is invited to contact the Secretariat. All requests for information or material will be dealt with to the best of our ability. Acid News is available free of charge.

In order to fulfil the purpose of Acid News, we need information from everywhere, so if you have read or heard about something that might be of general interest, please write or send a copy to:

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**The Air Pollution and Climate Secretariat**  
The Secretariat has a board consisting of one representative from each of the following organisations: Friends of the Earth Sweden, Nature and Youth Sweden, the Swedish Society for Nature Conservation, and the World Wide Fund for Nature (WWF) Sweden.

The essential aim of the Secretariat is to promote awareness of the problems associated with air pollution and climate change, and thus, in part as a result of public pressure, to bring about the needed reductions in the emissions of air pollutants and greenhouse gases. The aim is to have those emissions eventually brought down to levels that man and the environment can tolerate without suffering damage.

In furtherance of these aims, the Secretariat:

- ✱ Keeps up observation of political trends and scientific developments.
- ✱ Acts as an information centre, primarily for European environmentalist organisations, but also for the media, authorities, and researchers.
- ✱ Produces information material.
- ✱ Supports environmentalist bodies in other countries in their work towards common ends.
- ✱ Participates in the advocacy and campaigning activities of European environmentalist organisations concerning European policy relating to air quality and climate change, as well as in meetings of the Convention on Long-range Transboundary Air Pollution and the UN Framework Convention on Climate Change.

## Editorial

### “The EU has the chance to speak up for the oceans”

**The clock is** ticking to achieve the 1.5°C goal of the Paris Agreement. To be clear right from the start: this goal deserves every effort that mankind can pull off. In the name of realism, this is the goal we must focus on now, given the current level of progress in reducing greenhouse gases. However, damage to marine ecosystems will not be avoided even if we reach this goal<sup>1</sup>. In fact, damage already occurs at current levels of warming, as evidenced by the bleaching of coral reefs<sup>2</sup>. This may be an inconvenient truth when our current goal is 1.5°C. Yet, it is what science is telling us<sup>3</sup>, or: it is what it is.

There are two implications of this notion. The first, highly obvious implication is that any excess warming beyond 1.5°C must be avoided to prevent further damage in the oceans, and to protect other ecosystems as well. The second implication is that we need to strongly limit and whenever possible eliminate other sources of disturbance to the oceans.

We need to ask ourselves – as NGOs and as any other responsible stakeholders – where can we find the political leverage to reach the 1.5°C goal, and to ensure rapid protection of our oceans? In this respect, it is commendable that the United Nations has found ways to advance important processes even during the pandemic.

One such process is the preparation for the UN Ocean Conference. Even if the conference itself, which was originally to be held in June 2020, has been postponed, the process has continued. For instance, a series of webinars has been arranged to give stakeholders an opportunity to demonstrate their commitment.

Another process is the Ocean and Climate Change Dialogue of the UNFCCC, which gives hope that ocean issues will be given considerable weight in relation to climate change in the COP26, as well as the perpetuation of a “Blue COP”, as the previous COP was dubbed under the

Chilean presidency in December last year. The Ocean and Climate Change Dialogue – much like the preparation for the UN Ocean Conference – allows for online participation by NGOs and other stakeholders.

We must also not forget the sixth assessment cycle of the IPCC, which will undoubtedly produce new scientific evidence to further put pressure on the intergovernmental processes of the UN.

NGOs and other stakeholders must pay close attention to the UN processes and take full advantage of the participatory mechanisms. Additionally, it is vitally important to influence the agenda of the nations within the UN processes. The EU has the chance to advocate for a paradigm shift from words to action. It is highly important that all those stakeholders who want to achieve real change actively ensure that initial promising signals from the current EU Commission are translated into decisive actions in major policy programmes such as the 8th Environment Action Programme, the European Green Deal, and the sustainable Europe Strategy to implement the SDGs. These programmes need to bring about real change, and they need to carry over to the global arena.

The EU has the chance to speak up for the oceans and give them the attention they direly need in the global negotiations. By doing so, the EU can significantly contribute to the mitigation of climate change, its associated effects (such as ocean acidification), and other human impacts. A strong message from the EU to the UN processes can truly affect the future of coral reefs and other ecosystems.

Marko Reinikainen

1. See Acid News No. 3, 2019 <https://www.airclim.org/acidnews/not-even-15%C2%B0c-good-enough>)

2. Babcock et al. 2019: Severe continental-scale impacts of climate change are happening now: Extreme climate events impact marine habitat forming communities along 45% of Australia's coast. *Frontiers in Marine Science*, vol. 6

3. The Special Report on the Ocean and the Cryosphere in a Changing Climate (<https://www.ipcc.ch/srocc/>)

From page 1 ►

below the Water SDG, and target 14.3 says to “reduce acidification”. In Europe, the European Environment Agency included OA in Europe’s “10 messages for 2010”.

But here comes the surprising part: Despite the inclusion of OA in such overarching policy documents, “EU-wide actions remain still incomprehensible and uncoordinated”, according to the review. Furthermore, and as evidenced by the review’s analysis covering 90 (!) legislative documents from 17 European countries, most countries make little reference to OA in their legislative framework. The most noteworthy exception is Norway, with its reportedly strong framework to combat OA. Some other countries, including Ireland, France, Spain and the UK, have some level of reference to OA, allowing them to address mitigation e.g. through sectoral policies and/or national strategies, yet with a lot of room for improvement.

Among the EU-level policy instruments that could be used as a framework for national policies to mitigate OA, the review pointed out that “...national policies rarely emphasised the overarching element of the Marine Strategy Framework Directive (MSFD)”. This is interesting, as the MSFD could guide EU member states to a more coordinated view on marine protection in general, and specifically also regarding OA, in order to reach Good Environmental Status (GES). It is noteworthy, however, that the MSFD does not include monitoring descriptors that concern OA specifically.

Climate change as a topic is included in EU-wide steering documents and there are hopes for significant upscaling of efforts to tackle climate change, for example through the European Green Deal and the European Climate Law proposed by the EU Commission. Similarly, although a lot needs to be done, some countries have national climate plans and other frameworks for climate policies. However, measures specifically designed to meet the challenge of OA are, as has been described, largely lacking.

This is not a trivial issue. Even if the abatement of climate change and the abatement of OA both require the mitigation of CO<sub>2</sub>, the effects of temperature rise (and associated effects) and acidification are not the same. (Although they do occur concurrently and there can be interactions.) As stated in the review: “The problems associated with and the solutions needed to address OA are unique and cannot be bundled together with traditional climate change responses and measures”.

The review particularly mentions Marine Protected Areas (MPAs) as one of the tools that could be used and designed to tackle challenges associated with OA. MPAs that are properly assigned could help to ensure refugia, build ecosystem resilience, and promote the regeneration of threatened ecosystems.

On a positive note, the review highlights a number of pan-European research initiatives that have promoted the understanding of OA in European waters. These include, for instance, MEDSEA

(for the Mediterranean Sea), VECTORS (with emphasis on biodiversity, fisheries, and aquaculture), MEESE (climate change effects in the Mediterranean Sea, the Atlantic Ocean, and the Baltic Sea). Additionally, the German project BIOACID focused especially on the biological effects of OA. Other projects, such as ATLANTOS have focused on ocean observations, as does COPERNICUS. To the list can also be added research infrastructures for experimental work, such as AQUACOSM and AQUACOSM-plus<sup>4</sup>, which provide facilities for large-scale experiments on a number of environmental topics, including OA.

The review concludes with a number of recommendations to policy makers regarding OA in European waters. These include continued OA-focused research and a European ocean resilience programme, transnational marine corridors, improved coordinated European-level governance and national reporting (with reference to GES and the MSFD) that takes into account OA, and awareness raising both among policy makers and the general public.

Marko Reinikainen

1. <https://www.ipcc.ch/sr15/chapter/spm/>
2. <https://www.ipcc.ch/srocc/chapter/summary-for-policymakers/>
3. Galdies, C. et al. 2020. European policies and legislation targeting ocean acidification in European waters – Current state. *Marine Policy* 118.
4. <https://www.aquacosm.eu/>

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# Global sulphur pollution decreasing

In 2019, emissions of sulphur dioxide from large point sources decreased in all of the top three emitter countries – India, Russia and China. The biggest sulphur emissions hotspot is still the Norilsk smelter in northern Russia.



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According to a new analysis of NASA satellite data by the Centre for Research on Energy and Clean Air (CREA) and Greenpeace India, global sulphur dioxide (SO<sub>2</sub>) pollution from large point sources, such as smelters, coal-fired power plants and oil and gas use, fell by six per cent from 2018 to 2019.

The report ranks the world’s biggest emitters of SO<sub>2</sub>, a poisonous air pollutant that increases risk of stroke, heart disease, lung cancer and premature death.

The NASA programme “Making Earth System Data Records for Use in Research Environments” (MEaSUREs) uses satellite measurements to detect and quantify major SO<sub>2</sub> pollution hotspots across the globe. NASA estimates that sources emitting less than 30 kilotons per year are not reliably detected and that the MEaSUREs catalogue accounts for about half of all known anthropogenic SO<sub>2</sub> emissions worldwide.

In 2019, emissions of SO<sub>2</sub> from large point sources decreased in all of the top three countries with the greatest emissions, namely India, Russia and China. India was responsible for more than one fifth of global SO<sub>2</sub> emissions from large point sources, with nearly twice the level of the world’s second largest emitter, Russia.

The primary reason for India’s high emissions is the expansion of coal-based electricity generation over the past two decades.

Although China was once the world’s biggest emitter of SO<sub>2</sub>, the country’s emissions have plummeted by 87 per cent since their 2011 peak, primarily as a result of strengthened emissions standards. In 2019, however, China’s emissions fell by only 5 per cent, the slowest rate of decrease in the past decade.

Some other key findings of the analysis:

- SO<sub>2</sub> emissions in Turkey rose 14 per cent in 2019, marking the fourth consecutive year of increase. Between 2015 and 2019, Turkey’s share of coal-based electricity production increased by nearly 10 per cent. During this period SO<sub>2</sub> emissions doubled.
- Ukraine, Serbia and Bulgaria are the biggest point source SO<sub>2</sub> emitters in Europe and rank among the world’s top 25 emitters. Bulgaria is the only EU country in the top 25 list of SO<sub>2</sub>

Table 1: The “dirty dozen” global hotspots of sulphur dioxide emissions (ktonnes).

Rank	Hotspot	Country/region	Source type	Emissions 2019
1	Norilsk	Russia	Smelter	1,833
2	Rabigh	Saudi Arabia	Oil & Gas	652
3	Zagroz	Iran	Oil & Gas	558
4	Kriel	South Africa	Coal	504
5	Cantarell	Mexico	Oil & Gas	482
6	Singruali	India	Coal	479
7	Reforma	Mexico	Oil & Gas	415
8	Ilo	Peru	Smelter	414
9	Matimba	South Africa	Coal	362
10	Al Doha	Kuwait	Oil & Gas	351
11	Kemerkooy	Turkey	Coal	328
12	Afsin Elbistan	Turkey	Coal	307

Table 2. Countries that emitted the greatest amount of SO<sub>2</sub> from large point sources (ktonnes).

Rank	Country	Emissions 2018	Emissions 2019	Change 2018–2019
1	India	6,329	5,953	-6%
2	Russia	3,635	3,362	-8%
3	China	2,263	2,156	-5%
4	Saudi Arabia	1,861	1,910	+3%
5	Mexico	1,809	1,873	+4%
6	Iran	1,977	1,746	-12%
7	South Africa	1,388	1,187	-15%
8	Turkey	938	1,072	+14%
9	United States	864	823	-5%
10	Kazakhstan	776	760	-2%
11	Ukraine	861	628	-27%
12	Australia	627	610	-3%

polluters. Coal combustion is the primary SO<sub>2</sub> source in all three countries.

- In 2019, the Norilsk smelter site in Russia was the biggest hotspot of SO<sub>2</sub> emissions in the world. The Rabigh region, an oil and gas-based SO<sub>2</sub> emission hotspot in Saudi Arabia, ranked second.

- The Suralaya coal cluster in Banten, Indonesia was the largest SO<sub>2</sub> hotspot in Southeast Asia in 2019, followed closely by Singapore’s oil and gas refineries. Lauri Myllyvirta, lead analyst at CREA, said: “These emissions tracked by satellites are affecting the health of millions of people, many who have had their lives cut short or their health compromised, showing the urgency of implementing stronger emissions regulations and transitioning to clean energy sources. Unfortunately, in some countries topping the list, like India, Mexico and South Africa, governments have continued to

delay or weaken the implementation of emissions norms, even as the COVID-19 pandemic should have driven home the importance of respiratory health”.

The researchers conclude that governments must immediately halt investment in fossil fuels and shift to safer energy sources, such as wind and solar. At the same time, they must strengthen emissions standards and require the application of flue gas pollution control technology at power plants, smelters and other industrial SO<sub>2</sub> emitters.

