

# Chapter 1. Towards sustainable development

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This chapter provides an overview of economic and social development, and major policy developments in the environmental sectors, including climate, air, freshwater, waste and materials (biodiversity is covered in Chapter 2). Drawing on indicators from national and international sources, the chapter tracks progress towards achieving national goals and international commitments and targets, and looks at the environmental governance and management system. It also assesses the environmental effectiveness and economic efficiency of the environmental policy mix, including fiscal and economic instruments, regulatory and voluntary instruments, and investment in environment-related infrastructure. The chapter concludes with a reflection on opportunities for fostering a just and equitable transition to a green, low-carbon society.

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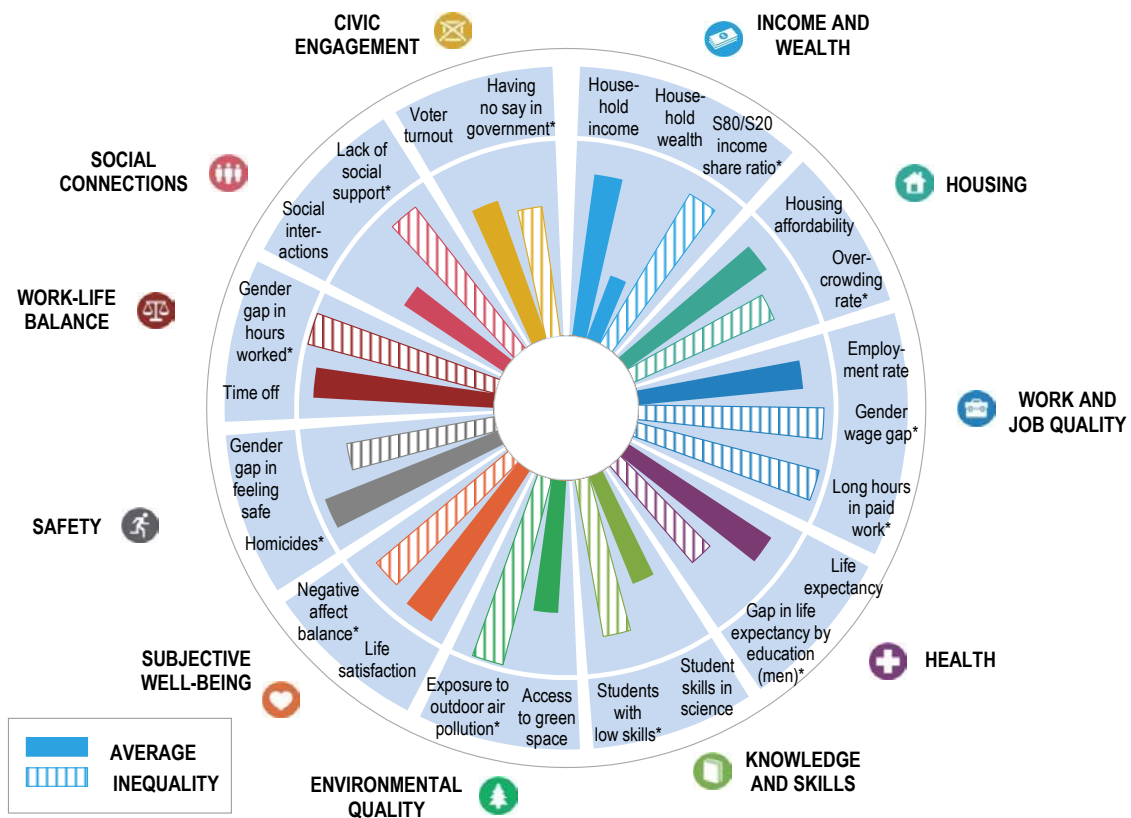
## 1.1. People, economy and sustainable development

### 1.1.1. Life in Norway

Norway is a northern European country with a small population of 5.4 million people and a large coastline of nearly 29 000 km, including fjords and bays. About 80% of Norway's population lives less than 10 km from the sea. Due to harsh climatic conditions, a large part of the country is unsuitable for settlement. Norway's northern areas are sparsely populated, and are notably the traditional home of the Sami minority (about 20 500 registered Sami voters<sup>1</sup>). After Iceland, Norway has the second lowest population density in Europe. However, the large majority of its population lives in urban areas, with a dense population reaching nearly 2 000 people per square kilometre in the Oslo area. Norway's population is growing slowly but steadily. It is expected to reach close to 6 million people by 2050 (Statistics Norway, 2021<sup>[1]</sup>). On average, the country also welcomes some 6 million tourists per year (2016-19, pre-COVID-19).

Figure 1.1. Norwegians are more satisfied with their lives than the OECD average

Norway's current well-being



Note: This chart shows Norway's relative strengths and weaknesses in well-being compared to other OECD countries. Longer bars always indicate better outcomes (i.e. higher well-being), whereas shorter bars always indicate worse outcomes (lower well-being) – including for negative indicators, marked with an \*, which have been reverse-scored. Inequalities (gaps between top and bottom, differences between groups, people falling under a deprivation threshold) are shaded with stripes. Data for negative affect balance, the gender gap in feeling safe and lack of social support refer to 2021 or 2020. All other data refer to 2019 or the latest available year.

Source: OECD calculations based on OECD (2022), "How's Life? Well-Being", *OECD Social and Welfare Statistics* (database).

Life expectancy at birth is estimated at 83.2 years, higher than the OECD average. It is expected to rise another five to six years by 2050, increasing the share of people of retirement age. Norwegians have a generally good level of education and skills. Pupils in Norway scored above the OECD average in reading literacy, maths and science in the OECD Programme for International Student Assessment. Girls largely outperformed boys. Norway is also among the most advanced countries in terms of gender equality. Nearly half of representatives elected to the Norwegian Parliament are women.

Norway's population enjoys good health in general. The country has a well-developed health system with universal coverage and quality health services that are financially accessible to nearly all. Health spending per capita in Norway (about NOK 70 000 or USD 7 400) is about two-thirds higher than the EU average. Non-communicable diseases and social inequities are among the key public health challenges. The health impact of the COVID-19 pandemic was significantly lower in Norway compared to other European countries. By November 2021, more than 70% of adults were fully vaccinated. However, another wave of infections hit Norway at the end of 2021, prompting the government to re-introduce containment measures.

Life satisfaction in Norway is high. The country regularly ranks among the top ten countries in terms of happiness, along with other Nordic countries. It also performs well in nearly all dimensions of well-being (Figure 1.1). Norwegians enjoy a good work-life balance and are comparatively "less stressed". Only 3% of Norwegian employees work long hours, far below the OECD average of 11%. Norwegians also have a green lifestyle. In all, 91% of Norway's people declared they enjoy outdoor activities (Statistics Norway, 2020<sup>[2]</sup>).

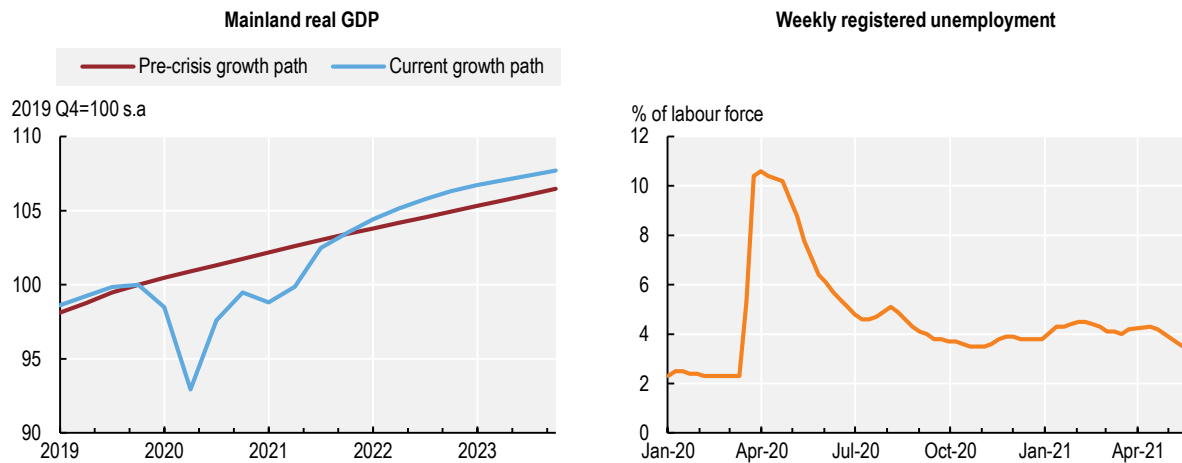
### **1.1.2. Economic performance**

Norway has a small and open economy with a substantial petroleum sector. With USD 62 800 per capita in 2020, Norway is among the richest OECD countries. Income inequality in Norway is lower than in most advanced economies (OECD, 2021<sup>[3]</sup>). Like other Nordic countries, the country has an extensive system for social protection. While labour force participation has weakened somewhat over the past two decades, Norway's employment rate is still largely above the OECD average.

Mainland gross domestic product (GDP) annual growth contracted by 2.3% in 2020. The tourism and transport sectors were hardest hit. The government provided substantial support to people and businesses via several emergency and recovery packages (Section 1.7.1). However, Norway has been recovering comparatively quickly from the economic impacts of the global pandemic (Figure 1.2). Prior to the slowdown brought about by the Omicron variant, Mainland real GDP of Norway was projected to increase by 4.2% in 2022 (OECD, 2021<sup>[3]</sup>) (Figure 1.2). Provision estimates incorporating the slowdown suggest growth will be around 3.7%. The unemployment rate is set to fall further once the impact of the Omicron wave has passed.

Norway's economy has increasingly diversified. The service sector accounts for close to 66% of the economy, the industry sector represents 33% (including mining and construction) and the primary sector about 2%. The oil and gas sector accounts for a substantial share of economic activity. However, its share within national GDP is shrinking, from a peak of 25% in 2012 to 14% in 2021. To date, the petroleum sector represents 41% of total exports, 20% of total investments and 5.8% of employment (Ministry of Energy and Petroleum, 2022<sup>[4]</sup>). While a comparatively small player at the global scale (0.7% of world oil reserves and 1.7% of gas reserves), Norway is one of the world's largest energy exporters. The vast majority of Norway's crude oil exports is exported to other European countries. In 2020, Norway was the second largest exporter of gas within OECD member countries, following the United States. A network of subsea pipelines connects Norway to other European countries.

**Figure 1.2. Norway's economic output is projected to reach above pre-pandemic levels in 2022**



Note: The pre-crisis growth path is based on the November 2019 *OECD Economic Outlook* projection, with linear extrapolation for 2022 and 2023 based on trend growth in 2021 (left panel). The registered unemployment data include temporary layoffs (right panel).

Source: OECD (2021), *OECD Economic Outlook*, Volume 2021 Issue 2 based on *OECD Economic Outlook*, No.106 and 109 (databases) and Norwegian Labour and Welfare Administration.

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The European Green Deal and its climate framework will heavily impact Norway, notably in the medium and long term (2030-50) (European Commission, 2019<sup>[5]</sup>). According to EU projections, fossil fuels will still provide about half of the EU's energy requirements by 2030. Natural gas is set to be phased out later and might still represent about 10% of Europe's energy mix by 2050. Norway currently covers about a quarter of EU gas demand and is usually considered as an attractive and reliable business partner.

The government's total net cash flow from the petroleum industry is estimated at NOK 272 billion in 2021 (about USD 31.6 billion). This is about NOK 90 billion (USD 10.5 billion) higher than the estimates of the National Budget 2022 thanks to high oil and gas prices (Ministry of Energy and Petroleum, 2022<sup>[4]</sup>). Despite the global recession, Norway's main sovereign wealth fund grew by 8% in 2020. Created in 1990 to ensure sustainable, long-term management of Norway's oil resources for current and future generations, the Government Pension Fund Global counted about NOK 12.3 trillion (USD 1.4 trillion) or close to NOK 2.3 million (USD 267 500) per inhabitant at the end of 2021. It is the world's largest sovereign wealth fund.

Considering its large coastline of nearly 29 000 km and some 7 000 ships in Norwegian waters, Norway has a strong interest in developing a sustainable maritime sector (Section 2.5.2). Norway's Climate Action Plan 2021-30, presented in a white paper to Parliament in 2021, includes a focus on green public procurement, green innovation and infrastructure. It aims at halving emissions from domestic shipping and fisheries by 2030, compared to 2005 levels. With a production of about 4 million tonnes per year, Norway is a net exporter of fish and fish products with a value of USD 10.8 billion (77% from aquaculture and 23% from fisheries) (OECD, 2021<sup>[6]</sup>). Over 30 000 people are employed in the seafood sector.

### 1.1.3. Progress towards the Sustainable Development Goals

For more than a decade, Norway maintained the top position on the Human Development Index. The country ranked seventh on the 2021 index of countries' progress towards achieving the Sustainable

Development Goals (SDGs), which was topped by three Nordic countries (Finland, Sweden and Denmark). Norway has already fully achieved six goals and is making good progress towards achieving four more (Figure 1.3). However, like many other OECD countries, the country still faces “significant or major challenges” for several goals, including climate action, sustainable consumption patterns and biodiversity protection. Most of the remaining challenges are related to the increase of environmental pressures.

In 2015, Norway adopted a national plan to implement the 17 SDGs. The government ensures annual reporting on the follow-up of the SDGs to Parliament (*Storting*). It is progressively mainstreaming implementation of the 2030 Agenda in sectoral policies and strategies towards 2030. According to the plan, all strategies, action plans and white papers are screened to ensure SDG-relevance, while the SDGs are systematically integrated into guidance and performance agreements with state agencies and institutions. Statistics Norway maintains a dedicated platform with facts and figures on Norway’s progress towards achieving the SDGs.