Christer Ågren

Source: Greenpeace International press release, 8 October 2020.

The report “Ranking the World’s Sulfur Dioxide (SO<sub>2</sub>) Hotspots: 2019–2020” is available at: <https://energyandcleanair.org/wp-content/uploads/2020/10/SO2report-1.pdf>



# Oil and fossil gas companies Equinor, Shell and Total plan CO<sub>2</sub> storage with Norwegian government

Licensing of Norwegian CO<sub>2</sub> storage for current CCS projects is under way – but important barriers remain.

CO<sub>2</sub> has been stored in a geological formation under the seabed since 1996 in the Norwegian part of the North Sea. The CO<sub>2</sub> was separated from natural gas extracted from the Sleipner gas field. Its storage in the Utsira geological formation has been widely used as a proof that CO<sub>2</sub> storage already exists and that it will work for other types of CO<sub>2</sub> storage as well. This is not true. An article in Acid News No. 2 June 2018<sup>1</sup> revealed the truth behind some of the myths about this method of storage. The CO<sub>2</sub> from the Sleipner field is close to the storage site, and has to be separated from the natural gas anyway. This reduces the cost of the operation compared to CO<sub>2</sub> being transported over long distances from CCS plants on land. The separation of CO<sub>2</sub> from exhaust gases in power plants or industrial processes also adds to the cost, in contrast to the Sleipner plant.

A consortium of several major oil companies has a project that aims to establish a very different type of CO<sub>2</sub> storage under the seabed in the North Sea. This is planned to receive CO<sub>2</sub> by pipeline from temporary storage onshore in Norway. The aim is to receive and store CO<sub>2</sub> from CCS plants in Norway and in other countries. This is called the Northern Lights consortium, and consists of Equinor, Shell and Total. The area designated for storage is in a geological formation called the Johansen Formation, situated between the Troll and Oseberg oilfields off the coast of Norway.

Equinor was given permission to develop this CO<sub>2</sub> storage project on behalf of the

Northern Lights consortium in January 2019. The permit was given based on a plan to investigate the formation and its suitability for CO<sub>2</sub> storage. Equinor has conducted the exploration on its own, based on the plan and the conditions set in the permit. No external or independent entity was involved in the actual exploration of the formation. Such independent scrutiny of the results will take place afterwards when the application is submitted.

The area has seen considerable oil and gas exploration and extraction activity in the past. This has led to a substantial amount of seismic data about the geological formations in the area. These data have been analysed to determine the viability of the formations for CO<sub>2</sub> storage. Test drilling started in November 2019, to extract cores of material for further investigations. The test cores have been studied to see if the theories about the geology based on the seismic data can be confirmed. According to the website of the Northern Lights consortium, the results from drilling have confirmed the suitability of the formation as storage for CO<sub>2</sub>. The well will later be used as an injection well when storage becomes operational. No further test drilling is planned, according to the Norwegian Environment Agency.

On its website the Northern Lights consortium states that a permit from the Norwegian Environment Agency (NLA) is necessary before injection of CO<sub>2</sub> may start. According to sources in the NLA, an application from the Consortium is

not due for at least a year from now. There have been consultations between the Consortium, NLA and the Norwegian Petroleum Directorate for a period of time regarding the application and its content. The responsibility for the permit is shared between the NLA and the Petroleum Directorate. If the application process runs as normal, the operation of the CO<sub>2</sub> storage is unlikely to start before 2023–24.

As this is essentially a government project, the progress of the project is absolutely dependent on an investment decision by the government. This has been postponed many times already. Otherwise, the NLA does not seem to see any substantial Norwegian legal or administrative barriers to the project. However, the legality of importing CO<sub>2</sub> from CCS plants in other countries may not be so clear. The London Protocol, which aims to stop the uncontrolled dumping of waste in the ocean, has been changed in order to allow “CO<sub>2</sub> sequestration in sub-seabed geological formations.” However, only six of the parties to the protocol have ratified this 2009 amendment to article 6 of the London Protocol. Twenty-nine other signatories to the protocol need to accept the amendment before it can enter into force. In the meantime, efforts have been made to get around this problem, and find a temporary solution. Until the amendment can enter into force, or a temporary solution can be found, other countries cannot export CO<sub>2</sub> to the storage facility without coming into conflict with the London Protocol.

This may represent a major barrier to the project in addition to the problem of the essential Norwegian government financing of the storage.

The capacity of the storage reservoir will be much larger than is needed to store CO<sub>2</sub> from one, possibly two, CCS plants in Norway. Without additional CO<sub>2</sub> from other customers willing to pay a high price per ton of CO<sub>2</sub> sequestered, the economics of the project may not make it feasible as a commercial operation. The price for a ton of CO<sub>2</sub> must be at least USD 50, according to an earlier estimate by Equinor. At present the price is much lower, down to 10 percent or less of the required price for a commercial operation. The initial phase of the project will depend on massive government subsidies to get off the ground. Subsidies are in principle forbidden within the EU Inner Market,

of which Norway is also a member. But this prohibition may be lifted, if a project is deemed to be of great environmental benefit. This is the argument used by ESA, when it recently approved the government subsidies for the Northern Lights project. (ESA is the EFTA Surveillance Authority). This was to be expected, and a permit from ESA was not considered as a major obstacle for the project earlier in the process.

In conclusion, there do not seem to be any major legal or bureaucratic obstacles to prevent the Northern Lights Consortium from getting a permit from the Norwegian authorities to build a CO<sub>2</sub> storage facility and receive CO<sub>2</sub> that can be stored there. But the project depends on massive subsidies from the Norwegian government to build and operate the facility. An investment decision has still not

been made by the Norwegian government. These subsidies will only cover the cost for sequestering CO<sub>2</sub> from Norwegian CCS plants that may be built. This is not enough for viable commercial operation of the storage facility. Huge amounts of CO<sub>2</sub> from foreign sources willing to pay a cost up to USD 50 per ton are also needed. The willingness of foreign governments to cover the cost of sequestration of CO<sub>2</sub> from their own CCS plants may therefore be a problem. The London convention may also be a major obstacle, as there may not be a legal way to export and transport CO<sub>2</sub> across international borders.

Tore Braend

1. <https://airclim.org/acidnews/myths-about-carbon-storage-%E2%80%93-sleipner-case>

## Europeans call for zero emissions by 2030 in poll

EU needs to adopt ambitious and fair climate targets for 2030 and 2040.

**Last May** the European Studies Centre at the University of Oxford, in consultation with experts from Bertelsmann Stiftung, conducted a poll of more than 12,000 respondents between the ages of 16 and 69 in all 27 EU member states and the United Kingdom about climate policies.

According to the poll “most Europeans believe climate change requires imminent action. Carbon emissions from cars, planes and industry are an important driver of climate change. Europeans see greater urgency to reduce these emissions than the European Commission currently does”. The poll says that “on average, 58% of Europeans would like EU countries to reduce their carbon emissions to no excess emissions by 2030. The current Commission target of EU carbon neutrality by 2050 received the support of only 8% of the young and 10% of those aged 30–49 and 50–69. To encourage the transition away from fossil fuels, 69% of Europeans think governments should concentrate on subsidising renewable energy. Besides subsidising renewables, Europeans also

think governments should establish re-training programmes for employees of fossil-fuel businesses to move to other industries”. The results of the poll are in line with science calls, which say that if present emissions of GHGs continue at the same level, the carbon budget that can still be emitted to stay within the Paris target would be used up within 10 years (1).

But the targets in the poll are not in line with discussions in the EU about future climate targets. The current EU target is to reduce GHGs by 40% by 2030. The EU Commission has proposed a new reduction target of 55% by 2030 and climate neutrality by 2050. The member of the European Parliament in charge of the new EU climate law, Jytte Guteland from the Progressive Alliance of Socialists and Democrats (S&D), announced in April 2020 that she will support an increase in the EU’s 2030 climate target to 65%. In October the EU parliament voted for a 60% cut in greenhouse gas emissions by 2030.



Last year, the United Nations’ Emissions Gap Report said that at the global level, annual emission reductions of 7.6% between now and 2030 will be needed to achieve the 1.5°C target of the Paris Agreement.

Climate Action Network Europe, a coalition of more than 130 NGOs and more than 40 million members, is also calling for at least a 65% reduction in GHGs by 2030 and for net-zero emissions by 2040.

Reinhold Pape



# High health costs for air pollution in cities

Air pollution costs the average European city resident €1,276 per year, according to the largest study of its kind.

**A new study** by CE Delft for the European Public Health Alliance (EPHA) has examined data from 432 cities in the EU, the UK, Norway and Switzerland covering a total population of 130 million people. The report quantifies the monetary value of premature deaths, medical treatments, lost working days and other health costs due to exposure to three health damaging air pollutants: particulate matter (PM), ozone (O<sub>3</sub>) and nitrogen dioxide (NO<sub>2</sub>). Added together, air pollution costs for city residents amount to €166 billion per year, or €385 million per city on average. The larger the population affected by high pollution levels, the higher the number of people who lose working days and have a shorter life expectancy.

With its 8.8 million inhabitants, London has the highest social cost, amounting to €11.38 billion a year, well ahead of other European cities such as Bucharest (€6.35 bn), Berlin (€5.24 bn), Warsaw (€4.22 bn), Rome (€4.14 bn) and Paris (€3.6 bn).

When costs per capita are examined instead, Bucharest ranks first with €3,004 per year. Poorer cities tend to lose a higher share of income, especially in highly polluted and densely populated cities in central and eastern Europe, where wages are lower. In many cities in Bulgaria, Romania and Poland the health-related social costs are up to 8–10 per cent of income earned.

However, five of the top ten ranking cities with the highest per capita costs are in Italy. Citizens of Milan, Padua, Venice,

Brescia and Turin face average financial impacts of between €2,843 and €2,076, according to the study. See table.

Particulate matter causes the vast majority of costs, 82.5 per cent on average, followed by NO<sub>2</sub> (15%) and ozone (2.5%), but these proportions vary considerably between cities.

Transport is a major source of urban air pollution, with an annual cost of €67–80 billion in the EU28 in 2016, according to a previous EPHA report. Emissions from diesel vehicles were estimated to be responsible for more than four-fifths of these costs.

This new study shows that even small changes to transport habits and city policies can make a substantial difference to such costs. A one-per-cent increase in the average journey time to work increases the costs of PM10 emissions by 0.29 per cent and those of NO<sub>2</sub> emissions by 0.54 per cent, the study found. And a one per cent increase in the number of cars in a city increases overall costs by almost 0.5 per cent.

EPHA Acting Secretary General Sascha Marschang said: “Our study reveals the magnitude of the damage toxic air is causing to people’s health and the huge health inequalities that exist between and within countries in Europe. To a large extent, the situation can be influenced by transport policies and cities can reduce costs by switching to zero-emission urban mobility. Governments and the European Union should bear these costs in mind



for transport policy in order to support, not to hinder, a healthy recovery from the COVID-19 pandemic.”

CE Delft researchers used the latest complete data from Eurostat and official monitoring stations, from 2018, to calculate the harm caused and the resulting costs. It should be noted that indoor air pollution, a significant cause of illness, was not included in the study.

Air pollution is the number one cause of premature deaths from environmental factors in Europe, according to the European Environment Agency (EEA). The problem is greatest in cities, where about three-quarters of EU citizens live. According to the 2019 EEA assessment of air quality in Europe, excess levels of PM<sub>2.5</sub> caused more than 400,000 early deaths annually, followed by NO<sub>2</sub> (71,000) and ozone (15,000) in 2016.

Christer Ågren

Source: EPHA press release, 21 October 2020.

More information, including a full list of cities analysed, and a link to the report “Health costs of air pollution in European cities and the linkage with transport” is available at: <https://cleanair4health.eu>

# 37 countries say they have reduced GHGs by about 25% since 1990

The UN confirmed in October 2020 that the second commitment period of the Kyoto Protocol had been ratified.

**The 1997 Kyoto** Protocol set binding climate targets for developed countries, which took effect in 2005. Its first commitment period ran from 2008 to 2012 and set an average reduction target of 5% compared to 1990 levels. The protocol’s second phase, called the second commitment period, was established by the Doha Amendment in 2012 and runs from 2013 to 2020. The amendment strengthened quantified emission limitation or reduction commitments for 37 developed countries and set a goal to reduce GHG emissions by 18% compared to 1990 levels.

In addition, if current annual average emissions of Annex B parties (amounting to 5,696 Mt CO<sub>2</sub>eq in the period 2013–2018) remain at this level for 2019 and 2020, the emission reduction target of 18% could be further exceeded.

The assessment of the latest information received from parties with commitments under the Doha Amendment (Annex B parties), shows that total aggregate GHG emissions were 25.3% lower than in 1990.

The Kyoto Protocol covers six categories of greenhouse gas (GHG) emissions: carbon dioxide (CO<sub>2</sub>), meth-

ane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>). Apart from the emissions, biomass carbon sinks were taken into account.

Reducing methane emissions has for a long time been seen as one of the cheapest measures to comply with the Kyoto Protocol. The 2019 National Inventory Report from the Swedish Environmental Protection Board states, for example, that during the commitment periods of the Kyoto Protocol methane emissions (CH<sub>4</sub>) have decreased by 39% in Sweden.

Countries were allowed to offset emissions by investing in carbon-cutting projects in poorer nations and most developed countries have fulfilled their commitments.

UN Climate Change is expected to publish a formal review of countries’ carbon-cutting efforts during the period to 2020.

“While the results of this assessment are very encouraging, they only apply to a group of some 37

countries that agreed to emission reduction targets under the Doha Amendment,” said Patricia Espinosa, Executive Secretary of UN Climate Change. “Globally however, emissions have been rising, which clarifies the urgent need for greater ambition,” she added.

The assessment under the Doha Amendment revealed that the GHG reductions have generally been achieved through national mitigation actions.

“This shows the potential of consistently implementing climate change policies and actions at the national level. Through the NDC process, countries have the opportunity to further advance climate policies and actions, and to ratchet them up over time” Ms. Espinosa underlined.

Compiled by Reinhold Pape

Table: Top-ten list of cities with the highest per capita cost of air pollution damage.

City	Country	Total annual cost (€)	Per capita cost (€)
Bucharest	Romania	6,345,139,100	3,004
Milan	Italy	3,498,940,400	2,843
Padua	Italy	508,127,300	2,455
Warsaw	Poland	4,222,682,700	2,433
Bratislava	Slovakia	891,503,000	2,168
Venice	Italy	552,318,900	2,106
Brescia	Italy	399,212,500	2,106
Sofia	Bulgaria	2,575,337,600	2,084
Turin	Italy	1,815,447,400	2,076
Münich	Germany	2,877,847,400	1,984





## IMO paves way for rising GHG emissions from shipping

By approving a proposal that will allow the shipping sector's 1 billion tonnes of annual greenhouse gas (GHG) emissions to keep rising for the rest of this decade, governments have backtracked on their own commitments, according to environmental organisations. The decision was taken at a key meeting of the International Maritime Organisation's (IMO) Marine Environment Protection Committee during 16–20 November.

As acknowledged by many countries in the talks, the approved proposal breaks the initial IMO GHG strategy in three crucial ways. It will fail to reduce emissions before 2023, will not peak emissions as soon as possible, and will not set shipping CO<sub>2</sub> emissions on a pathway consistent with the Paris Agreement goals.

Nations and regions serious about facing the climate crisis must now take immediate national and regional action to curb ship emissions, the environmental NGOs said. Nations should act swiftly to set carbon equivalent intensity regulations consistent with the Paris Agreement for ships calling at their ports; require ships to report and pay for their pollution where they dock, and start to create low- and zero-emission priority shipping corridors.

Source: Joint statement from Pacific Environment, WWF and the Clean Shipping Coalition, 17 November 2020.

## Stop the discharge of wastewater from scrubbers

Ships should switch to cleaner fuels rather than using scrubbers to reduce their SO<sub>2</sub> emissions, says the international research organisation International Council for the Exploration of the Sea (ICES), which consists of more than 4,000 researchers from 20 countries.

Until such a fuel shift is completed, the discharging of scrubber water into the marine environment should be avoided. According to ICES, this will require significant investment in technological advances and port reception facilities to enable the use of closed-loop scrubber systems with land-based disposal and treatment.

Until scrubber water discharge can be avoided, ICES recommends that: A) Discharges in specific areas (e.g. Particularly Sensitive Sea Areas and Special Areas, as defined by the IMO) should be banned; B) Stringent limits for contaminants in discharge water should be set and enforced; and C) Further development of standards and protocols for measuring, monitoring, and reporting on scrubber discharge water for contaminants and other parameters should be ensured

Source: ICES Viewpoint, 24 September 2020. Link: <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/vp.2020.01.pdf>

## Shipping on its way into ETS

When the European Parliament voted on its position for the revision of the EU's monitoring, reporting and verification (MRV) system for ship emissions in September, they agreed that ships must be included in the EU Emissions Trading System (ETS) and that shipping companies should reduce their annual average CO<sub>2</sub> emissions per transport unit for all their ships by at least 40 per cent by 2030.

"The Parliament is tired of inaction in the face of steadily rising shipping emissions. This is a clear signal to President von der Leyen that the EU's more ambitious 2030 climate target must apply to maritime emissions too and that ships must pay for all of their pollution in the EU carbon market," said Faig Abbasov at Transport & Environment (T&E).

The Parliament also agreed that by 2030 ships should be required to stop emitting harmful air pollutants and greenhouse gases when docked in EU ports, and called for the monitoring system for shipping emissions to be made more transparent, too.

Sources: T&E press release, 15 September 2020; Shipping Watch, 17 September 2020.



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## Billion-dollar savings for container lines

It was expected that the new 0.5-per-cent sulphur fuels (also known as VLSFO) that became mandatory as from 1 January 2020 would be significantly more expensive than traditional high-sulphur bunker fuel with a price spread of around USD 200 per ton. As container lines typically use around 55 million tons fuel per year, this would result in added costs of USD 11 billion in 2020, according to analyst firm Sea-Intelligence.

But the price spread has since then narrowed considerably, to the significant benefit of shipping lines. "If we assume the VLSFO fuel price for November and December remains at the same average level as seen in August–October 2020, we will end 2020 at a point where the carriers collectively have saved 2.2 billion USD on fuel, compared to 2019," writes the firm.

Source: Shipping Watch, 26 October 2020

## #WorldWeWant Campaign on Climate Impacts

The campaign by Climate Action Network drives collective action through the stories of communities affected by the climate crisis and serves as a clarion call for governments to address multiple and compounding crises to protect their citizens and ensure a safe and resilient future. Through compelling, locally-produced, short smartphone videos we witness how decades of inaction on the climate crisis are impacting people, but also learn how communities are using grassroots solutions in both developing and developed countries to hold their leaders accountable.

<http://www.climatenetwork.org/event/worldwe-want-campaign-climate-impacts>

ACID NEWS NO. 4, DECEMBER 2020

## New reports on ships' GHG emissions

Three new briefings relating to greenhouse gas emissions from maritime shipping were recently made available by the European Parliament:

- Greenhouse gas emissions from shipping: waiting for concrete progress at IMO level. Link: [https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL\\_BRI\(2020\)652754](https://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_BRI(2020)652754)
- Decarbonising maritime transport: The EU perspective. Link: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/659296/EPRS\\_BRI\(2020\)659296\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/659296/EPRS_BRI(2020)659296_EN.pdf)
- Monitoring, reporting and verification of CO<sub>2</sub> emissions from maritime transport. Link: [https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS\\_BRI\(2019\)642224](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2019)642224)



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## Low Energy Demand (LED) study scenario, without using CCS:

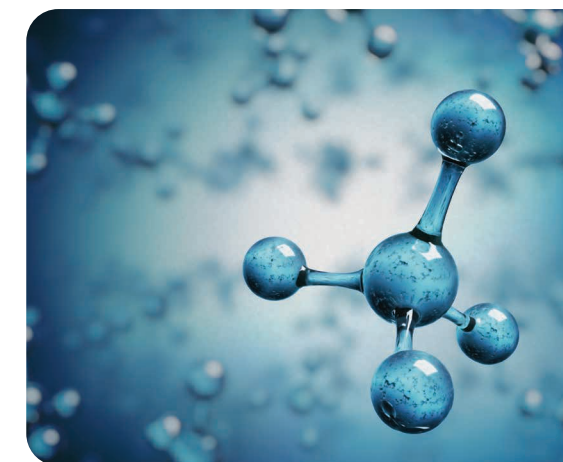
LED is one of four illustrative model pathways in the IPCC Special Report on Global Warming of 1.5°C, which does not use CCS and which quantifies the impacts of digitalization, a sharing economy and behavioural change. LED is a low long-term global energy demand scenario. The drastic transformative changes on the energy end-use side enable rapid decarbonisation of the energy supply and near-zero emissions by 2050, and demonstrate significant co-benefits for six of the UN Sustainable Development Goals (SDGs).

[https://iiasa.ac.at/web/home/research/research-Programs/TransitiontoNewTechnologies/Low\\_Energy\\_Demand.html](https://iiasa.ac.at/web/home/research/research-Programs/TransitiontoNewTechnologies/Low_Energy_Demand.html)

## North Sea methane leak caused by oil industry blow-out

The leak was caused by a major blow-out during an oil drilling operation 30 years ago, and is still emitting methane. "Like many places across the North Sea, climate-destroying methane has been leaking here for decades, yet the oil and gas industry, instead of closing the leak and monitoring it, continues to drill holes in the seabed, while decision-makers turn a blind eye," said Dr Sandra Schöttner from Greenpeace. In 1990, the Swedish Stena Drilling Company, on behalf of Mobil North Sea (now Exxon Mobil), accidentally tapped a gas pocket with the drilling platform High Seas Driller while searching for oil, causing a blow-out that resulted in several craters on the seabed. An international team of scientists had previously been to this site and estimated in 2015 that up to 90 litres of methane per second were being released. The leaking borehole has been returned by Exxon Mobil to the British state, which in 2000 determined that further monitoring was not required, believing that the reservoir would soon be depleted. But 30 years later the greenhouse gas keeps escaping into the atmosphere. According to a recent independent study, an estimated total of 8,000–30,000 tonnes of methane per year escape from gas leaks from more than 15,000 boreholes in the North Sea – adding to the 72,000 tonnes of methane that normal operations of platforms in the North Sea release every year.

<https://www.greenpeace.org/international/press-release/44638/greenpeace-documents-north-sea-methane-leak-caused-by-oil-industry-blow-out/>



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# Revision of the Energy Efficiency Directive for stronger climate action

**A bold energy efficiency policy is the precondition for successful climate action. For the EU to reach the increased ambitions of the European Green Deal, revising the Energy Efficiency Directive is vital. AirClim supports CAN Europe's call for an increase in the level of ambition of the EU's 2030 energy savings target to at least 45% and for the target to be binding.**

**The Energy Efficiency** Directive 2012/27/EU (EED), which was adopted in 2012, established a common set of measures for the promotion of energy efficiency. Originally the aim was to ensure the achievement of the 20% headline target for energy efficiency. In 2018, as part of the Clean energy for all Europeans package, the EED was revised to update the policy framework, and a headline energy efficiency target was set for 2030 at a level of at least 32.5%.

Although the EED strengthened the EU energy efficiency policy framework, it still has some significant weaknesses. For example, the EU energy efficiency targets

for both 2020 and 2030 are non-binding. This sends a weak signal to investors about the priority that should be given to energy efficiency.

This is also indicated by the current trends. After a gradual decrease since 2005, the trend reversed in 2014. This worrying overall development was most prevalent in buildings and transport. In 2018, final and primary energy consumption in the EU were 3.5 percent and 4.6 percent respectively above the 20 percent efficiency target set for 2020<sup>1</sup>.

The indications for beyond 2020 are also far from ideal. According to the European Commission's assessment,

the sum of these contributions leaves a gap of around 3 percentage points to the current EU energy efficiency target for 2030. This underlines the importance of binding targets.

With the Commission's proposal to increase the climate target for 2030, there is a new opportunity to improve and strengthen the level of ambition for energy efficiency as well as for renewable energy. This is also indicated in the Commission's Impact Assessment accompanying the 2030 Climate Target Plan, which foresees among things, the revision of the EED and the Renewable Energy Directive in summer 2021.

## Ambition levels and targets

The European Commission proposes the increase of the climate target to a 55% greenhouse emission reduction for 2030. However, as action in the next 10 years will be decisive in reaching the 1.5°C objective, the EU needs to increase its 2030 climate target to at least 65% by the end of 2020. According to the Commission, with a 2030 climate target of 55%, the energy consumption in end use sectors should fall by 36–37%, while primary energy consumption would need to decrease by 39–41%, by putting stronger policies in place<sup>2</sup>. AirClim supports CAN Europe's call for an increase in the level of ambition of the EU's 2030 energy savings target to at least 45% and to make the target binding.

Reducing energy demand offers multiple benefits beyond greenhouse gas emission reductions, such as lowering dependency on energy imports, job creation and improving health. A stronger and binding target is also a key enabler for the success of other Commission initiatives such as the Renovation Wave, the Energy Sector Integration Strategy, the Industrial Strategy and the Circular Economy Action Plan.

## Other provisions and measures

Beyond the energy efficiency target, the revision of the EED needs to make sure that the Energy Efficiency First principle, a core focus of the energy policy in the EU, is supported by binding implementing legislation and regulations. Enforcement has not been fully effective, and some rules need to be reinforced, including on monitoring and reporting. The recommendations below could help in that direction.