In 2020, the Ministry of Local Government and Modernisation, which is also in charge of regional development, became the national co-ordinating body for implementing the SDGs. It aims to promote local ownership and increase cross-sectoral co-operation. Municipalities, regional authorities and, more broadly, civil society now play a stronger role in the implementation of the SDGs. The 2021 National Action Plan promotes a whole-of-government approach and establishes measures to ensure better horizontal and vertical co-ordination, as well as stronger co-operation with the private sector, academia and civil society. Norway already submitted two comprehensive Voluntary National Reviews to the United Nations (2016 and 2021) (Ministry of Local Government and Modernisation, 2021<sup>[7]</sup>) and another Voluntary Subnational Review (Hjorth-Johansen et al., 2021<sup>[8]</sup>).

**Figure 1.3. Norway is on track to achieve many but not all sustainable development goals**



Note: The full title of each SDG is available here: <https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals>.

Source: Sachs, J.D. et al. (2021), *The Decade of Action for the Sustainable Development Goals, Sustainable Development Report 2021*, <https://dashboards.sdgindex.org>.

At the regional level, the newly created county of Viken endorsed the SDGs as a holistic framework for the Regional Planning Strategy for a Sustainable Viken 2020-24 (OECD, 2020<sup>[9]</sup>). At the local level, 95% of municipalities have started working with the SDGs (Hjorth-Johansen et al., 2021<sup>[8]</sup>). Thirty municipalities monitored key performance indicators of the United for Smart Sustainable Cities. The Oslo SDG Initiative analyses transformations required for implementation of the 2030 Agenda. However, progress towards

implementing the SDGs is uneven (OECD, 2021<sup>[10]</sup>). Some more advanced municipalities operationalised and integrated the SDGs into strategic plans and management processes. Others remain at the inception phase. Speed and progress in local implementation and ownership largely depend on three factors: the size of municipalities (larger ones are doing better), political commitment (higher in centrally located municipalities) and, to a less extent, budgetary constraints or capacity issues (Hjorth-Johansen et al., 2021<sup>[8]</sup>).

The role of local authorities in the implementation of the SDGs needs to be further strengthened. Counties and municipalities need to be fully involved in national decision making from early planning to monitoring and evaluation. At the same time, they must strengthen their capacity to work with the SDGs “strategically and systematically” (OECD, 2020<sup>[9]</sup>). The national government needs to further promote policy coherence, multi-level governance and multi-stakeholder partnerships to move beyond a goal-by-goal approach rooted in specific sectors. Inter-ministerial co-ordination between different policy areas could be improved. Specifically, ministerial departments should invest more in interdisciplinary expertise (e.g. internal mobility) and pay more attention to cross-sectoral spillovers to better integrate policies across sectors.

## 1.2. Selected environmental trends and performance

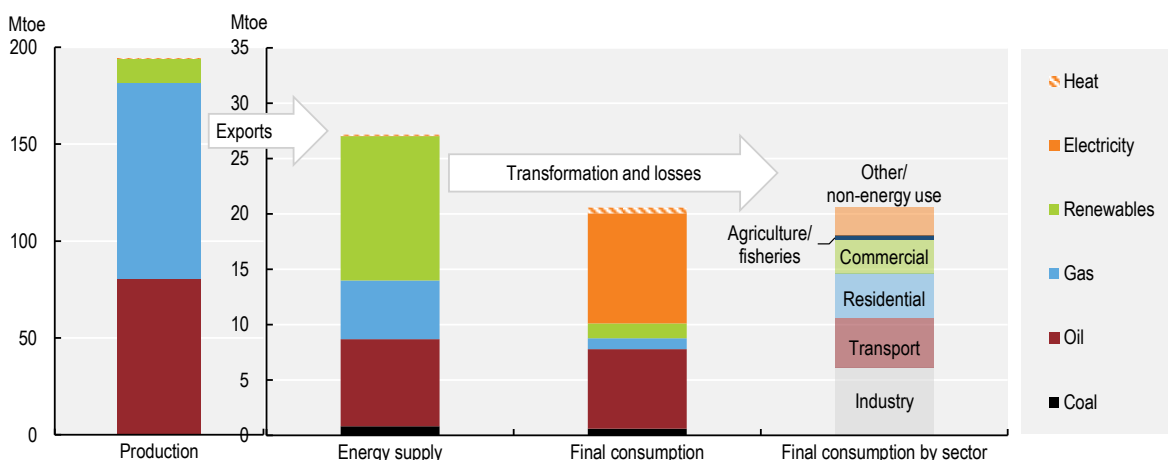
### 1.2.1. Key energy trends

#### *Energy structure, intensity and use*

Thanks to the widespread use of clean electricity – primarily hydropower – Norway has one of the most decarbonised power sectors of Europe and of the OECD area (Figure 1.5). Primary energy supply decreased by 16.5% from a peak of 32.8 million tonnes of oil equivalent (Mtoe) in 2013 to 27.4 Mtoe in 2019 (IEA, 2021<sup>[11]</sup>). Norway is energy self-sufficient with a surplus of renewable electricity in normal years. It has become Europe’s largest energy exporter (Figure 1.4).

**Figure 1.4. Norway is energy self-sufficient and has become Europe’s largest energy exporter**

Energy production, supply and consumption, 2019



Note: Data presented in the chart exclude negligible quantities of non-renewable waste.

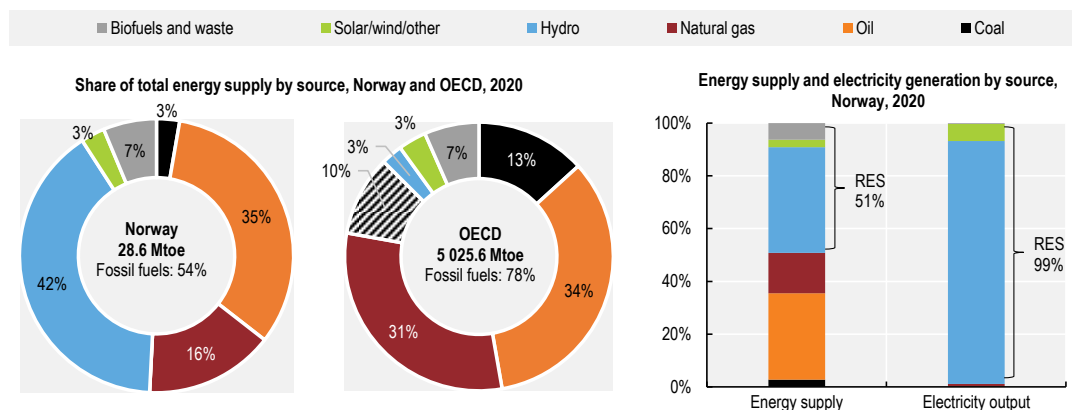
Source: IEA (2021), *IEA World Energy Statistics and Balances* (database).

Following recent increases,<sup>2</sup> Norway's oil production is set to increase until 2024 and then expected to decline by around 2% each year on average between 2025 and 2040 (IEA, 2019<sub>[12]</sub>). Gas production will peak slightly later around 2030. Production will first and foremost decline due to resource depletion rates rather than a planned transition (Sanner and Bru, 2021<sub>[13]</sub>).


Oil, natural gas and coal together represented only about 50% of Norway's total energy supply (TES) in 2020, compared to 78% in the OECD as a whole (Figure 1.5). Norway has reduced the share of fossil fuels since 2013 with a view to cutting greenhouse gas (GHG) emissions. Coal made up about 3% of TES for the past few decades. In 2021, the government announced the closure of its only coal-fired power plant in Svalbard. At the same time, it released a new energy plan for Longyearbyen as part of its 2022 budget to increase the share of renewables in Svalbard. A remaining Russian coal mine is also set to close down. This is a highly symbolic, positive development with a view to protecting the Arctic area. Norway does not use any nuclear power in its energy supply.

The government's 2021 White Paper "Putting Energy to Work" outlines objectives for a long-term value creation from Norwegian energy sources. The strategy aims at setting predictable framework conditions to help the country advance towards a low-carbon society. It defines four main goals: renewable energy resources for economic growth and job creation; electrification; establishment of new, profitable industries; and maintenance of a "future-oriented Norwegian oil and gas industry" (Ministry of Petroleum and Energy, 2021<sub>[14]</sub>). The paper outlines a series of pilot projects to develop new, cost-efficient, climate-friendly solutions and technologies in line with the objectives of its Climate Action Plan 2021-30 (Ministry of Climate and Environment, 2021<sub>[15]</sub>). The government invests heavily in technological developments offered by offshore wind, renewable hydrogen, and carbon capture and storage (CCS).

**Figure 1.5. Norway's energy mix is much more decarbonised than the OECD average**



Note: The breakdown of energy supply excludes heat and electricity trade, but percentages shown reflect ratios calculated on total energy supply. Biofuel and waste include negligible quantities of non-renewable waste.  
Source: IEA (2021), *IEA World Energy Statistics and Balances* (database).

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However, the plan also foresees continued support for Norway's petroleum exploration policy. This includes "regular concession rounds to ensure that new areas for exploration are made available to the industry" (Ministry of Petroleum and Energy, 2021<sub>[14]</sub>). This approach may exacerbate Norway's petroleum lock-in and industrial path dependency (Kattel et al., 2021<sub>[16]</sub>). While the plan indicates that

emissions from oil and gas production shall be cut by 50% by 2030 and reach net zero by 2050, continued oil exploration poses a risk of stranded assets given the global and, especially European, ambition of reducing fossil fuel use to reach net zero by 2050. There are concerns that it could slow down the shift from a fossil-driven to a fully green industry strategy (SEI et al., 2021[17]). On the other hand, Norway could play a crucial role as provider of transitional energy sources, notably gas, with a view to ensuring energy security in Europe and facilitating its clean energy transition. It is too early to assess the impact of the new energy strategy. The recent government change may also impact strategic orientations. The government is preparing a supplementary document. Both strategic documents were scheduled to be discussed in Parliament by mid-2022.

### Renewables

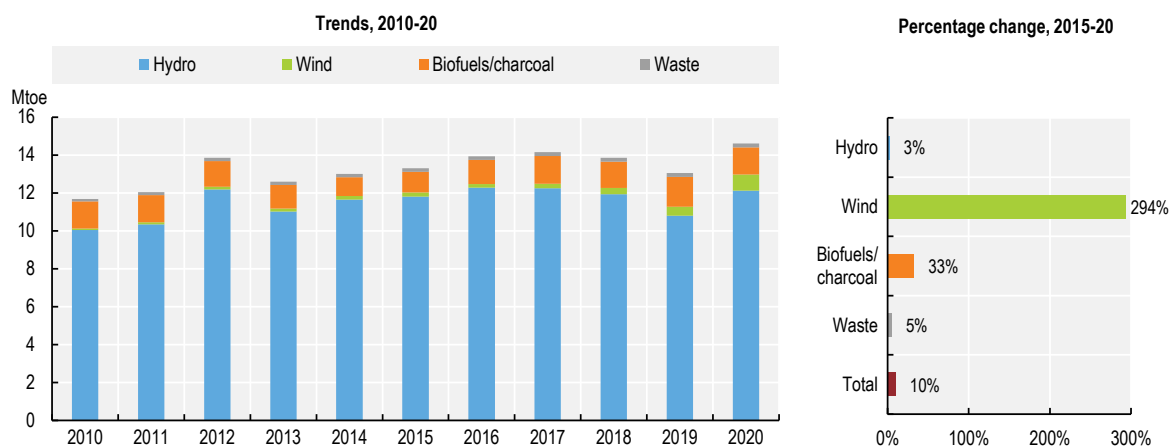
Following Iceland, Norway has the second largest share of renewables, representing more than half of its energy mix and 99% of its electricity output (Figure 1.6). It overachieved its national target of a 67.5% share of renewable energy in gross final energy consumption in 2020, in line with the EU Directive on renewable energy. Renewables represented a share of 26% in the transport sector, largely outperforming the 10% target set in 2012.

Norway is the largest hydropower producer in Europe and is among the largest worldwide. Hydropower represents the large bulk (90.2%) of Norway's electricity production (Statistics Norway, 2021[18]). The country has significant hydropower reservoir capacity. The share of wind power has increased ten-fold from 2005 to 2019, representing about 4% of renewables (Figure 1.6). Norway installed about 1.5 GW of wind capacity in 2020. The government's energy white paper outlines steps to facilitate offshore wind power, both floating and bottom-fixed installations (Ministry of Petroleum and Energy, 2021[14]).

Norway's renewables sector is rapidly growing. The creation of new power lines to Germany and the United Kingdom will allow Norway to better integrate with the European electricity market. The joint Norway-Sweden green power support scheme has been the main policy instrument for increasing production of renewables. Created in 2012, the scheme has already passed its 2020 target (24.4 TWh) thanks to technological and market advancements. The governments of Norway and Sweden decided to end the support scheme by 2035, ten years earlier than planned.

**Figure 1.6. Hydropower dominates the renewable energy mix, but wind power is growing rapidly**

Renewable energy supply by source



Source: IEA (2021), *IEA World Energy Statistics and Balances* (database).