## Article 5

Article 5 sets rules for the renovation of public buildings by requiring member states to renovate 3% of the total area of heated and/or cooled buildings owned and occupied by central government. The building sector is the single largest energy consumer in Europe, responsible for more than one third of EU emissions. But less than 1% of buildings undergo energy efficiency renovation every year, so timely action is crucial.

Currently, roughly 75% of the building stock is energy inefficient, yet almost 85–95% of today's buildings will still be in use in 2050<sup>3</sup>. Public buildings should

become an example of how this sector can be transformed. Therefore, the 3% renovation requirement of the EED should be expanded to all public buildings, prioritising deep renovations. This would help create a “renovation wave” in the public sector and deliver on its leading role, for example through the renovation of schools and hospitals.

## Article 7

The EED revision needs to consider adjustments to the legal architecture set by the energy savings obligation in Article 7. This is a key provision of the Directive, as it is intended to contribute more than half of the total energy savings needed to achieve the EU's 2020 and 2030 energy efficiency targets<sup>4</sup>. Under Article 7 of the EED, member states are required to deliver a minimum level of energy savings through national energy efficiency policies and measures implemented among final energy consumers.

During the 2014–2020 period, member states had to achieve 1.5% energy savings per year. However, the implementation of this provision was largely linked to the use of loopholes, which reduced its level of ambition from 1.5% to around 0.75% energy savings per year.

In 2018, this provision was revised and extended beyond 2020. For the new period beyond 2020, although the use of loopholes has been practically eliminated, the level of ambition for annual energy savings to be achieved was set at 0.8% instead of 1.5%.

Taking into account the importance of this provision for the energy efficiency target, the increase in the level of the energy savings obligation should be considered, together with a reinforced monitoring system and a simplification of its implementation to guarantee its enforcement.

## Article 14

Under Article 14, all member states need to perform a comprehensive assessment of their heating and cooling potential, focusing on the application of high-efficiency cogeneration and efficient district heating and cooling. In 2019, the requirements for these assessments were updated to state more precisely what information member states should provide, and ensure that the

analysis also addresses more technologies and heat sources. The European Commission has also published recommendations to help member states in the development of these assessments.

The updated requirements are a good starting point for a more systematic consideration of the need to tap into the energy efficiency potential. However, it needs to be ensured that they lead to the implementation of policies that form a holistic approach. The aim should be to reduce demand and move towards a fully renewable energy system, while phasing out fossil fuels. Furthermore, many provisions of Article 14, which are largely linked to promoting combined heat and power (CHP) generation, often using fossil fuels, are outdated. They need to be revised so that they facilitate the energy transition and the achievement of the EU's long-term climate goals.

In summary, the EED should be revised to include an increased level of ambition for the 2030 energy efficiency target within a mutually reinforcing climate and energy policy framework. Reducing the overall energy consumption is the foundation for accelerating climate action and achieving carbon neutrality. In short, energy efficiency is a key element for a sustainable, resilient and equitable post-COVID recovery that can support a profound transformation of the economy and the energy system in line with the Paris Agreement goals. Strengthening the EED will help to achieve this.

Emilia Samuelsson with contribution from Dora Petroula, CAN Europe

Based on The Coalition for Energy Savings feedback the roadmap on the Energy Efficiency Directive and CAN Europe's feedback to the roadmap on the Energy Efficiency Directive

1. [https://ec.europa.eu/energy/sites/ener/files/progress\\_report\\_towards\\_the\\_implementation\\_of\\_the\\_energy\\_efficiency\\_directive\\_com2020954.pdf](https://ec.europa.eu/energy/sites/ener/files/progress_report_towards_the_implementation_of_the_energy_efficiency_directive_com2020954.pdf)
2. <https://www.euractiv.com/section/energy/news/europes-new-climate-plan-heralds-energy-transformation/>
3. [https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/renovation-wave\\_en](https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en)
4. [http://energycoalition.eu/sites/default/files/20200911\\_Article%207%20EED\\_corrected%20version%20September%202020.pd](http://energycoalition.eu/sites/default/files/20200911_Article%207%20EED_corrected%20version%20September%202020.pd)



# EU agriculture policy not in line with the Green Deal

The current reform of the Common Agricultural Policy has been criticised for failing to live up to the Green Deal. The agriculture sector has a vast impact on our ability to achieve climate targets and to limit harmful effects on the environment.

**One key challenge** for the agriculture sector is to feed the growing global population at the same time as reducing environmental impact and preserving natural resources for future generations. Today, about half the ice-free land surface of our planet is devoted to crop and livestock production, which in turn creates multiple harmful effects. The environmental impacts include deforestation, soil degradation and irrigation. Practices such as fertilisation and pesticide use release nitrates, ammonia and phosphorus that negatively affect air, water and soil quality and harm nature and human health.

When it comes to the greenhouse effect, agriculture makes a substantial contribu-

tion. Agriculture generates vast amounts of carbon dioxide, methane and nitrous oxide, and in total accounts for about a third of global greenhouse gases. The world's food systems produced about 16 billion tons of CO<sub>2</sub> equivalents each year from 2012 to 2017. New studies have shown that if emissions from food production continue on the current path, they will reach a cumulative 1356 billion tons of CO<sub>2</sub> equivalents by the end of the century. This level of emissions would in itself heat the world by more than 1.5°C by the 2060s.<sup>1</sup> Policies need to address this development with effective measures.

The effect on biodiversity and ecosystem services is another important aspect to look

at when it comes to unsustainable farming. Agricultural intensification generates loss and fragmentation of landscape types and semi-natural habitats that are vital for ensuring ecological connectivity and biodiversity conservation. The UN has announced that one million species around the planet are at risk of extinction, with agriculture the primary culprit in what is being hailed as the sixth mass extinction. A diversity of species and ecosystem services cannot be created directly, but policies can promote them by favouring certain landscape elements and management practices.

Last year, over 2,500 scientists across the EU joined forces and reached out to

the EU parliament in a letter pressing for action and a far-reaching reform of the EU's Common Agricultural Policy (CAP) without delay. The document outlines the harmful effects that the intensive agriculture model, supported by the current CAP, has on biodiversity, asserting that much of this damage could soon be irreversible.

CAP subsidies have approached €60 billion per year for the last seven years, much of which funds intensive and factory farming. The letter suggests that this money could instead be used for the recovery of biodiversity and rural human population. The budget period has reached its end and there were high hopes and expectation for the reforming of the policy. The EU must be a "pioneer in responding to these challenges" and the CAP must be part of that response, rather than continuing to contribute to environmental degradation.

The previous reform of the CAP included the key system of green payments, also called greening. This is the only direct payment under the CAP for which the main objective is environmental. It was introduced in 2013 and rewarded farmers for compliance with goals to safeguard environmental requirements. Through this mechanism, greening

was meant to enhance the environmental performance of the CAP.

However, greening has received substantial criticism that it is ineffective. A report by the European Court of Auditors found greening has led to changes in farming practices on only around 5% of all EU farmland. The study found that the EU spent €12 billion per year on it, representing 30% of all CAP direct payments and almost 8% of the whole EU budget. The report concluded that greening was unlikely to deliver significant benefits for the environment and climate. Furthermore, a large share of the subsidised practices would have been undertaken anyway. Another weakness that the study highlighted was the significant complexity that greening adds to the CAP, generating confusing overlaps with other CAP-related environmental requirements.

December 2020 is supposed to be the last month of the current seven-year CAP programme and the new reform has prompted high expectations of important changes. In 2018, the European Commission presented legislative proposals on CAP for the period 2021–27. This year, on 20 October, ministers agreed a general approach to the post-2020 CAP reform package after a two-day negotiation session. The agreement introduced instruments such as mandatory eco-schemes and enhanced conditionality. The agreed position also gives member states flexibility in how they would achieve environmental goals. It thus creates a system in which each member state is responsible for creating its own CAP strategic plan that describes how they will direct the CAP funding towards specific targets and how these will contribute to the overall EU targets.<sup>2</sup>

But environmental non-governmental organisations (NGOs) warn that the position agreed in the European Parliament and Council has watered down the proposed environmental protections. The European Environmental Bureau (EEB), WWF and other green groups reminded president Ursula von der Leyen of the fact that the EU executive had undertaken to recall the reform proposal tabled by the previous commission only if the EU Council and Parliament did not weaken its "green architecture"<sup>3</sup>.

An open letter from multiple NGOs,

sent on 30 October, asked European Commission President Ursula von der Leyen to withdraw the proposal. The letter states that the proposal would allow billions of harmful subsidies, erode the basic "do-no-harm" baseline and remove safeguards in areas such as irrigation expansion. In addition, it would limit ambitions for the climate, environment, animal welfare and public health. The NGOs see no potential for trialogue negotiations to fix the situation, but ask for a new reform that is based on supporting farmers in the transition from industrial agriculture towards a Green-Deal-compatible CAP.

Another open letter sent by The Greens in the European Parliament stated that "without serious action through the CAP, the goals of the EU's Green Deal, biodiversity strategy and Farm2Fork strategy are in jeopardy", and that the budget of nearly 400 billion euros (about a third of the EU budget) that has been used for the agricultural sector "are about to be wasted".

In a reply to the Greens, von der Leyen said she shared some of the doubts raised in the letter, and that at this stage certain elements seem unable to forge a final CAP that could deliver on the Green Deal objectives. However, despite these reservations, von der Leyen remains convinced that the negotiation process, if supported by a joint desire to honour the EU's commitment towards sustainability, "can result in a new CAP that is fit for purpose" and is therefore not considering a withdrawal.

German environment minister Svenja Schulze stated on behalf of Germany's EU Council presidency at the end of October that the compromise position of the CAP reform does not go far enough on climate change or nature protection, and said "Everybody must contribute to working our way out of the climate crisis, even the agriculture sector."

Emilia Samuelsson

1. <https://science.sciencemag.org/cgi/doi/10.1126/science.aba7357>

2. <https://www.endseurope.com/article/1699305/in-depth-europes-cap-reform-plans-compatible-green-deal>

3. <https://www.endseurope.com/article/1698933/von-der-leyen-scrap-watered-down-cap-reforms>



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# EU's methane strategy fails on agriculture

No reduction targets, no mandatory actions to cut methane emissions from agricultural farms, and no coherence with existing climate and air quality objectives are some of the reasons why the Commission's Methane Strategy is inadequate.

**Why is it** important to focus on methane? Methane is both accelerating climate breakdown and contaminating the air we breathe, generating ground-level ozone that harms people's health, crops and ecosystems. Yet, up until now no serious action has been taken to limit methane emissions, and the European Commission's Methane Strategy published in October is not up to the challenge.

Methane comes from a range of sources. In the EU in 2017, the energy sector accounted for about 16 per cent of total anthropogenic methane emissions, while 28 per cent came from the waste sector. The remaining 54 per cent emanated from agriculture. Here, enteric fermentation of ruminants (belching and flatulence) accounted for about 81 per cent and manure management and use for most of the rest.

In early 2020, the Commission announced that a methane strategy covering all major emission sectors – energy, waste and agriculture – was going to be adopted soon. Good news! Or so we thought. But instead the Commission's strategy leaves a bitter taste in our mouths, as the only sector touched by “real action” is energy. Why? Because it is easy.

The biggest oil and gas companies have already autonomously set their own methane reduction targets as part

of their latest attempt to try to prove that there could still be a future for fossil fuels. Tackling emissions from the energy sector is of course important, but in itself not enough, as it leaves over four-fifths of methane emissions unaddressed.

So why is the Commission deliberately ignoring agricultural methane even though it accounts for over half of all EU methane emissions? Most probably because it is a challenging task, with strong opposition from the big industrial farming lobby. Nevertheless, cutting methane emissions from farms is absolutely essential.

In its strategy, the Commission mentions lack of reliable data as the main issue preventing effective action on agricultural methane. However, this is not a valid argument: air pollutant emissions are commonly reported under the National Emission Ceilings Directive using a methodology that the Commission perplexingly considers insufficient as a basis for action on methane from agriculture. In the unlikely event that the Commission seriously believes that available data is insufficient, this is still no reason to waste precious time, because methane emissions from farming pose an acute climate, health and environmental hazard. If your house is on fire, you do not try to calculate the exact amount of water that is needed to put it out, you

immediately start throwing water. This is the time to throw water.

To slash agricultural methane, the Commission could start from the same approach they apply to methane emissions from the energy sector and target “super emitters”, which also exist in the livestock farming sector, i.e. large farms with more than 50 livestock units that account for more than two-thirds of agricultural methane emissions in the EU, and about 40 per cent of all EU methane emissions.

Moreover, the Commission should promote a comprehensive set of measures to reduce agricultural methane. The strategy only puts forward two solutions: feeding strategies, mainly based on additives, and biogas plants. However, changing animal feed is just an end-of-pipe solution that does not tackle other issues such as ammonia emissions. Ammonia originates from manure, slurry and fertilisation, and is a leading precursor of the hazardous particles that pollute the air we breathe. Turning manure into biogas, unless it is limited to small-scale and on farm-consumption, is not a way forward either, as it risks incentivising more intensive livestock farming, or the use of plants suitable for human consumption to produce more biogas.

Many of the measures that can be

taken at farm level to slash methane are also effective in reducing ammonia, and thus constitute a double win for air quality. Such measures include coverage of slurry basins, frequent removal of manure from the stable, small-scale extraction of biogas from slurries, and acidification of the slurry. If the Commission and our governments promoted the implementation of these measures at farm level, coupled with effective monitoring of their application, we would see a remarkable reduction in air pollution and greenhouse gases from agriculture.

But even if all the available technical measures are taken, they will not be sufficient, as they must be accompanied by reductions in meat and milk production and consumption. Regrettably, the

Commission's methane strategy barely refers to this need, saying that “lifestyle and diet changes could also contribute substantially to reducing EU methane emissions”, without any further elaboration on how this critically important measure should be pursued in practice.

The strategy also fails to set binding emissions reduction targets for total methane emissions (both EU-wide and for member countries) and avoids any reference to the need for mandatory measures to be adopted at farm level. Meanwhile, official emissions data shows that methane emissions from agriculture have increased since 2013.

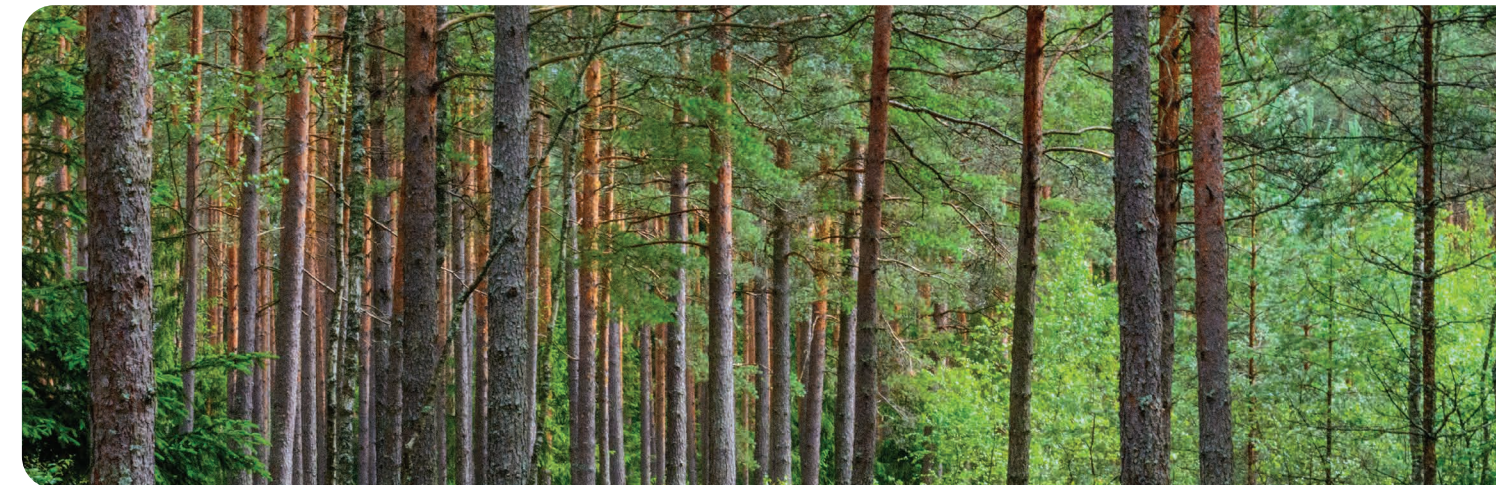
Through the Common Agricultural Policy, the agricultural sector is receiving public money without making any significant efforts to cut pollution or

greenhouse gas emissions. The polluter-pays principle, included in the Treaty on the Functioning of the European Union, of which the European Commission should be the guardian, requires all polluters to take responsibility for and remedy their pollution. Industrial farming cannot be exempted from obligations deriving from existing air quality laws and the (soon-to-be) climate law – all sectors must play their part.

In the face of the current environmental, climate and health crises, it is imperative that every cent we spend and every measure we take is future-proof.

Margherita Tolotto  
Air Pollution Officer  
European Environmental Bureau

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## EU legislation reveals steep decline in carbon stored in European forests

**Environmental NGOs** are deeply concerned about the development of forestry in Europe and how these forests store carbon and protect biodiversity. They are very concerned about the latest developments in how forests should be dealt with in EU climate policy.

According to FERN, “by 2025, European forests are likely to hold 18% less carbon than in the early 2000s, according to information published today by the European Commission. The new figures have been released under the EU's Land Use, Land Use Change and Forestry (LULUCF) regulation, which was agreed in 2018 and which accounts for carbon emissions from land and forests. Under it, member states are required to develop baselines, called

forest reference levels, showing how much carbon their forests will store over this decade. Member states' low baselines are not the only the way that the LULUCF regulation has enabled Europe's forests to lose carbon. It fudged the numbers on how much carbon dioxide (CO<sub>2</sub>) was considered stored in forests historically. The LULUCF regulation carefully chose a historical baseline that allowed Europe to ‘hide’ around 40 million tons of CO<sub>2</sub> emissions caused by increased logging. Now, the reference levels presented in the delegated act, which are future baselines, will allow member states and the UK to further reduce the CO<sub>2</sub> stored in their forests by another 40 million tons over the first half of this decade. Taken together,

these amount to an 18.7 per cent drop in the carbon sink from early 2000s levels. This jeopardises the integrity of the EU's 2030 climate target and is not in line with goals to maintain or enhance the carbon stored in forests.”

The problems that face us now are the result of many years of ignoring GHG emissions from the burning of fossil fuels. Normally biofuels from forests are considered a renewable source of energy when viewed against the approximately 80-year life cycle of trees. In a situation where the carbon budget for CO<sub>2</sub> that is needed to meet the 1.5°C target has decreased, this position has changed.

Reinhold Pape



# Air quality is slowly improving

Better air quality in Europe has led to a reduction in premature deaths over the past decade, but excessive levels of hazardous tiny particles are still causing more than 400,000 premature deaths every year.

**Air pollution shortens** people's lifespan and contributes to serious illnesses such as heart disease, respiratory problems and cancer. A new report from the European Environment Agency (EEA) presents the latest official air quality data reported by more than 4,000 monitoring stations across Europe in 2018. It shows that despite slow improvements (see Figure), high concentrations of air pollutants still have significant health impacts, with particulate matter, nitrogen dioxide (NO<sub>2</sub>) and ground-level ozone (O<sub>3</sub>) causing the greatest harm.

People living in urban areas are exposed

to the highest levels of air pollution. In 2018, around 70 per cent of the EU urban population was exposed to levels of fine particulate matter (PM<sub>2.5</sub>) exceeding the air quality guidelines established by the World Health Organization (WHO) to protect people's health. And 99 per cent of EU urban citizens were exposed to ozone levels above the WHO's guideline value (see Table 1).

The monitoring revealed PM<sub>2.5</sub> concentrations in excess of the binding EU limit values in six EU member states (Poland, Czechia, Bulgaria, Romania, Croatia and Italy).

In the 41 European countries considered, 417,000 premature deaths in 2018 were attributed to PM<sub>2.5</sub> exposure, 55,000 to nitrogen dioxide exposure and 20,600 to ozone exposure. In the EU-28, the numbers of premature deaths attributed to PM<sub>2.5</sub>, NO<sub>2</sub> and O<sub>3</sub> exposure were 379,000, 54,000 and 19,400, respectively (see Table 2).

Country-by-country data is presented for the estimated number of years of life lost (YLL) and the YLL per 100,000 inhabitants due to exposure to the various pollutants. Regarding the latter, the largest impacts from PM<sub>2.5</sub> were observed in the central and eastern European countries, i.e. Kosovo, Serbia, Albania, Bulgaria and North Macedonia.

The largest health impacts attributable to NO<sub>2</sub> exposure, expressed as YLL per 100,000 inhabitants, were found in Greece, Monaco, Romania, Cyprus, Italy and Spain. Regarding ozone, the countries with the highest rates of YLL per 100,000 inhabitants were Monaco, Albania, Hungary, Croatia and Czechia.

It should be noted that the impacts estimated for each pollutant may not be added to determine the total impact attributable to exposure to the three pollutants. Because concentrations – especially those of PM<sub>2.5</sub> and NO<sub>2</sub> – are correlated, additions may result in double counting.

On top of the health impacts, air pollution continues to damage vegetation and ecosystems. Elevated concentrations of ground-level ozone, for example, damage agricultural crops, forests and plants. In 2018, the EU's long-term objective for the protection of vegetation was exceeded in 95 per cent of the total EU agricultural area, and the critical level for the protection of forests was exceeded in 87 per cent of the total EU forest area.

Excess deposition of sulphur and nitrogen compounds (from emissions of SO<sub>2</sub>, NO<sub>x</sub>, and NH<sub>3</sub>) contribute to the acidification

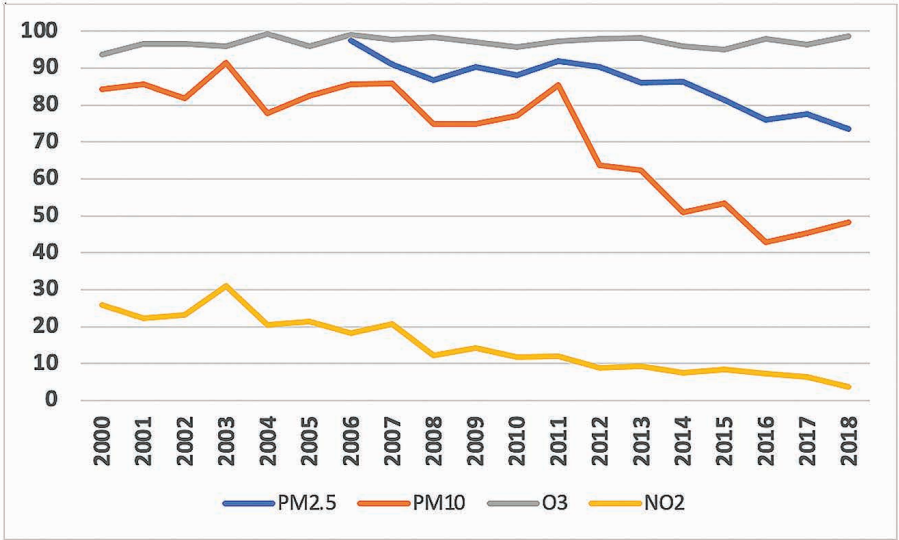
of soil, lakes and rivers, causing the loss of biodiversity. In 2018, six per cent of the European ecosystem area was exposed to acidifying depositions exceeding the limits of nature's tolerance.

Emissions of NH<sub>3</sub> and NO<sub>x</sub> also disrupt land and water ecosystems by introducing excessive amounts of nutrient nitrogen, causing eutrophication (the over-supply of nutrients), with resulting impacts on biodiversity. In 2018, about 65 per cent

**Table 2. Estimates of premature deaths attributable to exposure to PM<sub>2.5</sub>, NO<sub>2</sub> and O<sub>3</sub> in 41 European countries in 2018.**

	PM <sub>2.5</sub>	NO <sub>2</sub>	O <sub>3</sub>
Austria	6 100	790	420
Belgium	7 400	1 200	350
Bulgaria	12 500	1 100	320
Croatia	5 100	90	250
Cyprus	620	210	40
Czech Republic	10 900	300	580
Denmark	3 100	10	150
Estonia	610		30
Finland	1 700		90
France	33 100	5 900	2 300
Germany	63 100	9 200	4 000
Greece	11 800	3 000	650
Hungary	13 100	850	590
Ireland	1 300	50	60
Italy	52 300	10 400	3 000
Latvia	1 800	70	60
Lithuania	2 700	10	90
Luxembourg	210	40	10
Malta	230		10
Netherlands	9 900	1 600	410
Poland	46 300	1 900	1 500
Portugal	4 900	750	370
Romania	25 000	3 500	730
Slovakia	4 900	40	230
Slovenia	1 700	50	100
Spain	23 000	6 800	1 800
Sweden	3 100		240
United Kingdom	32 900	6 000	1 000
<b>Total EU28</b>	<b>379 370</b>	<b>53 860</b>	<b>19 380</b>
Albania	5 000	100	180
Andorra	30		
Bosnia & Herzegovina	5 100	90	150
Iceland	60		
Kosovo	4 000	90	80
Lichtenstein	20		
Monaco	20	10	
Montenegro	640	10	30
North Macedonia	3 000	130	50
Norway	1 400	40	90
San Marino	30		
Serbia	14 600	430	280
Switzerland	3 500	270	350
<b>Total all</b>	<b>416 770</b>	<b>55 030</b>	<b>20 590</b>

**Figure: Percentage of EU urban population exposed to air pollutant concentrations above WHO air quality guidelines (2000–2018)**



**Table 1. Percentage of EU urban population exposed to air pollutant concentrations above EU and WHO reference levels in 2018.**

Pollutant	EU reference value (µg/m³)	Exposure estimate (%)	WHO air quality guideline (µg/m³)	Exposure estimate (%)
PM <sub>10</sub>	Day (50)	15	Year (20)	48
PM <sub>2.5</sub>	Year (25)	4	Year (10)	74
O <sub>3</sub>	8-hour (120)	34	8-hour (100)	99
NO <sub>2</sub>	Year (40)	4	Year (40)	4
BaP	Year (1 ng/m³)	15	Year (0.12 ng/m³)	75
SO <sub>2</sub>	Day (125)	< 1	Day (20)	19

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of the European ecosystem area was exposed to nitrogen deposition exceeding the critical eutrophication limits.