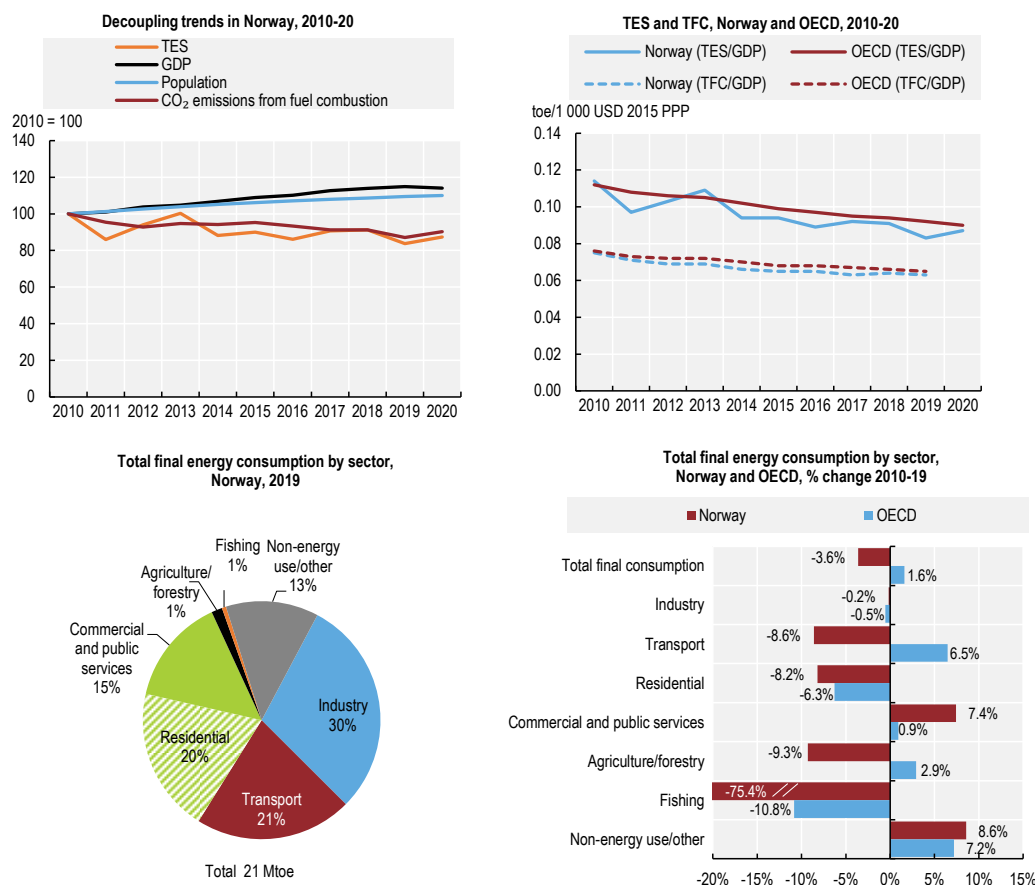


### Energy intensity and efficiency

Norway has increasingly decoupled energy demand and related environmental effects from growth. Over the past decade, it has accelerated deployment of renewables and improved energy efficiency thanks to enhanced technology and electrification of the transport and residential sectors. Nevertheless, Norway's energy consumption per capita, which historically has been among the highest in the OECD, is still slightly above the average. This is due notably to high energy consumption in the industry sector, as well as household heating needs due to the cold Scandinavian climate. Improving energy efficiency thus needs to remain a priority for such an energy-intense economy.

Norway's total final energy consumption curve has been relatively flat over the years (Figure 1.7). The country is close to reaching the level of 2005. Further efficiency gains will allow Norway to pursue this downward trend despite increasing economic activity. Industry remains the largest energy-consuming sector but already consumes less than in 2005, primarily due to the continuing shift to services. The biggest reduction in fossil fuel energy consumption will come from the transport sector (Section 1.3.5). This is due in large part to Norway's large-scale rollout of electric vehicles (EVs), which are about three times as energy efficient as internal combustion engine vehicles (IEA, 2021<sub>[19]</sub>).

**Figure 1.7. Norway has decoupled energy demand and related environmental effects**



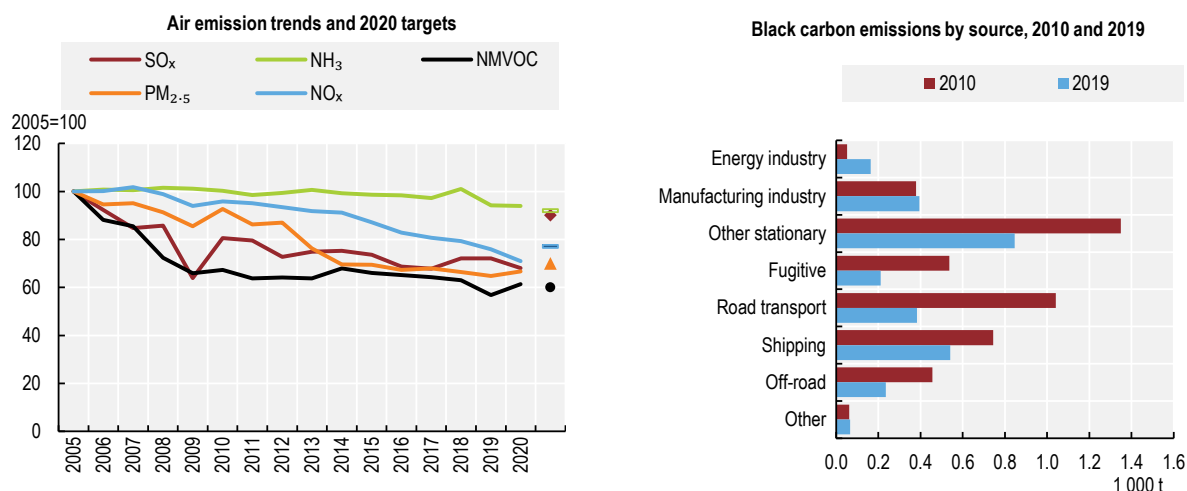
Note: TES = total energy supply; TFC = total final consumption. Gross Domestic Product (GDP) is expressed at 2015 prices and purchasing power parities.  
 Source: IEA (2021), *IEA World Energy Statistics and Balances* (database); IEA (2021), *IEA World Greenhouse Gas Emissions from Energy* (database).

The country has high energy-efficiency standards for building performance that were effective at reducing energy consumption and CO<sub>2</sub> emissions from using energy, and in particular from heating dwellings. According to government calculations, Norwegian energy efficiency policies led to a reduction of 16 TWh between 2014 and 2020, largely exceeding the 2016 target of 10 TWh by 2030. In 2016, the government tightened threshold standards for new homes and major renovations to “passive house” level. As of 2020, it became the first country that formally prohibited use of fossil oil for heating in existing buildings and in new buildings altogether. Energy consumed by the residential sector is thus increasingly carbon-free. Moreover, there is scope for greener housing construction and building materials (OECD, 2022<sup>[20]</sup>). Building homes, and associated production and disposal of building materials, has significant environmental costs. A stronger focus on the life cycle of buildings could help Norway further decarbonise the building sector (e.g. reduced use of materials, use of low-carbon materials, re-use of materials).

### 1.2.2. Atmospheric emissions and air quality


Norway’s pollutant emissions and intensities of fine particulate matter (PM<sub>2.5</sub>), nitrogen oxide (NO<sub>x</sub>), sulphur oxide (SO<sub>x</sub>) and black carbon have all decreased over the past decade. Norway reached its air emission targets for 2020 (Figure 1.8) except for ammonia (NH<sub>3</sub>) and a recent increase in emissions of non-methane volatile organic compounds due to increased use of disinfectants during the pandemic. The largest emissions of black carbon originate from the transport sector and wood combustion in residential heating; both emission sources have been considerably reduced. While Norway had failed to meet the Gothenburg Protocol target on NO<sub>x</sub> emissions in 2010, the country reduced its NO<sub>x</sub> emissions by 29% from 2005 to 2020 (Norway Statistics, 2021<sup>[21]</sup>). NO<sub>x</sub> emissions related to road transport achieved an above-average reduction of 40%. Moreover, the NO<sub>x</sub> tax and the Business Sector’s NO<sub>x</sub> Fund contributed to reducing NO<sub>x</sub> emissions in the business sector, while supporting the phasing-in of new technology. Both measures helped Norway meet the 2020 Gothenburg Protocol target.

Figure 1.8. Norway’s pollutant emissions have decreased over the past decade



Note: 2020 targets under the revised Gothenburg Protocol to the Convention on Long-range Transboundary Air Pollution.

Source: EMEP (2022), *WebDab* (database); Statistics Norway (2021), *StatBank* (database).

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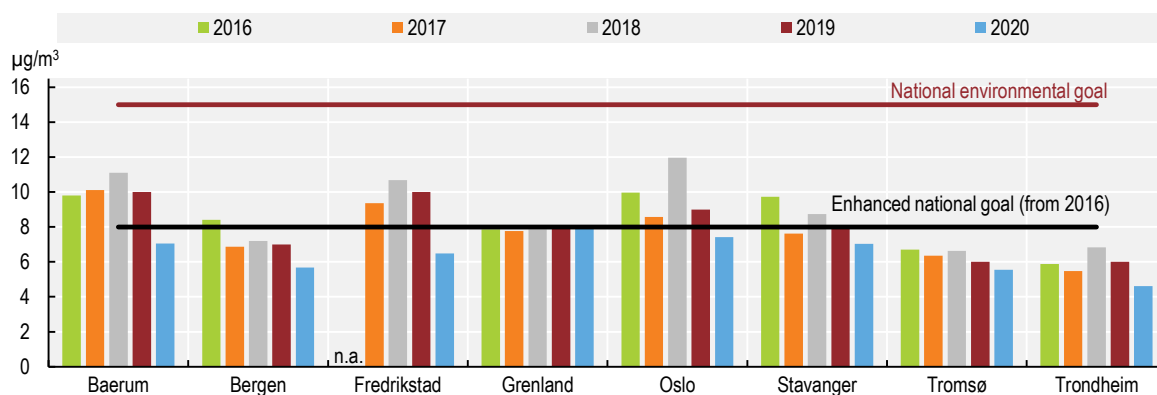
Norwegians enjoy good overall air quality (Figure 1.9). Premature death attributed to PM<sub>2.5</sub> exposure in Norway is less than one-third the OECD average. Norway complies with EU directives on air quality standards and will continue to follow the EU zero pollution agenda closely. In addition, the country has set

more ambitious local and national targets, supported by excellent nationwide air quality monitoring services. Norway's four major cities rank in the top 20 of the European City Air Quality Index.

Nevertheless, nearly all larger cities in Norway face localised air pollution problems and periodic worsening of air quality with high peak PM<sub>10</sub> concentrations during winter and into spring. Thanks to measures such as the zero-growth goal, EVs and replacement of wood stoves, local air quality in urban areas is expected to further improve in the coming years. Fees for studded tyres, an important source of airborne particulates, helped reduce their use in urban areas. Beyond health impacts and noise, air pollution also threatens biodiversity, which requires targeted solutions for protected areas. For example, Parliament adopted a resolution in 2018 to stop emissions from cruise ships and ferries in world heritage fjords by 2026 at the latest. This would transform these fjords into the world's first zero-emission zones at sea.

**Figure 1.9. Norway's cities enjoy good air quality**

Annual average concentration of PM<sub>2.5</sub>



Source: Country submission.

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### 1.2.3. Water resources management

#### *Water quantity and quality*

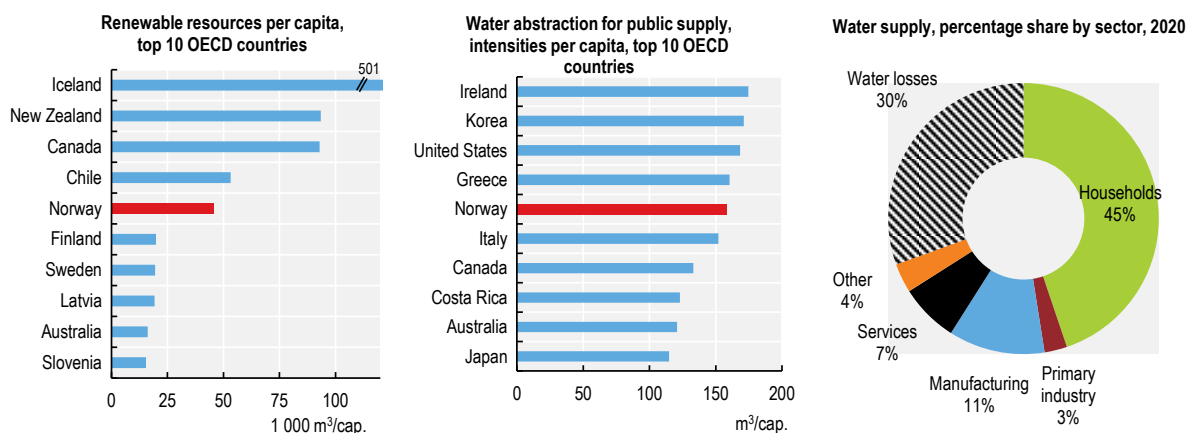
Norway has abundant water resources and is endowed with a large number of lakes and river habitats. This is why the intensity of water use (withdrawal as a percentage of available resources) continues to be low. At the same time, water abstraction for public supply (intensities per capita), is among the highest within the OECD area, due to high water consumption and significant water losses (Figure 1.10).

Freshwater ecosystems are threatened by human activities (e.g. pollution and hydropower production) and other pressures such as acid rain, the spread of alien species and high numbers of salmon lice. Fish farming and lice are identified as the main threats to wild salmon in the 2021 Red List for Species. More than two-thirds of Norway's largest rivers are zoned for hydropower production, which was partly responsible for reducing the salmon population in affected streams. According to the Norwegian Environment Agency, river regulation schemes have negatively affected 23% of Norway's salmon rivers. However, several initiatives aim to reduce these negative impacts. Agriculture, municipal sewage and fish farming are the main sources of water contamination in Norway. Norway has one of the highest nitrogen balances per hectare among OECD countries due to widespread application of fertilisers (OECD, 2021<sup>[22]</sup>).