As this year's report celebrates the 10th edition, a trend analysis for the main pollutants was performed for the period 2009–2018. This showed among other things that improvements in air quality achieved over the ten-year period have resulted in around 60,000 fewer people dying prematurely due to PM<sub>2.5</sub> in 2018, compared to 2009.

“The EEA's data prove that investing in better air quality is an investment for better health and productivity for all Europeans. Policies and actions that are consistent with EU's zero pollution ambition, lead to longer and healthier lives and more resilient societies,” said EEA Executive Director Hans Bruyninckx.

An analysis of the impacts of the lockdown measures implemented between the end of February and May to stop

the spread of Covid-19 are presented in a special chapter in the report. The lockdown measures resulted in a decrease in emissions, particularly from transport sources, and a subsequent decrease in air pollution concentrations.

Reductions in NO<sub>2</sub> levels were greatest where lockdown measures were more severe, i.e. in Spain, Italy and France, and the biggest estimated reduction, of around 70 per cent, occurred at traffic stations in Spain and Italy. Levels of PM<sub>10</sub> were also generally lowered across Europe in April 2020, although less than for NO<sub>2</sub>. The greatest reductions, of around 35–40 per cent, were estimated at traffic stations in Spain and Italy.

Christer Ågren

The report “Air quality in Europe – 2020 report” (EEA Report No. 9/2020) is available at: [www.eea.europa.eu](http://www.eea.europa.eu)





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# Energy solutions for low-carbon cities

Accounting for 55% of the world's population, about 75% of global CO<sub>2</sub> emissions and 66% of global energy demand, cities have a crucial role to play in accelerating the sustainable energy transition.

**IRENA has published** a report which analyses the ways that cities can scale up their use of locally available renewables as they move to decarbonise their energy systems. Today, more than half the world's population lives in cities and accounts for 80% of the global GDP. The Intergovernmental Panel on Climate Change has found that cities contribute 71–76% of global energy-related carbon dioxide emissions. Fossil fuel and other emissions are associated with serious air pollution problems in over 80% of the world's cities, generating approximately 7 million premature deaths each year<sup>1</sup>. Urban settlements are expected to grow by another 2.5 billion people over the next thirty years<sup>2</sup>. In the coming decade

this growing urbanisation will coincide with the pressing need to decarbonise the global energy system.

As a result of their numerous roles, including urban planning and the provision of services, cities have great potential to increase the use of renewable energy while achieving local goals such as reducing air pollution to improve public health, mitigating climate change, supporting the local economy and building resilient infrastructure. In addition, it is important to include renewable energy technologies in the infrastructure development of urban areas as soon as possible to decrease the need for costly retro fitting in the future.

In many urban areas, trends in renew-

able technology are already developing, such as energy storage, smart charging for electric vehicles, renewable power-to-heat and renewable power-to-hydrogen, digital technologies and intelligent energy management. The trend has accelerated due to the rapid cost reductions in solar PV panels and battery storage systems. This development is expected to continue, along with the arrival of innovative business models such as energy-as-a-service, aggregators, peer-to-peer electricity trading, community-ownership models, pay-as-you-go and urban energy planning.

One of the most distinct characteristics of an urban energy system is that it serves as the sociotechnical interface that links

the physical energy system with its users. Hence, consumer behaviour matters more than just the energy system alone. Innovations in energy systems have contributed to the view and practice of the prosumer, an actor that is both a consumer and a producer of energy. Examples are rooftop solar PV systems with battery storage and smart energy management. New actors are also appearing, such as aggregators, which bundle several distributed energy resources into a single entity (a virtual power plant) to interact and trade in power or markets.

The dynamics between system operators and consumers are changing and the boundary between energy production and consumption is becoming blurred. It is important for cities to see and use the potential of this development and form appropriate institutional support. Over the past decade, several cities have sought to gain greater control over their energy systems. By 2019, some 671 cities had set at least one target favouring the use of renewables in their jurisdictions. More than 60% of these cities had set a target to achieve 100% renewable energy, and 45% of them are in Europe. City governments can be trendsetters, leading by example to push change. They act as laboratories of innovation for new policies and business models, testing concepts and approaches. As such, the actions taken by cities can provide important lessons and influence change at the state and national levels, while at the same time providing valuable case studies for other cities around the world.

The technologies that are of special interest in urban environments are as follows:

**Solar photovoltaics (PV):** When it comes to solar irradiance the analysis shows that 95% of the cities that have the highest solar potential (i.e., cities in the top 10% for global horizontal irradiance, or GHI) do not have a set target for supporting renewable energy development. Even among the cities in the top 30% for solar potential, only 6% (39 cities) have a renewable energy target and only 2% (14 cities) have a target for 100% renewables. Urban-based solar PV systems are generally smaller in scale than ground-mounted systems located on the

outskirts of cities. These systems are usually installed on, or integrated with, the roofs and facades of buildings.

**Solar thermal:** Solar thermal systems, which rely on different types of solar collectors, are usually used for water and space heating and in some cases for industrial process heat. Increasingly, cities and countries have adopted building codes mandating the use of solar water heaters for all new buildings. The solar system can be installed on the ground or on a building roof to supply heat for the building, community, district or city. However, in countries where natural gas is cheap and is the dominant heating source, solar thermal systems are less competitive in the absence of incentives or promotional schemes to support their social and environmental benefits.

**Solar thermal cooling:** With the growth in global cooling demand tripling from 600 terawatt-hours (TWh) in 1990 to 2,000 TWh in 2016, and projected to at least triple again by 2050, solar thermal energy has gradually extended into the cooling sector. For cooling purposes, solar thermal is typically coupled with absorption chillers to lower peak demand on the grid during hot summers, reducing blackouts and the costs for grid enhancement.

**Bioenergy and waste-to-energy:** These biomass-based energy sources can provide a relatively reliable and consistent supply of energy in comparison with solar PV. For cities, waste-to-energy offers a promising way to create a circular economy. However, the uncertainties of obtaining a sustainable supply of feedstock need to be addressed.

**Urban wind power:** Wind power has been used only marginally in cities and faces huge challenges to scale up. While examples exist of urban wind turbines generating electricity, their performance needs to be improved substantially, and large-scale implementation is scarce. The use of wind turbines in urban environments is mainly in the research and development phase. The lack of experimental data is a big drawback in the development of urban wind turbines.

**Geothermal energy for direct use:** With the need to decarbonise the heating sector, and recognising the potential and advantages of direct use of geothermal energy, applications in cities have been growing. Globally, the installed capacity of geothermal direct use has more than doubled since 2010, reaching 107,727 megawatts-thermal deployed across 88 countries in 2019. Geothermal technology is used mainly for space heating and cooling as well as for hot water in cities, through both stand-alone and district heating systems. For new cities or for the expansion of existing cities, installing geothermal energy systems would be much more cost efficient than integrating the systems into established infrastructure.

For most cities, integrating the renewable energy technologies described above would require upgrading the urban infrastructure to accommodate them, without compromising on operational reliability and stability. This highlights the importance of developing “smart” grids through innovation and the adoption of enabling technologies such as electric vehicles, energy storage systems and intelligent energy management systems. Smart grids present opportunities for using higher shares of variable renewables and for improvements in system efficiency.

In summary, renewable energy technologies that are integrated with local energy systems will be a vital foundation for creating the transformation needed in the cities of the future. When it comes to climate change “Cities are on the front-line of impact, but also of the solutions,” said Inger Andersen, Executive Director of UNEP<sup>3</sup>. How we decide to build our urban energy systems today will shape our collective future.

Emilia Samuelsson

1. WHO Global Ambient Air Quality Database (database), World Health Organization, Geneva, [www.who.int/airpollution/data/cities/en](http://www.who.int/airpollution/data/cities/en).

2. UN DESA (2018), The world's cities in 2018 – data booklet, United Nations Department of Economic and Social Affairs, Population Division, New York, [www.un.org/en/events/citiesday/assets/pdf/the\\_worlds\\_cities\\_in\\_2018\\_data\\_booklet.pdf](http://www.un.org/en/events/citiesday/assets/pdf/the_worlds_cities_in_2018_data_booklet.pdf)

4. <https://www.unenvironment.org/news-and-stories/story/cities-where-fight-green-recovery-will-be-won-or-lost>



## Court cases bring improved air quality

German cities taken to court for breaching air quality standards saw pollution levels drop twice as much as other cities between 2018 and 2019, according to green group Deutsche Umwelthilfe (DUH), which has taken legal action over consistently dangerous levels of air pollution in 40 German cities. Nearly half of these cases were brought in liaison with environmental law charity ClientEarth.

Between 2018 and 2019, levels of nitrogen dioxide (NO<sub>2</sub>) came down by an average of 4.2 µg/m<sup>3</sup> in cities where air quality litigation has been pursued. In cities where no legal action was taken, the average drop was just 2.1 µg/m<sup>3</sup>.

In February 2018, the country's highest court confirmed that diesel restrictions were not only possible but legally necessary when they were the most efficient way to bring down illegal levels of pollution. Later court results have included wins and settlements where less polluted cities propose other traffic control measures, such as improvements to bus, train and cycle infrastructure, discounts on season tickets and fleet-wide bus retrofits.

Source: DUH press release, 8 October 2020. Link: <https://www.duh.de/presse/pressemitteilungen/pressemitteilung/court-cases-double-german-air-pollution-cuts-new-analysis/>

## EU consultation on Zero-Pollution Ambition

A new consultation is open from 11 November 2020 to 10 February 2021 to gather views from citizens and stakeholders on an EU action plan "Towards a Zero-Pollution Ambition for air, water and soil". In its European Green Deal, the European Commission said that the EU needs to move towards a zero-pollution ambition, and better prevent and remedy pollution of air, water and soil, and from consumer products. The Commission has announced that it will adopt a Zero-Pollution Action Plan in 2021.

Link: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12588-EU-Action-Plan-Towards-a-Zero-Pollution-Ambition-for-air-water-and-soil>

## EU court rules against Italy

On 10 November, the EU Court of Justice (ECJ) ruled that Italy has failed to tackle illegally high levels of air pollution, by systematically and repeatedly breaching daily and annual limit values for particulate matter (PM<sub>10</sub>) across several regions, including Rome, Palermo, Milan, Turin, Vicenza and the Lombardy region.

The persistent breach of limit values is enough in itself to demonstrate that Italy "has not implemented appropriate and effective measures" that would keep the period of excessive pollution as "short as possible", the court stated. Should Italy fail to comply with the ruling, the Commission has the power to bring the case back to the court and seek financial penalties.

Source: Ends Europe Daily, 10 November 2020. Link to the ECJ ruling: <https://curia.europa.eu/jcms/upload/docs/application/pdf/2020-11/cp200136en.pdf>

## Clean air for all is achievable

Achieving clean air across the world is possible, according to a new study by IIASA. The researchers conclude that a combination of ambitious policies focusing on pollution controls, energy and climate, agricultural production systems and addressing human consumption habits could drastically improve air quality throughout the world.

By 2040, mean population exposure to PM<sub>2.5</sub> from anthropogenic sources could be reduced by about 75 per cent relative to 2015 and brought well below the WHO guideline in large areas of the world, thus saving millions of premature deaths annually. At the same time, the measures that deliver clean air would also significantly reduce emissions of greenhouse gases and contribute to multiple UN sustainable development goals.

"Even if WHO air quality standards are currently exceeded by more than a factor of ten in many parts of the world, clean air is achievable globally with enhanced political will," concludes lead author Markus Amann.

Source: IIASA News, 29 September 2020. Link: <https://iiasa.ac.at/web/home/about/news/200929-Reducing-global-air-pollution.html>

## New EU infringement actions on air pollution

In its October infringements package, the European Commission announced that it will file a case at the European Court of Justice (ECJ) against the French government over its systematic failure to meet EU air quality standards for particulate matter (PM<sub>10</sub>).

Letters of formal notice were sent to Croatia and Italy for breaching the limit values for particulate matter (PM<sub>10</sub> and/or PM<sub>2.5</sub>) in several areas, and the measures taken to lower air pollution are insufficient to keep exceedance periods as short as possible.

Reasoned opinions were sent to Greece and Romania, as they have still failed to adopt National Air Pollution Control Plans, which according to the deadline set in the NEC Directive should have been submitted by 1 April 2019.

Link: [https://ec.europa.eu/commission/press-corner/detail/en/inf\\_20\\_1687](https://ec.europa.eu/commission/press-corner/detail/en/inf_20_1687)



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## Europe's worst polluters revealed

As national governments and the EU fail to report crucial information on industrial pollution, a new NGO database shows which facilities are playing by the rules. The "Industrial Plant Data Viewer" allows users to access and compare data from over 3000 large combustion plants across the EU, and check whether they are doing their job to prevent pollution. It was launched by the European Environmental Bureau (EEB) to help fill the transparency gap in EU industrial emissions reporting.

"It is the European Commission's job to ensure that EU laws are properly enforced, and that industrial pollution data are disclosed. If they are serious about their ambition for zero pollution and a toxic-free environment, they cannot turn a blind eye," said Christian Schaible, the EEB's policy manager in charge of the project.

The EEB has repeatedly highlighted the limitations of the EU reporting system, and provided recommendations for the Commission and the European Environment Agency (EEA) to fill the gap. Due to inertia by the two institutions, the EEB decided to develop its own database through in-house research.

Work will continue on development of the Industrial Plant Data Viewer to cover more countries, as well as including new modules to check and compare the impact of industrial pollution on water, not to mention the level of implementation of Best Available Techniques. Users are encouraged to contribute data, documents, comments, and corrections where data is missing or appears incorrect in the viewer. For the development team, such contributions will allow the database to offer more updated and reliable information, taking Europe a step closer to fact-based and transparent reporting.

Source: EEB Meta, 10 September 2020. Link to the Industrial Plant Data Viewer: <http://eipie.eu/projects/ipdv>

ACID NEWS NO. 4, DECEMBER 2020

## Improved air quality in Covid-19 lockdown

Improved air quality during lockdown averted tens of thousands of premature deaths, according to a study published in The Lancet Planetary Health.

Between February and March, the researchers found that an estimated 24,200 premature deaths associated with PM<sub>2.5</sub> pollution were averted throughout China. This compares to the reported 3309 fatalities from Covid-19. In Europe, although Covid-19 fatalities were far higher, a reduction in pollution meant that 2109 premature deaths were avoided.

The researchers highlight that the averted fatality figures become much larger when the long-term effects are considered (up to 287,000 in China and 29,500 in Europe).

Paola Crippa, lead author of the study said: "It was somewhat unexpected to see that the number of averted fatalities in the long term due to air quality improvements is similar to the Covid-19 related fatalities, at least in China where a small number of Covid-19 casualties were reported. These results underline the severity of air quality issues in some areas of the world and the need for immediate action."

Source: Air Quality News, 19 October 2020.

Link to the study "Short-term and long-term health impacts of air pollution reductions from Covid-19 lockdowns in China and Europe: a modelling study": [https://doi.org/10.1016/S2542-5196\(20\)30224-2](https://doi.org/10.1016/S2542-5196(20)30224-2)

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## 15% of global Covid deaths linked to air pollution

The Federal Environment Agency (UBA) Long-term exposure to air pollution has been linked to an increased risk of dying from Covid-19 and a new study has estimated the proportion of deaths from the coronavirus that could be attributed to the exacerbating effects of air pollution for every country in the world.

The study, published in Cardiovascular Research, estimated that about 15 per cent of deaths worldwide from Covid-19 could be attributed to long-term exposure to air pollution. In Europe the proportion was about 19 per cent, in North America it was 17 per cent, and in East Asia about 27 per cent.

The researchers write that these proportions are an estimate of "the fraction of Covid-19 deaths that could be avoided if the population were exposed to lower counterfactual air pollution levels without fossil-fuel-related and other anthropogenic emissions", and add that this "attributable fraction does not imply a direct cause-effect relationship between air pollution and Covid-19 mortality (although it is possible). Instead it refers to relationships between two, direct and indirect, i.e. by aggravating co-morbidities that could lead to fatal health outcomes of the virus infection".

Source: European Society of Cardiology (ESC), 27 October 2020.

Link to the study "Regional and global contributions of air pollution to risk of death from Covid-19": <https://academic.oup.com/cvadvances/advance-article/doi/10.1093/cvr/cvaa288/5940460>



# Combustion-engine cars need to be phased out in Europe by 2025

With a view to limiting global warming to 1.5°C, internal-combustion-engine (diesel and petrol) cars need to be phased out in Europe by 2025; hybrid vehicles by 2028.

Greenpeace has published studies on how to reduce carbon dioxide from the transport sector. Here are some conclusions from the assessments made by Greenpeace: Despite its climate commitments and the adoption of specific regulations such as CO<sub>2</sub> standards for cars and vans, the EU has failed to cut the transport sector's emissions so far. While greenhouse gas emissions (GHG) from other sources have been slowing or dropping, emissions from transport have continued to climb in the EU, with a 28% increase in 2017 compared to 1990 levels. Transport alone is responsible for 27% of the overall EU GHG emissions in 2017. International aviation, shipping and road transport have been the fastest growing emissions sources in the sector.

A study by Ecologic Institute in Germany for Greenpeace makes the assessment that the introduction of electric vehicles (EVs) is one way to significantly reduce emissions from cars, if combined with a transition to a renewable electricity system – thus helping countries to meet their climate and air quality goals. With a view to limiting global warming to 1.5°C, internal-combustion-engine (diesel and petrol) cars need to be phased out in Europe by 2025; hybrid vehicles by 2028. EVs play an important role as an alternative option. The study analyses a range of existing measures that have a direct impact on the increased uptake of electric passenger cars, particularly battery electric and fuel cell electric vehicles. The study does consider bans on internal-combustion-engine cars, since this is compatible with the final step in EV support, i.e. a 100% EV quota.

Another study published by Climact and the NewClimate Institute and commissioned by Greenpeace Belgium, offers a roadmap for decision-makers to decarbonise the European transport sector by 2040, powering it with renewable energy, without relying on biofuels. The analysis describes how Europe can swiftly revolutionise the

way people and goods move, and deliver a fair EU contribution to limiting global warming to 1.5°C. Greenpeace EU climate campaigner Lorelei Limousin said: "Investing public money in the middle of Covid recovery efforts to keep yesterday's transport system alive is a travesty. Aviation, shipping and road transport are among Europe's most polluting industries. Many of the major players have no shame laying off thousands of workers during the Covid crisis while lining their pockets with government bailouts. It is time to transform the way we move, shift to cleaner transport alternatives like trains, significantly reduce emissions, create good jobs, and make mobility equitable, resilient and sustainable for all."

The report's modelling shows that 53% of the emissions reductions can be achieved through technology efficiency and cleaner fuels, while the other 47% can be obtained by reducing transport demand and switching to cleaner transport options.

It identifies the measures necessary to decarbonise transport by 2040:

- End sales of new diesel and petrol vehicles, including hybrids, by 2028 at the latest, and phase out all internal combustion engines (ICE) vehicles across Europe.
- Reduce the light vehicle fleet size by 27% by 2030 and by 47% by 2040, compared to 2015 levels.
- Increase the occupancy and utilisation rate for all remaining passenger transport by 25% and 20% for light-duty vehicles (LDVs) between 2020 and 2050.
- Reduce the use of private vehicles from 62% of transport in large urban areas to 42% (with urban centres cutting it down even more significantly) and from 79% to 68% in non-urban areas.
- Decrease mobility demand by 12% by 2040 compared to pre-Covid levels (excluding aviation).
- Cut the number of lorries on European

roads from 6 to 3.6 million, while doubling the use of inland waterways and rail transport from 29% to 58%.

- Limit the use of so-called E-fuels, produced with renewable power, to transport modes that do not have an alternative, such as aviation.
- Assuming sufficient production of renewable-based synthetic aircraft fuel at commercial scale, decrease total passenger kilometres flown by at least 33%. However, such "E-fuels" are far from being available at scale, meaning passenger air travel would very likely need to decrease much further.
- Cut energy consumption in surface transport, freight and aviation by 63% compared to 2015.

What is next on the European agenda?

- The European Council and the European Parliament are expected to agree on the next EU budget and the EU Recovery and Resilience Facility by the end of 2020, so implementation can start on 1 January 2021.
- From 15 October 2020 to 30 April 2021: The European Commission has proposed this period for European governments to submit their national resilience and recovery plans. According to the proposal, countries should include both reforms and investments planned at national level to access the EU funds.
- By 31 December 2020: Adoption by the European Commission of a comprehensive European strategy for smart and sustainable mobility, currently being drafted by the European Commission, ahead of the "European Year of Rail" in 2021.
- Also by 31 December 2020: The European Investment Bank, which invested almost €15 billion in roads and airports expansion between 2016 and 2019, will adopt a new climate roadmap.

Immediate policy recommendations from Greenpeace

The upcoming recovery plans and the European Commission's strategy for smart and sustainable mobility should include a number of regulations and funding decisions, to kick-start the transformation of the transport sector in Europe.

Green and just transition for workers, no money for polluters

- EU recovery money is public money and EU decision-makers should ensure it does not fund polluters like the aviation industry and carmakers, or conventional car purchases. They should adopt an environmental exclusionary list that defines what activities recovery plans must not subsidise.
- The bailout of airlines and polluters

network of affordable and accessible new day and night trains across Europe.

- The EU must improve cross-border trains by removing network bottlenecks and harmonising the railway systems, tickets and timetables while protecting passengers' rights across borders.

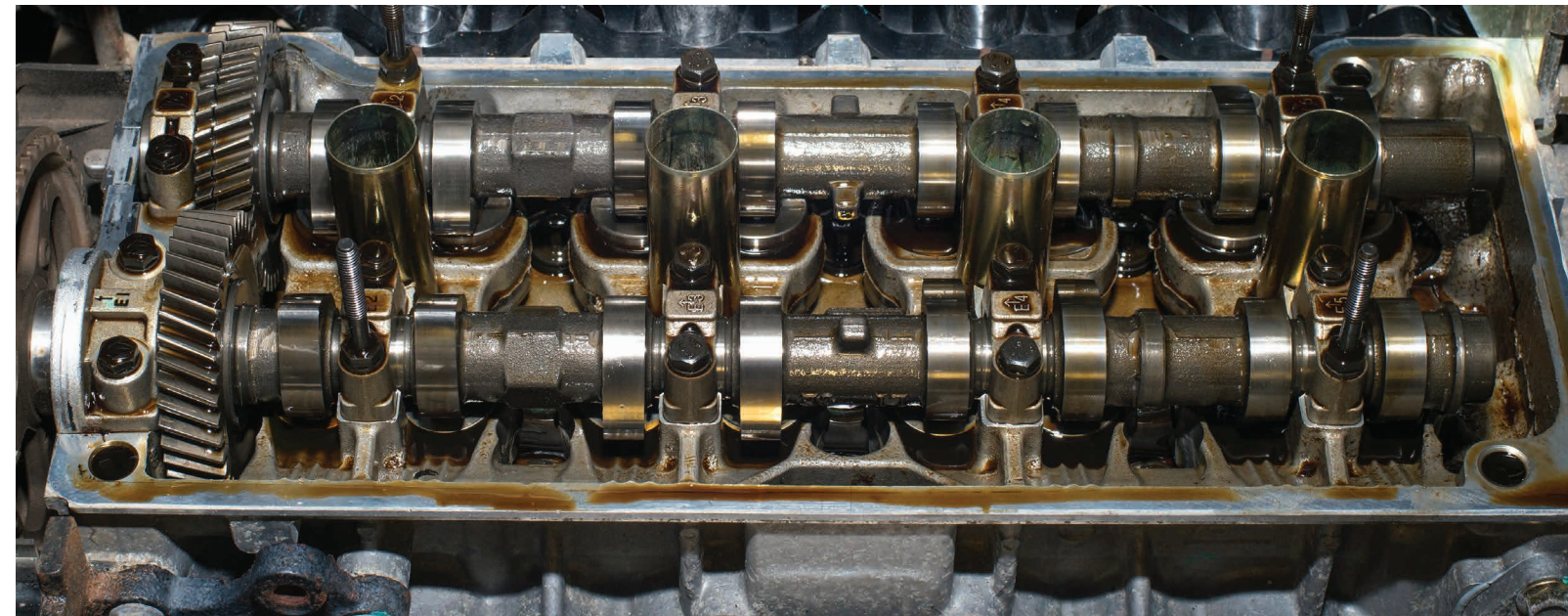
Fewer planes in European skies

- The European Commission has already planned a review of the kerosene tax exemption as part of the Energy Tax Directive planned in 2021. It must also facilitate a fair implementation of the "polluter pays principle" through flight and fuel taxes to induce a cut in aviation demand.
- The European Commission and EU

- National governments should take all new conventional vehicles, including hybrids, off the market by 2028 at the latest.