Norway has implemented the EU Water Framework Directive (WFD) since 2007 with a view to achieving good ecological and chemical status for all inland, transitional and coastal waters and groundwater bodies. Norway counts 15 river basin districts (RBDs), including cross-border basins that share water courses with Finland and Sweden. Each RBD has its own management plan, including environmental objectives for water bodies and associated action plans. Norway completed – under formal WFD obligations – its first full cycle of river basin management plans from 2016-21 and will start a new one from 2022-27.<sup>3</sup>


According to national assessments, about one-third of Norway's freshwater bodies do not meet the WFD criteria for good ecological status, including 12% categorised as “heavily modified” (Environment Norway, 2021<sub>[23]</sub>). Norway is doing overall better than most European countries, but the ecological status of water bodies has deteriorated over the past decade (Table 2.1). Ecological conditions are generally better in central and northern parts of Norway, and poorer in more densely populated areas of the south. Norway needs to redouble efforts to reach its target of restoring 15% of degraded ecosystems by 2025, including water-related ecosystems. While Norway has made progress towards integrated water resource management, it still has a way to go to fully meet its obligations under the WFD.

**Figure 1.10. Norway has abundant water resources but needs to tackle significant water losses**



Note: Data refer to freshwater resources availability and abstraction for 2019 or latest available year, data earlier than 2015 have not been taken into account.

Source: OECD (2021), *OECD Environmental Statistics* (database); Statistics Norway (2021), “Water supply and safety and preparedness plans”, *StatBank* (database).

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### Drinking water supply

The supply of drinking water is good: nearly 90% of Norwegians have access to treated drinking water from waterworks with high quality standards. Surface water provides 90% of drinking water. About half a million people (or 10%) get water from private wells or other small water plants for which the quality is largely unknown. Leakage from the drinking water supply system is estimated at 30% (Environment Norway, 2021<sub>[23]</sub>). This represents not only a significant loss of water resources but also a potential risk for microbiological contamination in drinking water. Water supply systems are often more vulnerable in small municipalities, notably in terms of water supply stability and the ability of drinking water utilities to prepare and respond to emergencies (bedreVANN and Norsk Vann, 2020<sub>[24]</sub>). Information on drinking water quality could be made accessible directly on websites of municipalities. This would enable consumers to easily consult relevant information on their drinking water sources as well as inspection reports.

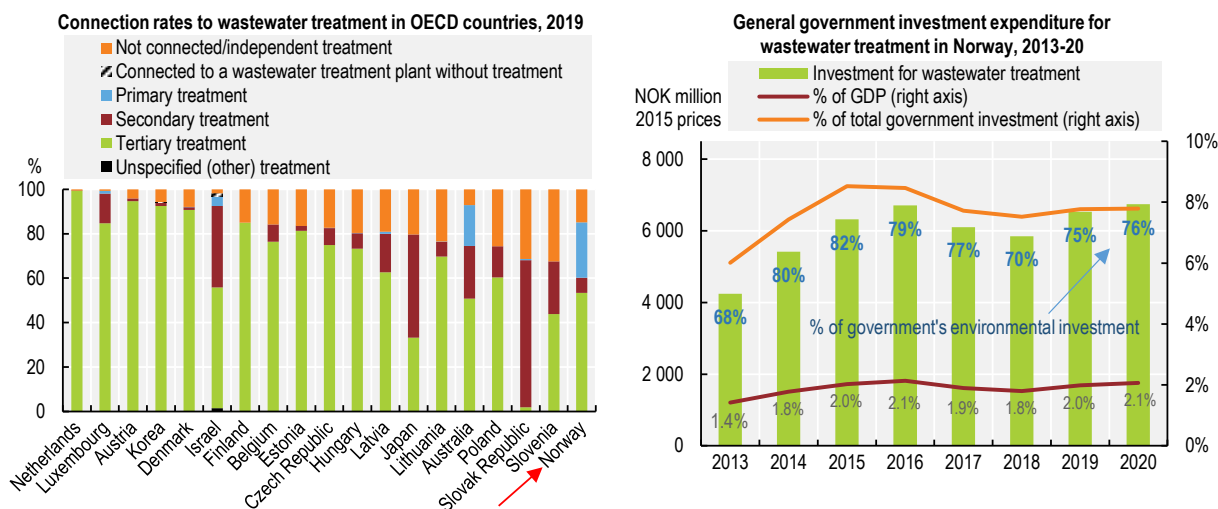
### Wastewater treatment

Most people are connected to municipal wastewater systems. However, only 60% of Norway’s population is connected to advanced wastewater treatment plants with biological or chemical treatment methods. This is one of the lowest shares in the OECD area (Figure 1.11). The share of primary wastewater treatment is particularly high in remote areas.

Norway counts about 2 700 municipal wastewater treatment plants (Norwegian Environment Agency, 2021<sub>[25]</sub>). The county governor is the pollution control authority for about 330 larger plants that treat wastewater from the vast majority of the population (3.9 million people). Meanwhile, municipalities manage most of the small wastewater treatment plants, which serve a small percentage of the population. In addition, some 350 000 treatment plants deal with wastewater from about 800 000 people who live in sparsely populated areas. New treatment systems are also being built for individual houses and cabins, while other buildings are connected to the public sewerage system.

Many municipalities have sewage systems that do not comply with pollution regulations and permits. According to national statistics from 2020, more than half of the population was connected to wastewater facilities that do not comply with pollution permits (Onstad, 2021<sub>[26]</sub>). This calls for regular inspections and the use of coercive fines.

**Figure 1.11. Most Norwegians are connected to municipal wastewater treatment systems, but the share of primary treatment is high**



Note: Left panel: 2019 or latest available year. Data for Norway refer to 2020.  
 Source: Berge G. and M.E. Onstads (2021), *Kommunale avløp 2020* [Municipal Sewers 2020], Report 2021/39, Statistics Norway; OECD (2022), "Water: Wastewater treatment", *OECD Environment Statistics* (database).

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As noted in the previous OECD EPR of Norway (OECD, 2011<sub>[27]</sub>), the country’s ageing water infrastructure requires urgent upgrades. It also needs to adjust to new climate challenges, such as increased precipitation, floods and rising sea levels. The rate of infrastructure improvement has been slow despite quite substantial investment (Section 1.6). There is scope for improving operational efficiency of water services and co-ordination between different administrative levels.

### 1.2.4. Transition to a resource-efficient economy

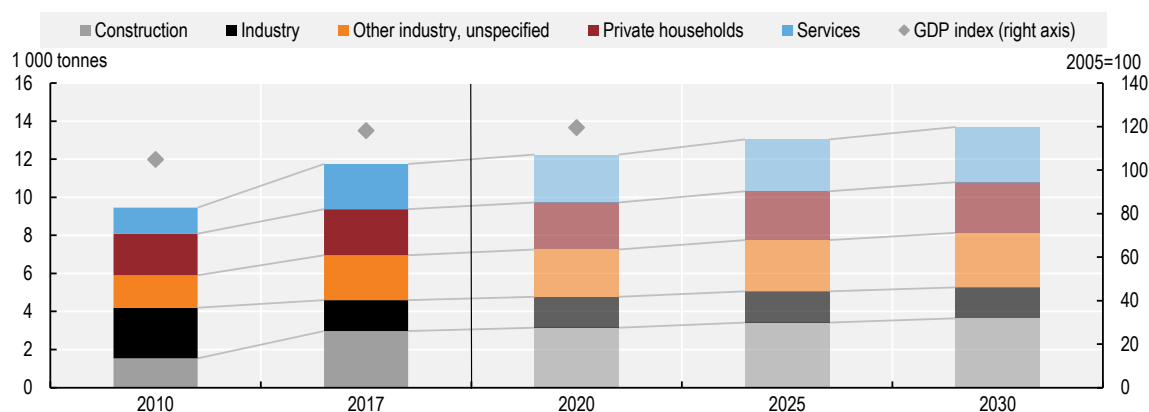
#### Waste management

Norway is not on track to meet its objective of decoupling waste generation from economic growth. Waste generation in Norway reached a record high in 2019. According to national statistics, Norway generated 12.2 million tonnes of waste in 2019 (+3% compared to 2018). At the same time, it recovered 71% of waste and recycled about 41% of collected municipal waste; recycling remained fairly stable overall. The construction sector bypassed the industry sector for the largest waste volume (26%). While the industry managed to considerably reduce waste generation, the shares of private households and service industries have been steadily increasing, representing 20% and 18%, respectively (Figure 1.12).

The average Norwegian produced 772 kg of municipal waste, among the highest amounts in Europe (OECD Europe average = 499 kg per capita). However, the definition of municipal waste has been changing over the years, which makes it difficult to compare data. The Waste Management Plan for 2020-25 includes a waste prevention programme and proposals for changes in waste infrastructure to prepare for tightened directives within the EU Zero Waste Strategy. The government reiterates its national goal that growth in waste generation should be significantly lower than economic growth. Some municipalities also prepared local waste management plans.

**Figure 1.12. Norway is not on track to decouple waste generation from economic growth**

Total waste by source, trends and projections



Note: Change in classification implemented in 2012 concerning mainly the breakdown for industrial and construction waste. Estimates for 2020, 2025 and 2030.

Source: Statistics Norway (2021), "Waste accounts", *StatBank* (database).

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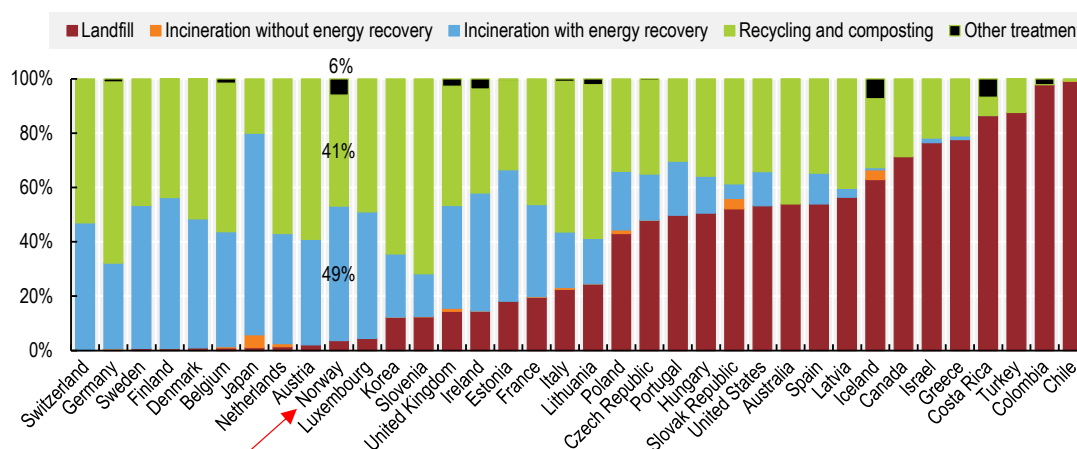
Norway's waste treatment profile is similar to its Scandinavian neighbours, Finland and Sweden; nearly half of Norway's municipal waste is treated by incineration with energy recovery, while landfilling has almost disappeared following a landfill ban in 2009 (Figure 1.13). The country will need to significantly increase its recycling capacity. Norway transposed the EU directive of 2018 and still has a way to go to prepare at least 55% of municipal waste for re-use or recycling by 2025; 60% by 2030 and 65% by 2035.

The country has excellent waste treatment facilities, with cutting edge technology for waste sorting. While more flexible regulations are needed, extended producer responsibility schemes and better incentives are key to creating demand for secondary raw materials, notably in the construction sector. Technical building standards need to be adjusted to enable increased use of recycled building materials.

Bio-waste collection in Norway was introduced in the 1990s. Today, about 70% of Norwegians live in municipalities with source separation of bio-waste and door-to-door collection of food waste. The collection rate from households is estimated at 69%. To fill the gap, collection of “household-like” food waste could be made mandatory as suggested by the Environment Protection Agency in 2017. Collected food waste is increasingly used for biogas production. For example, a biogas plant has been producing green fuel for Oslo’s city buses since 2014.

**Figure 1.13. Norway uses incineration with energy recovery but needs to further boost recycling**

Municipal waste management, by type of treatment, 2019



Note: Household and similar waste collected by or for municipalities. Includes bulky waste and separate collection. Canada: data include construction and demolition waste. Latvia: data for “other treatment” refer to biodegradable waste recovery for biogas production. Source: OECD (2021), “Waste: Municipal waste”, *OECD Environment Statistics* (database).