Fewer cars, more walking, cycling and public transport

- Local authorities and national governments must redesign urban mobility to prioritise walking, cycling and public transport and invest in their development.
- To help speed up the transition, the European Commission should adopt appropriate measures such as linking access to EU funds to the implementation of mobility plans that are compliant with the Paris climate agreement.
- The EU should increase funding and investment for interconnected, cleaner mobility solutions that are accessible to everyone.



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should be conditional on the respect of regulatory measures to align the EU with the Paris Agreement goal to limit global warming to 1.5°C.

- Additional EU and national investment in the reskilling/training of workers employed in fossil fuel heavy transport sectors is necessary.

More and better trains for all

- To match their wish to see railways play a much greater role in the future of European mobility and achieve this ambitious shift, the European Commission and EU governments must invest significantly in a strengthened

countries must ban short-haul flights where there is a cleaner alternative that takes under 6–8 hours, and stop exempting flights from taxes borne by other modes of transport.

The end of vehicles running on fossil fuels

- The European Commission plans to review the CO<sub>2</sub> emission performance standards for cars and vans by June 2021. However, it should go further and propose a European ban on diesel and petrol car and van sales, including hybrids, as soon as possible and by 2028 at the latest, with all remaining sales shifting to new lightweight battery-electric vehicles.

No new airports or highways

- National and local governments must cancel highway and airport expansion projects and the EU budget should not encourage their expansion in Europe, in order to avoid further lock-in of carbon-intensive transport modes.
- Between 2016 and 2019, the European Investment Bank (EIB) invested €14.65 billion in roads and airports expansion. As part of its climate roadmap due by the end of 2020, the EIB should ban any investment in capacity increase for highways or airports.

Compiled by Reinhold Pape



# Enormous costs for CCS

“Full Chain CCS” in Norway has received finance from the government. It will cost 1.74 billion euros to capture and store CO<sub>2</sub> from one cement factory, equivalent to €434/tonne of CO<sub>2</sub>, or about 17 times the price in European emission trading.



Equinor is offering to transport CO<sub>2</sub> from Baltic harbours and store it in Norway, at a price tag well above €50, twice the European emission trading price of about €25. That is on top of the cost of capture and transport to the harbour.

This is very far from a commercial proposition. Most other major CCS candidates, other than niche applications such as processing of natural gas and/or enhanced oil recovery, are even more expensive.

According to an economic analysis for the Norwegian government in June 2020, capture from the waste-to-heat plant in Oslo would cost almost 50% more than the Norcem project. The capture costs alone are given as €104 for cement and €153 for the waste-to-heat plant. Fortum, which owns the waste plant together with Oslo city, was promised part of the cost by the government if it could finance the remainder. The company is now trying to get money from the EU, but competition is fierce.

The cost per ton would be lower if spread over a longer period than 10 years, but investors are reluctant to do so. The factory may not be competitive forever. Alternative cements or other construction materials may be developed to render traditional limestone cement obsolete, even with CCS. This is to some extent happening right now. Construction company Skanska offers Green Concrete with 15–52% less CO<sub>2</sub>, depending on the application. This is a result of mixing the cement with slag, one of several alternative binders. Another Swedish construction company, Peab, started production of its slag cement, which uses a by-product from a steel plant in Oxelösund south of Stockholm, in the autumn of 2020.

Fredrik Lundberg

**Norwegian prime minister** Jens Stoltenberg famously said in 2007 that CCS would become “our moonlanding”. Nothing much happened. But in September 2020, after many false starts and delays, the Norwegian government finally revealed its plan, now called Longship, with several references to Viking traditions.

What was called Full Chain CCS initially included carbon capture at a combined heat and power plant fuelled with waste in Oslo, an ammonia plant and a cement factory, as well as transport by ships and storage in the North Sea (see other article in this issue of Acid News). After several costing and cost-cutting exercises the Norcem cement factory was the only surviving capture project. It will capture 0.4 million tonnes of CO<sub>2</sub> per year.

Norcem was chosen because the other projects were estimated to be even more expensive. Cement production produces a relatively clean and steady stream of CO<sub>2</sub> compared to most other sources such as coal power and gas power, where it has

made little headway since CCS was launched by the George W. Bush administration in 2001. The total cost of the project is 18.7 bn Norwegian kroner (€1.74 bn) over a 10-year period, out of which the government pays 13.8 bn directly, plus a further two billion or so indirectly through Equinor, in which the government has a majority stake.

Hedelberg Cement, the owner of Norcem, has not yet made an investment decision, and only says it “may soon initiate the building of the world’s first full-scale carbon capture plant in the cement industry”. Another daughter company, Cementa, in Sweden, expresses hope that Cementa will produce “climate neutral” cement by 2030, with CCS as its main method. Cementa also says that Norcem, according to plans will “halve” its emissions by 2024, which implies that the other half will still be emitted.

It is clear that the Norwegian government will pay most of the cost for the Norcem project. The big question is who is going to pay for other CCS projects.

Credible sources tell Acid News that

# Emissions from ships and planes continue to rise

Air and sea transport must reduce GHG emissions at the same rate as land transport by 2040 at the latest in industrialised countries, and by 2050 global.

**Shipping and aviation** represented around 3% and 2% respectively of global CO<sub>2</sub> emissions in the mid-2000s. While land-based transport is starting to switch to low-carbon alternative fuels, sea and land transport are not yet following suit, and emissions are rising. According to NGOs, in November 2020 an IMO committee approved a proposal “that will allow the shipping sector’s 1 billion tonnes of annual greenhouse gas emissions to keep rising for the rest of this decade – the very decade in which the world’s climate scientists say we must halve global greenhouse gas (GHG) emissions to stay within a relatively safe 1.5°C of global warming, as committed to under the Paris Climate Agreement”.

According to the UN, “emissions from fuel used for international aviation and maritime transport (international bunker fuels) have been addressed under the UN Climate Convention (UNFCCC) since 1995. The UNFCCC invited the International Civil Aviation Organization (ICAO) and International Maritime Organization (IMO) to contribute to the work on the allocation and control of emissions from international bunker fuels. In response to this request, emissions from fuel used for international aviation and maritime transport have been continuously addressed under the UNFCCC. In addition the Kyoto Protocol also called for limiting and reducing emissions of greenhouse gas emissions not controlled by the Montreal Protocol from aviation and marine bunker fuels, working through the ICAO and the IMO, respectively. The IPCC Guidelines for the preparation of greenhouse gas (GHG) inventories and the UNFCCC reporting guidelines on annual inventories outline that emissions from international aviation

and maritime transport (also known as international bunker fuel emissions) should be calculated as part of the national GHG inventories of Parties, but should be excluded from national totals and reported separately”.

Climate Action Tracker has recently assessed the climate policy of ICAO and IMO and says “while ICAO has a goal of ‘carbon neutral growth from 2020’, CORSIA, the scheme it has set up to achieve it, is unlikely to do so: it will probably cover less than half of international aviation emissions between now and 2035 and is likely to allow compensation without real emission reductions elsewhere. As global CO<sub>2</sub> emissions would need to reduce to net zero by 2050 to be in line with the 1.5°C temperature limit, aviation would have to make an equivalent contribution. However, CORSIA’s expected emissions unit prices are unlikely to trigger investments in measures to reduce CO<sub>2</sub> emissions from international aviation towards zero by 2050, and provide little or no incentive to roll out innovative zero carbon technology”.

Concerning the international shipping industry, the Climate Action

Tracker states: “There is tremendous potential for the international shipping industry to decarbonise completely and reach zero emissions by 2050, yet there is very little sign of this sector moving anywhere near fast enough, and certainly nowhere near a Paris Agreement pathway”.

Despite strong criticism by NGOs and other stakeholders year after year, ICAO and IMO have not acted to reduce emissions. The director of Transport and Environment said in 2020 that T&E does not believe any more that the IMO is able to develop policies for effective reduction of GHGs. Wendel Trio, director of CAN Europe, explained recently that it was the view of CAN that all economic sectors must reduce GHGs at the same rate, which means that air and sea transport must reduce GHG emissions by at least 65% by 2030 and to net-zero by 2040 in the EU. The EU is now finally acting and proposes to develop EU policies to regulate GHG emissions from shipping with economic instruments. Investment decisions for ships with alternative fuels must be made now because new ships have a life expectancy of about 30 years.

Reinhold Pape

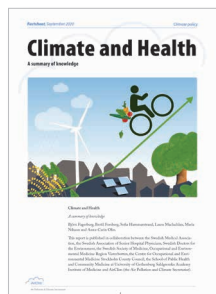




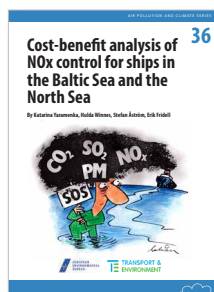
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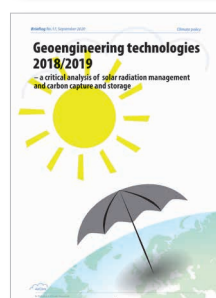
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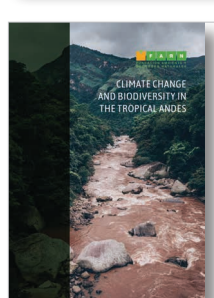
**Climate and Health** (September 2020). By Björn Fagerberg, Bertil Forsberg, Sofia Hammarstrand, Laura MacLachlan, Maria Nilsson and Anna-Carin Olin.



**Cost-benefit analysis of NOx control for ships in the Baltic Sea and the North Sea** (April 2017). By Katarina Yaramenka, Hilda Winnes, Stefan Åström, Erik Fridell.



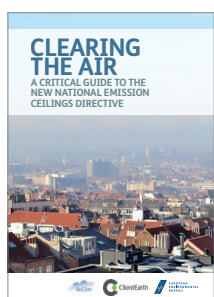
**Geoengineering technologies 2018/2019** (September 2020). By Fredrik Lundberg. Solar radiation management is not needed.



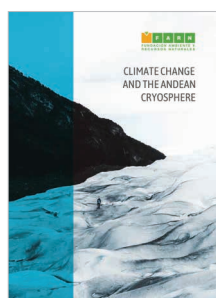
**Climate change and biodiversity in the Tropical Andes** (2020). By Catalina María Gonda. Two major crises pose severe threats for life on Earth.



**What will it take to phase out greenhouse gas emissions from road traffic in the Nordic-Baltic region by 2030-2035?** (March 2018). By Mats-Ola Larsson. A conceivable scenario.



**Clearing the air** (Feb 2017). A critical guide to the new National Emissions Ceilings directive.



**Climate change and the Andean Cryosphere** (2019). By Catalina María Gonda. The cryosphere has unique functions and influences the physical, biological and social systems.



**Phasing out coal in Europe by 2025** (Feb 2019). By Fredrik Lundberg. An updated list of coal power stations throughout Europe and a proposal of phasing out coal by 2025.

## Coming events

**CLRTAP Working Group on Strategies and Review.** Remote meeting, 14 - 16 December 2020. Information: [www.unece.org/env/lrtap/welcome.html](http://www.unece.org/env/lrtap/welcome.html)

**EU Environment Council.** Luxembourg, 17 December 2020. Information: [www.consilium.europa.eu/en/press/calendar/](http://www.consilium.europa.eu/en/press/calendar/)

**CLRTAP Executive Body.** Remote meeting, 18 December 2020. Information: [www.unece.org/env/lrtap/welcome.html](http://www.unece.org/env/lrtap/welcome.html)

**IMO PPR 8** (Sub-Committee on Pollution Prevention and Response). London, UK, 22 - 26 March 2021. Information: [www.imo.org](http://www.imo.org)

**International Transport and Air Pollution (TAP) Conference.** Graz, Austria, 30 - 31 March 2021. Information: [www.tapconference.org](http://www.tapconference.org)

**CLRTAP Working Group on Strategies and Review.** Geneva, Switzerland, 17 - 20 May 2021. Information: [www.unece.org/env/lrtap/welcome.html](http://www.unece.org/env/lrtap/welcome.html)

**Air Pollution threats to Plant Ecosystems Conference.** Paphos, Cyprus, 17 - 21 May 2021. Information: <http://www.ozoneandplants2020.com>

**IMO 8th Intersessional Working Group on reduction of GHG emissions from ships.** London, UK, 24 - 28 May 2021. Information: [www.imo.org](http://www.imo.org)

**UN FCCC Bonn Climate Change Conference.** Bonn, Germany, 31 May - 10 June 2021. Information: <http://unfccc.int/>

**IMO Marine Environment Protection Committee (MEPC 76).** London, UK, 14 - 18 June 2021. Information: [www.imo.org](http://www.imo.org)

**IMO Marine Environment Protection Committee (MEPC 77).** London, UK, 1 - 5 November 2021. Information: [www.imo.org](http://www.imo.org)

**UN FCCC COP26.** Glasgow, UK, 1 - 12 November 2021. Information: <http://unfccc.int/>

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