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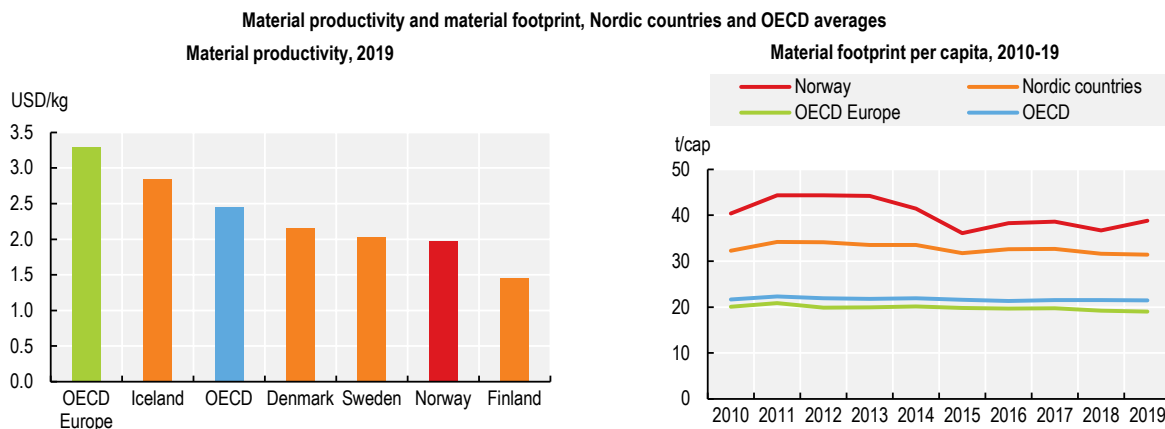
### Circular economy and global material footprint

Promoting sustainable consumption patterns is a key challenge for Norway. The country has one of the world's highest material consumption rates, a high material footprint per capita and low material productivity (Figure 1.14). The government released its first strategy for developing a green, circular economy in July 2021. The strategy sees the transition to a circular economy as an opportunity to foster value creation and sustainability (Ministry of Climate and Environment, 2021<sup>[28]</sup>). It has broad scope and largely applies the new EU Circular Economy Action Plan 2020 (European Commission, 2020<sup>[29]</sup>). The linear pattern of “take-make-use-dispose” does not provide producers with sufficient incentives to make their products more circular. Only a small share of products is cycled back into the Norwegian economy (Circular Norway, 2020<sup>[30]</sup>).

As the European Union sets global standards in product sustainability, Norway could benefit from a stronger focus on life cycle thinking, eco-design, the right to repair, etc. Policy makers need to create an enabling environment to facilitate the transition towards a circular economy. Typically for many developed economies, material footprint originates in part from outside Norway. A more holistic strategy would allow

Norway to better understand and consider global environmental impacts. Actions should tackle all economic areas to reduce Norway's material footprint (e.g. construction, forestry and wood products, energy transition, circular food systems). They should focus on reducing absolute levels of resource consumption. This involves further educating and empowering consumers to make informed decisions (e.g. use of sustainability labels).

**Figure 1.14. Norway has low material productivity and a high material footprint per capita**



Note: Left panel: Material productivity is expressed as the amount of economic output generated (in terms of GDP at 2015 prices and purchasing power parities) per unit of materials consumed (in terms of domestic material consumption).

Right panel: Material footprint refers to the global allocation of used raw material extracted to meet the final demand of an economy. Nordic countries include Denmark, Iceland, Finland, Norway and Sweden.

Source: OECD (2022), "Material resources", *OECD Environment Statistics* (database).

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## 1.3. Progress towards climate targets

### 1.3.1. Main policies and measures

Norway is a frontrunner in advancing climate action. Already in 2007, Norway pledged to be the first country to become carbon-neutral by 2050. Parliament approved a proposal in 2016 to accelerate carbon emission cuts and carbon offsetting to reach this ambitious goal by 2030. In parallel, Norway also committed to zero deforestation, making it the first nation to ban public procurements that contribute to rainforest destruction. In 2021, Norway's government presented the comprehensive "Climate Action Plan for the Transformation of Norwegian Society as a Whole by 2030" as a way towards a carbon-neutral future (Ministry of Climate and Environment, 2021<sup>[15]</sup>).

Norway's climate policy builds on the objectives of the global climate agenda. The country participates in the implementation of the UN Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement. Participation in the EU Emissions Trading System (ETS) was a major factor in achieving Norway's commitments under the Kyoto Protocol (2008-12 and 2013-20), along with carbon credits under the Clean Development Mechanism and domestic measures. The 2017 Climate Change Act, the 2020 Nationally Determined Contribution under the Paris Agreement and the Climate Action Plan 2021-30 lay out the framework of Norway's climate action. The government provides annual reporting on both mitigation and adaptation efforts to Parliament.



Norway defined the following climate goals:

- **Climate target for 2030:** reduce GHG emissions by at least 50% and towards 55% by 2030 compared to 1990 levels (enhanced target, initially: 40%).
- **Climate neutrality by 2030:** emissions must be offset by climate action through emissions trading systems or other international co-operation.
- **A low-emission society by 2050:** reduce GHG emissions by at least 90-95% by 2050 compared to 1990 levels (enhanced target, initially 80-95%).

These national targets are among the most ambitious worldwide, going beyond the commitments of many other OECD countries. They are closely aligned with the enhanced ambition of the EU-wide 2030 Climate and Energy Framework under the EU Green Deal (European Commission, 2019<sup>[5]</sup>) (Table 1.1). Moreover, many counties, cities and municipalities have set net zero goals and contribute to fulfilling Norway's national ambitions. The city of Oslo has an ambitious climate action plan and climate budget covering all relevant sectors. Norway benefits from broad political consensus and popular support for climate action. According to one report, 61% of Norwegians believe that on a global scale their country will succeed in reducing climate gas emissions, while 39% believe that climate change is the greatest challenge of our time (Kantar, 2020<sup>[31]</sup>).

### Box 1.1. Norway's main climate policy initiatives 2016-21

June 2016: Government ratifies the Paris Agreement on Climate Change.

June 2016: Parliament adopts climate neutrality target for 2030.

June 2017: Climate Change Act sets legally binding long-term goal of a low-carbon society by 2050.

October 2019: Government adopts EU agreement to expand co-operation for 2021-30, notably covering non-ETS sectors.

February 2020: Government submits enhanced Nationally Determined Contribution to the UNFCCC.

September 2020: Government launches Longship project on CCS (Box 1.6).

January 2021: Government presents Climate Action Plan 2021-30.

April 2021: Government launches Strategy for Climate Adaptation, Prevention of Climate-related Disasters, Fight against Hunger.

### 1.3.2. Close co-operation between Norway and the European Union

Norway plans to fulfil its climate commitment in close collaboration with the European Union, drawing on its long-standing climate partnership within the European Economic Area (EEA) Agreement (Table 1.1). Norway has participated in the EU ETS since 2008, which covers about half of Norwegian emissions. Moreover, the European Union, Norway and Iceland adopted a new co-operation agreement in 2019, covering 2021-30 and expanding the scope of the climate partnership. Under the EU Effort Sharing Regulation, Norway commits to reduce GHG emissions in sectors outside the scope of EU ETS (agriculture, transport, waste, building sectors and small industrial/commercial facilities) by 40% compared to 2005 levels. Norway also committed to applying the no-debit rule under the EU regulation on land use, land-use change and forestry (LULUCF). By participating in all three pillars of EU climate policies, Norway contributes to achieving the EU's ambition to become the first climate-neutral continent.

**Table 1.1. Norway and EU commitments to reduce GHG emissions, compared to 1990 levels**

Goals	Norway's Climate Change Act 2017	Norway's Nationally Determined Contribution 2020	EU Climate and Energy Framework 2030 (released in 2020)
2030 target	at least 40% emission cuts	at least 50% and up towards 55% emission cuts	at least 55% net emission cuts
2050 target	at least 80-95% emission cuts	at least 90-95% emission cuts	remaining emissions need to be balanced off
Climate neutrality	no mention	by 2030, parliamentary decision of 2016	by 2050, legally binding law (approved by EU Parliament and the European Council in June 2021)

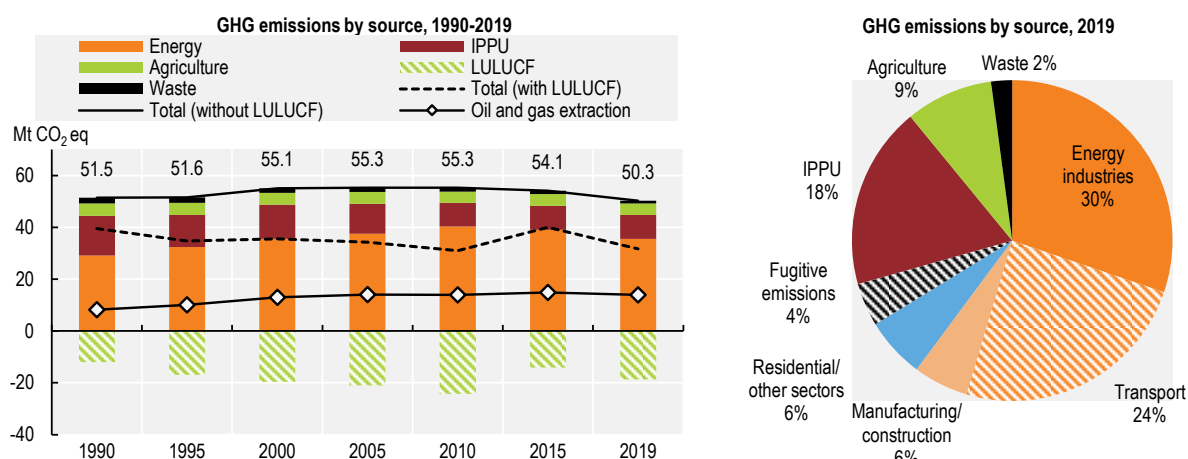
Source: Ministry of Environment and Climate (2021); EU Climate and Energy Framework 2030 (2020).

### **1.3.3. Greenhouse gas emissions trends and projections**

Norway is a small GHG emitter with absolute emission levels similar to other Nordic countries. Despite its small population size and significant oil and gas production, Norway's emission level per capita (9.4 tonnes of CO<sub>2</sub>-eq) remained below the OECD average of 11.3 tonnes in 2019. In terms of emission intensity, Norway recorded one of the lowest levels in the OECD area (OECD, 2022<sup>[32]</sup>). Similar to other OECD countries, energy industries, dominated by oil and gas production, are the largest emitting sector (Figure 1.15). They contribute to nearly a third of the country's GHG emissions. Despite targeted climate action, the transport sector still contributes about a quarter of Norway's emissions. It is followed by industrial processes and product use, agriculture, residential and other sectors and fugitive emissions from fuel. The structure of emissions is expected to remain substantially unaltered by 2030 (Figure 1.16).


Norway has decoupled emissions from GDP growth. Since 1990, Norway's emission levels varied between 47.5 million (1992) and 56.9 million tonnes of CO<sub>2</sub>-eq (2007) (Figure 1.15). After peaking in 2007, domestic GHG emissions have declined, albeit more consistently in the second half of the 2010s. In 2020, they were about 10% lower than in 2010 but only about 4% lower than in 1990 (Statistics Norway, 2021<sup>[33]</sup>).

Figure 1.15. Norway's GHG emissions are close to 1990 levels



Note: IPPU = industrial processes and product use. LULUCF = land use, land-use change and forestry.

Source: UNFCCC (2021), *Greenhouse Gas Inventory* (database).

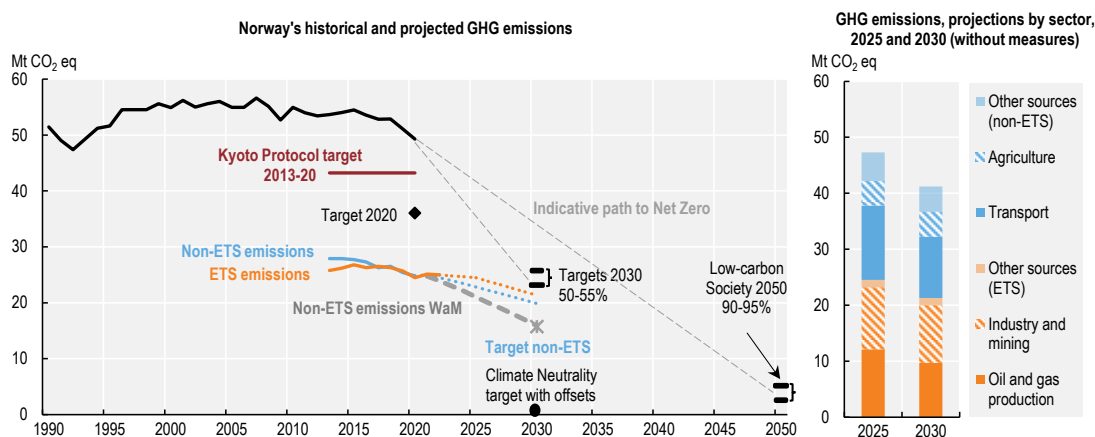
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The starting point for emissions reductions in Norway was low because its energy mix was already largely decarbonised, leaving few remaining quick wins. The expansion of offshore oil and gas resources over the past decades also contributed to increasing GHG emissions (Figure 1.15). These emissions have been relatively decoupled from production since 2016. The Norwegian petroleum industry has comparatively high environmental and climate standards. Many oil and gas companies committed to reach net zero emissions by 2050.

Despite the economy-wide decarbonisation efforts, Norway is far from reaching its initial goal of cutting 40% of emissions by 2030, and even more so from its enhanced goal of 50% and towards 55%. According to projections of the 2022 National Budget (Ministry of Finance, 2021<sup>[34]</sup>), Norway will emit around 41.2 million tonnes of CO<sub>2</sub>-eq by 2030 (Figure 1.16). This represents a reduction of 20% of emissions compared to the 1990 level. These estimates do not yet include measures of the Climate Action Plan 2021-30 or the effects of Norway's participation in the EU ETS. There is also some uncertainty regarding calculation methods of the effects of Norway's EU ETS participation. However, Norway will likely face a gap to achieve the 2030 emissions reduction target.


The government intends to accelerate domestic emission cuts. The Climate Action Plan 2021-30 sets out detailed targets and policy measures for each sector with a view to reaching a 45% reduction in the non-ETS sector (exceeding the EU target of 40%). However, promoting low-carbon technologies is costly in the short term. Norway needs to further analyse impacts of policies to improve the cost effectiveness of existing measures (Section 1.5.3). With high marginal costs of reducing domestic GHG emissions, the purchase of foreign emission credits often makes economic sense. Moreover, Norway's large forest areas – about a third of total land area – provide a substantial carbon sink, representing nearly half of annual GHG emissions. Natural carbon stocks of mainland Norway are more than twice as large as the average for the world's land areas. Norway is on track to increase forest cover and enhance carbon sinks (Climate Action Tracker, 2021<sup>[35]</sup>). Ongoing efforts are needed.

**Figure 1.16. Norway has a way to go to reach its 2030 climate targets**



Note: IPCC = Intergovernmental Panel on Climate Change; LULUCF = land use, land-use change and forestry. The projections and effort sharing target apply different metrics (Global Warming Potential of IPCC's fourth and fifth Assessment Reports, respectively). The dotted line shows GHG emissions projections with existing measures. The dashed line (with additional measures - WaM) shows projections for the non-ETS sector, including the measures of the Climate Action Plan 2021-30. Data exclude emissions trading. Norway co-operates with the European Union to fulfil the 2030 climate target. The impact of this co-operation, especially Norway's participation in the EU Emissions Trading System, must be considered in assessing progress towards this target. Thus, reduction in domestic emissions cannot be used as the sole indicator to assess Norway's progress.

Source: EEA (2021), Member States' greenhouse gas emission projections (database); ESA (2021), Climate Progress Report 2021; Statistics Norway (2021), "Table 08940", StatBank (database).

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### 1.3.4. Norway's global carbon footprint

As Norway is a small and open economy, the focus on national GHG emissions alone provides only a partial picture of Norway's global carbon footprint. While the country is not legally responsible for GHG emissions outside Norway, implicit emissions from its oil and gas used abroad are significant. However, as most Norwegian oil and gas are exported to Europe, embodied emissions are largely covered by ETS or non-ETS European carbon-pricing mechanisms (OECD, 2022<sup>[20]</sup>).

In today's interconnected world, as do other OECD countries, Norway needs to look for a more coherent approach to climate and environmental policies. Such policies should better reflect the country's global carbon footprint and spillover environmental impacts. These impacts include transboundary pollution flows; environmental impacts embedded in traded goods and services; and exploitation of international common pool resources.

International institutions are developing indicators and new metrics to better capture international spillover effects. Norway could usefully develop national indicators using environmentally extended multi-regional input-output, material flow analysis and life cycle assessment to better understand its economy-wide global footprints. This could help better track the environmental impact of trade. Such results could inform environmental impact assessments (EIAs) during the permitting and licensing process.

### 1.3.5. Decarbonising transport

Transport demand is growing, and emission cuts in the transport sector thus play a key role in achieving Norway's climate and environmental goals. It is difficult to make robust projections on future transport demand. This is especially the case given uncertainty related to long-term impacts of the COVID-19

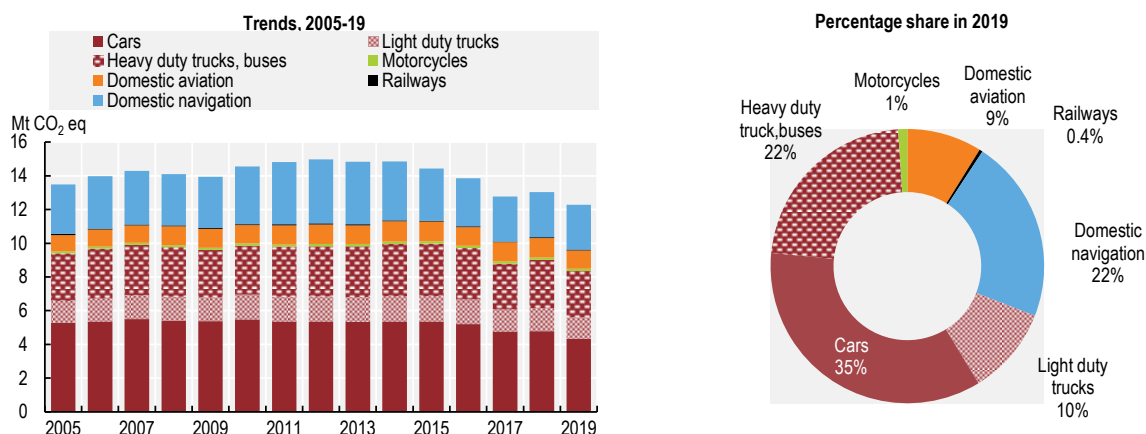
pandemic (e.g. teleworking, demand for air travel, reduction of unnecessary travel, challenges related to social distancing in public transport, etc.).

Norway has set ambitious transport decarbonisation policies. Its Climate Action Plan 2021-30 sets out key objectives for the transport sector, which aims at halving emissions in 2030 compared with 2005 levels, beyond the EU target of 40%. The government's transport goals, strategies and priorities are detailed in the National Transport Plan 2022-33 (Ministry of Transport, 2021<sup>[36]</sup>). A broad range of economic instruments and regulatory instruments is used to decarbonise all transport sectors (Section 1.5).


Norway has comparatively high levels of short-distance, infra-national air traffic due to the large number of fjords, offshore islands and sparsely populated mountainous areas. Domestic aviation contributed to 9% of GHG emissions in the transport sector (Figure 1.17). The EU ETS has so far been the main policy instrument for the aviation industry.

For a long time, the rapidly growing demand for mobility has outpaced progress in decarbonising the transport sector. Transport emissions peaked in 2012 (15 million tonnes of CO<sub>2</sub>-eq) and decreased by 8.9% from 2005 to 2019. The impacts of Norway's EV rollout and related emission cuts became strongly visible as of 2016 (Figure 1.17). According to national projections, transport emissions are projected to decrease by nearly one-third from 2019 to 2030. Nevertheless, Norway needs to further accelerate electrification of the transport sector to halve transport GHG emissions by 2030.

**Figure 1.17. Emissions from road transport and domestic navigation are shrinking**



Source: UNFCCC (2021), *Greenhouse Gas Inventory* (database).

StatLink  <https://stat.link/5nre3z>

### 1.3.6. Towards sustainable transport systems

Road transportation remains the privileged mode in Norway. In 2020, of 5.7 million registered vehicles, some 2.8 million were passenger cars (Statistics Norway, 2021<sup>[37]</sup>). Norway has more vehicles than people. It will be important to take a broader approach to electric mobility and promote structural changes towards shared mobility and integrated sustainable services.

The implementation of the zero-growth goal through Urban Growth Agreements has helped reduce car traffic volumes, cut emissions and improve the quality of life in Norway's major cities. Such agreements should be rapidly extended to medium-sized cities and smaller urban areas.

The National Transport Plan sets a long-term goal of a 20% share of cycling in urban areas and 8% nationwide. Some 173 km and 322 km of cycle-friendly infrastructure was created in 2019 and 2020, respectively. However, Norway does not have a targeted strategy to translate its national commitment into practice; investment priorities remain mostly focused on the road sector. While acknowledging specific needs of its sparsely populated areas,<sup>4</sup> Norway could make it a stronger priority to develop more and cheaper alternatives to private vehicle use. The government could further re-orient investments in more sustainable transport systems and public transport. This would also bring broader societal benefits for people's health while improving accessibility.

Despite its great achievements in the EV sector, Norway needs to redouble efforts and make more structural changes to establish sustainable transport systems to meet its 2030 target. This involves promoting behavioural changes, placing a stronger focus on shared mobility services and shifting from increased mobility towards improved accessibility. The rail system needs to be further modernised and become a cheaper alternative to road and air transport. Airport expansion is counterproductive to reducing GHG emissions and environmental concerns need to be better reflected in any new plans. This is an opportune moment to rethink mobility and develop a socially fair and spatially balanced transport system.

### **1.3.7. Climate change adaptation**

Annual mean temperature for mainland Norway has increased by about 0.8°C and annual precipitation by nearly 20% over the past 100 years (OECD, 2013<sup>[38]</sup>). Future climate risks mainly include increasing exposure to extreme weather events and related risks, as well as multiple threats to ecosystems. Northern Norway is likely to experience the greatest changes in annual mean temperature, where the median warming estimates varies between 2-6°C by the end of the century (Hanssen-Bauer et al., 2017<sup>[39]</sup>).

Norway has so far proven to be relatively climate resilient. According to the Global Climate Risk Index 2020 (Eckstein et al., 2019<sup>[40]</sup>), Norway was among the least climate-vulnerable countries in terms of fatalities, material damage and related economic losses (ranked 94 in 2018). The country has developed early warning systems drawing on various specialised agencies and monitoring programmes. It has good capacity to adapt to climate-related hazards and natural disasters.

The government facilitates knowledge sharing to make society less vulnerable to climate change via an online platform (Klimatilpasning.no) targeting municipalities. Adaptation is an integral part of municipal responsibilities. Local authorities can draw on planning guidelines aimed at improving coherence in the application of instruments in local adaptation work. KLIMAFORSK, a ten-year climate programme of the Research Council of Norway, aims to raise knowledge and awareness of climate change. Norway also contributes to the EU-wide knowledge-sharing platform Climate-ADAPT and to the implementation of the EU Strategy on Adaptation to Climate Change.

## 1.4. Institutions, regulation and compliance

### 1.4.1. Institutional framework

Norway is a unitary state with an administrative structure composed of three levels: national (central government), regional (counties) and local (municipalities) (Figure 1.18). Municipalities and county authorities have the same administrative status. The central government supervises municipal and county administrations. The county governor is the main representative of the central government in charge of supervising local authorities. Governors can also receive appeals against many municipal decisions. This makes governors an important link between local and national levels.

All decisions on environment-related legislation and taxation are made by the 169-seat unicameral Parliament (*Storting*), which is elected every four years. The Norwegian government is responsible to Parliament. Reports on the state of the environment are included in the annual state budget for the Ministry of Climate and Environment. The Sami Parliament (*Sametinget*) promotes the language and the interests of the Sami population.

Local authorities are responsible for most aspects of environmental management. Municipalities manage local pollution control, while county governors and the Norwegian Environment Agency control pollution at the regional and national levels, under the guidance of the Ministry of Climate and Environment. Academics and advisory bodies are closely involved in policy formulation. The short distance between research and policy-making bodies is a clear asset of the Norwegian system. Policy making is transparent and public consultations are conducted for all draft laws. Norwegian citizens place a high level of trust in public institutions and the judiciary system in particular. Norway reported the second highest confidence in national government among OECD members in 2020 (83%, compared to 68% in 2006) (OECD, 2021<sup>[41]</sup>).

With about 700 000 inhabitants, the capital city of Oslo is the largest municipality and also has the status of a county. Oslo has a dedicated climate strategy along with comprehensive plans for land use, housing and transportation for the whole Oslo area (City of Oslo, 2020<sup>[42]</sup>). However, only ten municipalities have more than 50 000 inhabitants and most have fewer than 5 000.

The government initiated a major reform in 2014 to strengthen local democracy by transferring power and responsibility to larger, more robust municipalities and regions. The reforms aim to secure professional welfare services throughout the country, develop sustainable entities and advance local planning. In 2017, the government decided to reduce the number of counties from 19 to 11 and encouraged municipalities to merge voluntarily. In line with the European trend of municipal amalgamation, the number of Norwegian municipalities has progressively decreased since the early 1960s. As of 2020, Norway is divided into 11 counties and 356 municipalities (down from 428). The mergers created six new counties. With more than 1.2 million inhabitants, the new county of Viken is the most populous, accounting for nearly a quarter of total population. Some county mergers have been controversial, but counties may be able to undo them.

Norway needs to capitalise on existing spatial development dynamics. This can help improve the quality of public services and promote balanced regional development. While mergers provide opportunities for efficiency gains, they also need to make sense for people and maximise societal well-being. Building trust and improving well-being are both critical prerequisites to gain social acceptance for territorial reforms. Cost-benefit analysis and *ex post* evaluations of recent mergers could help better understand short- and long-term impacts and inform a healthy public debate about the future.

*National government and horizontal co-ordination*

Norway was among the first countries to establish a Ministry of Environment in 1972 (renamed the Ministry of Climate and Environment in 2014). Over time, it has developed an extensive framework for environmental policy. The ministry initiates, develops, implements and monitors measures to protect the environment. It also seeks to mainstream green policies and influence sectoral ministries. In addition, it co-ordinates the government's environmental policy objectives. Its core tasks include formulating government policies; preparing white papers, national plans and guidelines; and issuing regulations. A large number of decentralised advisory bodies and implementation agencies support its work (Box 1.2).

Many sectors contribute to achieving Norway's environmental objectives by incorporating environmental concerns and measures. The Ministry of Petroleum and Energy manages energy resources (oil, gas, hydropower and renewables), while the Ministry of Transport implements sustainable mobility policies. For its part, the Ministry of Agriculture and Food is responsible for sustainable agriculture and forest management. The Ministry of Local Government and Regional Development oversees many management tasks under the Planning and Building Act and has shared responsibility for EIAs. It also co-ordinates the government's work on sustainable development.

Decision making in Norway is strongly consensus-oriented, benefiting from close ministerial co-operation. The country also uses extensive informal co-ordination between cabinet and parliamentary committees and party organisations, which further smooths the decision-making process. A line ministry usually leads on a specific process and co-ordinates with other relevant ministries and stakeholders. If other ministries agree, the government can move forward with a new law, white paper or guidelines. In case of disagreement, a consensus is built in cabinet meetings. The recent transfer of some agencies to the Ministry of Climate and Environment reflects Norway's commitment to bring stronger attention to climate and environmental issues (Box 1.2).



## Box 1.2. Norway's specialised environmental-focused bodies

### Enova

The Trondheim-based state-owned enterprise helps reduce GHG emissions and develop new energy and climate technology. In 2018, the responsibility for Enova was transferred from the Ministry of Petroleum and Energy to the Ministry of Climate and Environment. This reflects Enova's growing importance as a climate instrument and favours a more holistic approach to climate policy development.

### Norwegian Environment Agency

The Norwegian Environment Agency plays a key role in ensuring implementation of environmental policies, managing nature and preventing pollution. It serves as Norway's regulatory authority, conducts inspections, monitors the state of the environment and advises the ministry on key environmental challenges. It was created in 2013, following a merger of the former Climate and Pollution Agency and the Norwegian Directorate for Nature Management, and is professionally independent. The Norwegian Nature Inspectorate (SNO) is part of the agency.

### Norwegian Biodiversity Information Centre

The Norwegian Biodiversity Information Centre develops and spreads knowledge on biodiversity. Work draws on close co-operation with the scientific community, as well as with policy makers, managers and other data users.

### The Norwegian Meteorological Institute (MET Norway)

Created in 1866, MET Norway is Norway's oldest environmental institute. It provides weather forecasts, climate monitoring, emergency preparedness and research in meteorology, oceanography and climatology. In 2018, MET Norway was transferred from the Ministry of Education and Research to the Ministry of Climate and Environment.

### Norwegian Polar Institute (NPI)

Established in 1948, the Norwegian Polar Research Institute is a directorate under the Ministry of Climate and Environment that focuses on environmental management needs in the Arctic and Antarctic. It is in charge of scientific research, mapping and environmental monitoring of the polar regions, and operates research stations in Svalbard and in the Antarctic.

### Directorate for Cultural Heritage and Norwegian Cultural Heritage Fund

The directorate acts as the advisory and executive body of the Ministry of Climate and Environment for the management of the cultural environment. As of 2020, counties are in charge of most management tasks in the cultural environment area. The Norwegian Cultural Heritage Fund is a subordinate agency of the Department of Cultural Heritage.

### Svalbard Environmental Protection Fund

The fund's resources initiate promising projects to conserve and protect the rich natural environment and cultural heritage on the Svalbard islands in line with the Act on Protection of the Environment in Svalbard.

### Norwegian Centre against Marine Litter

The centre was established in 2018 as a subordinate agency of the Ministry of Transport, known as Norwegian Centre for Oil Spill Preparedness and Marine Environment. From January 2022, it became a government agency under the Ministry of Climate and Environment. It is located in northern Norway on Lofoten Island. As of 2022, it will provide, among others, expertise on marine litter prevention and management, and will co-ordinate and provide financial support for clean-up activities.

Source: Country submission.

### *Local government and vertical co-ordination*

Norway applies the subsidiary principle to perform tasks at the lowest effective level. A general trend towards decentralisation has been observed over the past decades. Norway has emphasised local democracy, acknowledging that challenges and opportunities vary from place to place. It has highlighted the value of locally tailored solutions in the context of great geographic dispersion.

Every four years, the central government sets national expectations regarding regional and municipal planning with a view to promoting sustainable development throughout the country. The 2019-23 national expectations document (Ministry of Local Government and Modernisation, 2019<sup>[43]</sup>) provides an overview of the relevant central government planning guidelines to support county and municipal planning (Section 2.5).

Counties are mainly responsible for regional development policies, secondary education, regional roads and environmental issues, including those related to the cultural environment. The county municipality, governed by a council, is the democratically elected body for the region. Responsibilities of county municipalities are largely defined by government rules and regulations. Recently, they took over all tasks related to secured outdoor recreation areas in order to pool resources and promote more efficient and predictable management. The new government intends to further strengthen their role as a community developer.

Municipalities provide a large number of welfare services and are responsible for most aspects of environmental management. They also increasingly participate in the management of protected areas and play an important role in reaching Norway's ambitious climate goals. Some municipalities have a dedicated environment officer.

Despite large differences in geography, area and population size, municipalities have the same rights and responsibilities. Smaller municipalities often have limited capacity and face many challenges to fulfil all required functions. Differences in implementation capacity, the influence of local interests and greater institutional autonomy have led to uneven application of environmental regulations and national guidelines. Limited local capacity has also contributed to developing increased inter-municipality co-operation, particularly on waste management. However, it is crucial to further strengthen the capacity of small municipalities, especially in remote areas. They often face trade-offs between economic, social and environmental objectives. Norway could benefit from stronger inter-municipal learning to share expertise and good practices.

**Figure 1.18. Local authorities are responsible for most aspects of environmental management**



Note: Image adjusted from the Norwegian Agency for Local Governments (KBN).  
Source: Country submission.

### **1.4.2. Regulatory framework for environmental management**

As a member of the EEA, Norway applies many environment-relevant EU directives (e.g. the WFD, EU Waste Framework, EU air quality directives, chemicals regulations). On climate action, Norway has been part of the EU ETS since 2008. In 2019, Norway, Iceland and the European Union agreed to strengthen their co-operation to fulfil the 2030 climate target. Norway committed to applying the Effort Sharing Regulation and the LULUCF Regulation in 2021-30. Substantial parts of legislative proposals related to the European Green Deal will fall within the scope of the EEA Agreement. Norway has also developed its own national regulatory frameworks in areas outside the scope of the EEA (e.g. for agriculture, fisheries, biodiversity).

#### *Environmental assessment*

Norway has more than 30 years of experience with environmental assessments. EIAs – a vital tool for integrating environmental concerns into project approval – have contributed to an orderly planning process and strengthened public engagement in Norway. Planning is further supported by strategic environmental assessment (SEA), which focuses on potentially significant environmental impact of proposed plans, programmes or policies.

Norway incorporated EU directives of 2014 on EIA and SEA into its legal system in 2017. The country's environmental assessment system has three separate processes: one for land-based projects, one for maritime projects and a dedicated process for projects on Svalbard.<sup>5</sup> An EIA decision is mandatory for all category 1 operations (major industrial and infrastructure projects); without a validated EIA, no permit can be issued. For facilities with lower environmental impacts, permits are sometimes granted without an EIA. The Norwegian Environment Agency maintains a dedicated web portal that offers guidance and examples of good practices on EIA and SEA.

Since 2013, the Ministry of Climate and Environment and the Ministry of Local Government and Modernisation have shared responsibility for environmental assessments. These processes are primarily integrated into the ordinary procedure for land-use planning and applications for licences and permits. The Norwegian system applies an integrated approach involving “competent authorities” – either the relevant municipality or a sectoral authority. For example, road authorities take decisions on major road transport infrastructure; energy authorities examine energy-related projects. The competent local, regional or sectoral authority makes the final decision, which interested parties can challenge in court.

While environmental assessments are conducted at national level for major projects (e.g. national infrastructure, renewable energy projects), local municipalities are responsible for EIA in most cases. The local authority may be both the applicant and the competent authority. This double role creates a potential conflict of interest, particularly in smaller municipalities, as there is no independent authority in the approval process. The local authority is required to act objectively and the “two roles shall as far as possible be kept administratively separate” (Ministry of Climate and Environment, 2017<sub>[44]</sub>). In practice, however, local interests may sometimes lead to sub-optimal decisions as regards environmental outcomes: EIAs may address only direct and immediate on-site effects. Limited local capacity can also undermine the quality of the EIA process. Every municipality should benefit from the expertise of a dedicated environmental officer. More room should be given to independent, critical, interdisciplinary voices in local decision-making processes.

### Box 1.3. Improving environmental impact assessment in the Arctic region

The Arctic region is characterised by sparse population, unique biodiversity, fragile ecosystems and slow flora and fauna recovery rates from disturbance. The Norwegian Arctic is home to close to half a million people. On average, about 10% of the population is indigenous. The Arctic EIA project – involving members of the Arctic Council\* – gathered examples of good practices from across the Arctic. Findings are presented in a report that identified three broad areas for improvement: i) meaningful engagement; ii) use of different types of knowledge – indigenous, local and scientific; and iii) transboundary environmental impacts. Public participation in the early planning phase is a key feature of the EIA process. It is especially relevant for the fragile Arctic areas where impact assessments must be better informed by people with knowledge and expertise of local livelihoods. This can be a lengthy process and requires a lot of flexibility. The report recommends building a relationship and trust among the affected communities at the earliest possible stage. Competent authorities “need to talk to scientists and locals at the same time – not scientists first and locals after” (SDWG, 2019<sup>[45]</sup>). Some members of the Sami Reindeer Herders’ Association of Norway suspect consultation processes are undermined by asymmetric information, unequal negotiation power and lack of transparency. Investors might be tempted to strike a deal with locals that may neither benefit all members of affected communities nor allow protection of biodiversity and fragile ecosystems. Promoting effective and meaningful engagement and incorporating indigenous knowledge remains a common challenge in the Arctic region. The report stresses that dialogue has to be seen to help find better solutions and more strongly influence project design at an early stage. This requires continuous dialogue, beyond one-off consultations. As in other countries, EIAs need to better inform the project design and decision-making process; the engagement needs to be pursued throughout the mitigation and monitoring phases. The follow-up component is nearly always missing.

Note: \*Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden and the United States.

Source: (Arctic Council, Sustainable Development Working Group, 2019<sup>[46]</sup>).

### *Environmental permitting and licensing*

Environmental permitting is a key instrument for reducing industry’s environmental impacts while also promoting technological innovation. Norway has integrated environmental permits. Applications for pollution control permits for businesses must be submitted to the Norwegian Environment Agency or to the environmental department of the pertinent county governor, depending on risk and the scale of projected environmental impacts. The Norwegian pollution control system has a high degree of transparency. Within the Pollution Release and Transfer Register (Norwegian Environment Agency, 2021<sup>[47]</sup>), all permits, inspection and annual compliance reports are available on line. The website provides access to permitting and inspection information accompanied with data visualisation tools on reported emission and plant-specific information such as production outputs. This helps users visualise the plant’s impact on the environment. The European Environmental Bureau commended Norway for “offering citizens industrial pollution permitting information of a high standard and in a user-friendly manner” (EEB, 2017<sup>[48]</sup>). Norway’s information sharing system on industrial pollution ranked the best in Europe (EEB, 2017<sup>[48]</sup>).

#### **1.4.3. Compliance assurance**

Norway has a solid compliance assurance system using a combination of compliance promotion, monitoring and enforcement. The Norwegian Environment Agency and the respective county governors, who conduct inspections, have a joint compliance monitoring strategy for 2016-20 and share a corporate

database of inspection results across all sectors. The strategy aims to ensure quick and strict follow-up on serious breaches of regulations; uniform practices through good routines, tools and clear job descriptions; and better and faster communication on inspection results.

### *Compliance monitoring and promotion*

In line with international trends, Norway uses risk-based targeting of compliance monitoring. This approach means that high-risk installations with major environmental impacts and installations with risk for non-compliance are inspected more often. The frequency depends on various factors (emission levels, results from previous inspections and audits, recidivism, etc.). As a consequence, non-compliance detection is higher and does not necessarily represent the general compliance behaviour in the regulated community. In addition, approximately 30% of site inspections are conducted without prior notice. The threat of unannounced site visits has a dissuasive effect and encourages businesses to take steps to ensure compliance throughout the year.

Between 2015-20, Norway conducted about 5 500 inspections of land-based industry; offshore petroleum industry; products and chemicals; regulated species; and various municipal activities. Compliance monitoring also includes desk verification of self-monitoring reports and online checks of products. E-commerce non-compliance is particularly high and requires continued attention.<sup>6</sup> There are fewer inspections than a decade ago (about 2 000 inspections per year) but still more than in the 1990s (about 275 inspections per year) (OECD, 2011<sup>[27]</sup>). Due to mobility restrictions related to COVID-19, the number of inspections decreased in 2020 (Table 1.2). Businesses fully cover the costs related to the preparation, implementation and follow-up of inspections. Standard rates are specified in the Pollution Control Act.

**Table 1.2. Inspections conducted by the Norwegian Environment Agency and at county level**

Number of inspections	2015	2016	2017	2018	2019	2020
Inspections conducted at county level	660	705	491	697	683	410
Inspections conducted by the Norwegian Environment Agency	288	285	392	366	284	250
Total number of inspections	948	990	883	1 063	967	660
Inspections with non-compliance*	840	856	718	876	834	561

Note: The number of inspections does not include audits, other control measures or emergency inspections.

\*About two-thirds of breaches are related to weaknesses of self-monitoring systems.

Source: Country submission.

Norway has a high rate of non-compliance (60-70% of the checks, including 10% of serious violations). About two-thirds of breaches are related to weaknesses of self-monitoring systems. The high non-compliance rate confirms the quality of Norway's monitoring system and its capacity to detect violations. However, it also underlines a need for stronger compliance monitoring. Moreover, Norway's inspection results need to be interpreted in light of more in-depth compliance monitoring. Such monitoring checks the performance of company-internal environmental management systems whose elements are mandated by law. This makes the Norwegian system unique in the OECD area. The requirements are challenging for smaller companies; many have not sufficiently invested to meet them. They still lack routine checks and knowledge about safety standards and environmental requirements, including for chemical management for imported products. This underlines the importance of inspection campaigns and compliance promotion, which need to be pursued.

Compliance promotion is critical for closing the implementation gap. While the Norwegian Environment Agency primarily monitors compliance, it also publishes various guidelines and provides advice. Inspection activities also contributed to improving the enterprises' knowledge on regulations and compliance. The

impact of these activities could be more systematically monitored, beyond the annual reporting of the Norwegian Environment Agency.

### *Enforcement*

Enforcement authorities usually give the offender time to correct the violation before considering sanctions. Administrative penalties are applied in only 2% of inspected cases. Depending on what is considered to be most effective, a combination of administrative and criminal sanctions may be applied. Norway is one of the few OECD countries using coercive fines. This means the fine is only payable if the operator fails to implement prescribed corrective action in a mandated timeframe. This has proven to be an effective enforcement instrument. Over 2016-20, on average, only about 10% of fines need to be paid (13 out of 130 fine notifications); in 90% of cases, operators complied in time.

The government intends to sharpen focus on crime prevention. New measures have been proposed to strengthen criminal prosecution through better review practices, higher penalties, increased use of confiscation and digital solutions. Severe violations are subject to criminal sanctions, including imprisonment. They are handled by the police districts and Økokrim, Norway's specialised agency for combating economic and environmental crime. Established in 1989, Økokrim is being reformed to remove organisational silos and make it more flexible and reactive. It will also have a stronger focus on crime prevention. New measures are also put forward in a white paper (Ministry of Climate and Environment, 2019<sup>[49]</sup>), which aims at strengthening criminal prosecution through better review practices, higher penalties, increased use of confiscation and digital solutions.

## **1.5. Environment-related taxes and fossil fuel support**

### **1.5.1. Greening the tax system**

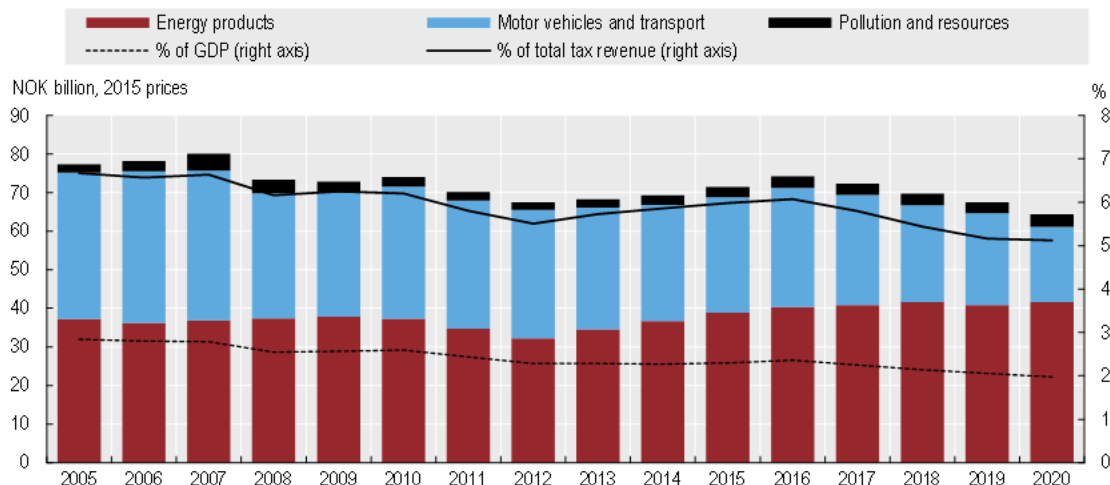
Like other Scandinavian countries, Norway is a high tax country with a broad tax base, which allows it to finance its broad social safety net with universal health care and higher education. Norway has a high tax-to-GDP ratio of 38.6% in 2020 and a high value-added tax (VAT) rate of 25% (OECD, 2021<sup>[50]</sup>).

Norway is a pioneer in using economic instruments for environmental protection to encourage innovation and internalise some of the environmental costs of harmful activities in line with the polluter-pays principle. It was among the first countries to introduce a carbon tax in 1991. Since then, the country has introduced many other environment-related taxes in response to recommendations from green tax commissions and inter-departmental working groups. All per-unit rates of excise duties are adjusted annually in line with estimated inflation, reflecting good practices to maintain their incentive function and revenue. Relevant ministries help design taxes within the annual budget proposals.

According to preliminary 2020 data, the government collected environmental tax revenue of NOK 67.5 billion (USD 7.2 billion), representing 2% of GDP and 5.1% of total government revenue from taxes and social contributions (TSC) (Figure 1.19). This is relatively low compared to the OECD Europe average because of the high weight of other sources of tax revenue, as well as to the environmental tax incentives for EV uptake. However, if environmental taxes work as intended, environmental tax revenue as a share of GDP (and total taxes) should decrease and gradually approach zero. In Norway's case, environmental taxes contributed effectively to reducing environmentally harmful activities. This success, however, undermined the tax base, as illustrated in the example of forgone tax revenues in relation to EVs (Section 1.5.3). As in other OECD countries, energy-related taxes, including taxes on road transport energy, make up the bulk of environment-related taxes (65%), followed by transport taxes (30%); only a small portion comes from waste and other pollution and resource taxes (5%).

**Figure 1.19. Norway's share of green taxes has declined, due to a shrinking transport tax base**

Environment-related tax revenue by tax base, 2005-20



Note: Data include estimates and preliminary data.

Source: OECD (2022), "Environmental policy instruments", *OECD Environment Statistics* (database); Statistics Norway (2022), "Environmental taxes – 10645", *StatBank* (database).

StatLink  <https://stat.link/9x218m>

The share of green taxes in Norway's TSC declined over the past decade from 6.7% in 2005 to 5.1% in 2020 (Figure 1.19). However, a closer look at the breakdown of environmental tax revenue reveals that energy and pollution-related taxes have both increased since 2005. In contrast, transport-related taxes declined slowly from about 50% in 2005 to 42% in 2016, and then recorded a sharp drop reaching about 30% in 2020. This reflects forgone tax revenues in relation to Norway's generous tax incentives for EVs (Table 1.3). While policy measures triggered a strong increase in the purchase of EVs, the related tax revenue losses represented close to a third of environmental tax revenue (Section 1.5.3).

### 1.5.2. Carbon pricing and taxes on energy use

Norway applies a series of taxes on GHG emissions and energy use. The former include a CO<sub>2</sub> tax on mineral products, a tax on CO<sub>2</sub> emissions from petroleum activities on the continental shelf and taxes for other GHG emissions (e.g. hydrofluorocarbons and perfluorocarbons).<sup>7</sup> Energy taxes include excise taxes on engine fuel, a base tax on mineral oil, a tax on lubricating oil and an electricity tax. In addition, Norway has fully taken part in the EU ETS since 2008 and intends to align with EU measures for the non-ETS sector, with sometimes more stringent targets.<sup>8</sup> According to national assessments, CO<sub>2</sub> taxes and emissions trading cover approximately 85% of national GHG emissions, including offshore production.

Norway's nominal carbon tax rate is among the highest in Europe (NOK 766 [about USD 89]/tonne of CO<sub>2</sub>-eq as of 2022) covering 83% of national emissions. Figure 1.20 provides an overview of how energy and carbon taxes apply across the economy. Effective tax rates are high compared to other European OECD countries, especially outside the road transport sector.

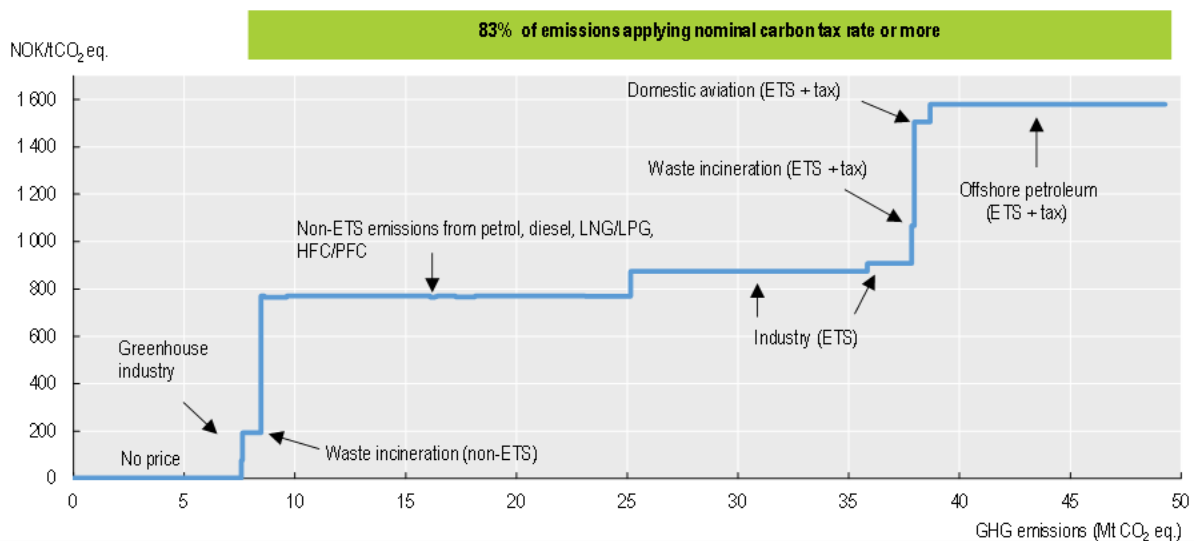
Norway ranks among the top OECD countries in carbon pricing. In 2018, it was ranked third on the OECD Carbon Pricing Score based largely on three factors. It has a highly decarbonised electricity supply. It also charges significant taxes on fossil fuels in the residential and commercial sector. Finally, it double taxes

emissions from petroleum extraction and aviation via a national carbon tax and the EU ETS (OECD, 2021<sup>[51]</sup>).

Nevertheless, it should pursue efforts to ensure uniform application of the carbon tax across all sectors. The recent abolishment of several exemptions in the maritime sector, notably the introduction of a CO<sub>2</sub> tax on diesel used in coastal fisheries and antique vessels and machinery, heads in the right direction. Norway has also introduced a carbon tax on waste incineration and abolished the exemption for the use of natural gas and liquefied petroleum gas (LPG) in the greenhouse industry in 2022. Norway needs to pursue efforts to remove inappropriate exemptions in environmentally related taxes and harmful subsidies.

### Figure 1.20. Norway applies a nominal carbon tax rate of NOK 766 to over 80% of national emissions

Prices of GHG emissions in 2022



Note: Tax rates applicable in 2022 and ETS allowance price of NOK 817 per tonne of CO<sub>2</sub>. GHG emissions data, excluding LULUCF, refer to 2020.

Source: Country submission.

StatLink  <https://stat.link/eljr7u>

Norway's Climate Action Plan 2021-30 proposes to gradually raise the carbon tax on non-ETS emissions from NOK 590 per tonne of CO<sub>2</sub>-eq in 2021 to NOK 2 000 by 2030 (from USD 69 to USD 234). The precise arrangements to operationalise the required tax shift will be part of a negotiation process and are expected to be approved by Parliament within its annual budget cycle. A first step was taken in 2022, when the general tax rate on non-ETS emissions was increased by 28% (in real value). By 2030, the scheduled increase in carbon prices is expected to reduce emissions by an estimated 8 million tonnes of CO<sub>2</sub>-eq. Norway's gradual carbon tax increase would provide a long-term perspective on carbon pricing and a strong price signal to encourage increased investments in renewable energy and low-carbon technologies.

Social equity concerns have gained prominence in the public debate. The 2022 budget shields motorists from large parts of the tax increase through reductions in the motor insurance tax and road usage tax.<sup>9</sup> This general measure may be easy to administer as it applies to all road users across the country in the same way. However, it weakens the intended carbon-price signal and the incentives to reduce driving and



moving to low-carbon transport alternatives. It would make sense to analyse the social and distributional consequences of the proposed CO<sub>2</sub> tax increase. Subsequently, Norway should develop more targeted and time-bound transitional support for vulnerable groups and regions.

### *Excise taxes on fossil fuels*

Norway applies excise taxes on petrol, diesel, bioethanol, biodiesel, natural gas and LPG. Tax rates vary depending on sulphur content and other criteria. Any biogas contained in natural gas or LPG is exempted from taxation. The retail fuel prices per litre rank among the world's most expensive prices. While the CO<sub>2</sub>-tax rate (NOK 766 per tonne of CO<sub>2</sub>) is the same across all fossil fuels for road transport, Norway's road usage tax rate on petrol is higher than the rate applied to other fuels, measured in NOK per litre.<sup>10</sup> Norway standardises the different tax rates for biofuels, diesel and petrol based on the energy content to estimate how much car usage can be gained from one litre of fuel and to measure related externalities. The lower rate for diesel can be partially justified by the lower energy content in diesel. However, diesel engines emit higher levels of local air pollutants than petrol engines, and the road usage tax primarily intends to price externalities related to road transport. The share of diesel vehicles in new car sales has declined sharply, but diesel vehicles still represent 45% of Norway's passenger car fleet (Figure 1.25). There are trade-offs between environmental goals and distributional impacts, which are part of the political debate.

### *Biofuel quotas*

Norway has put in place a progressive biofuel policy over the past decade. The mandatory quota for biofuels, introduced in 2009, has been progressively increased. As of January 2021, economic operations must sell at least 24.5% biofuels as a share of the total annual amount of fuel sold for road transport, including double counting of advanced biofuels (minimum of 9% within this quota). The Climate Action Plan 2021-30 proposes to further strengthen incentives to choose biofuels. However, biofuel production can also have negative impacts on global food security with limited reductions of CO<sub>2</sub> emissions. Most of the biofuel used in Norway is imported, also generating transport-related emissions. The use of palm oil-based biofuels, associated with high deforestation, has been reduced since 2017. Crop-based biofuels have been restricted.

### *Off-road*

Fuels used in maritime transport and fisheries were for a long time exempted from the excise tax or benefited from reduced rates. This policy did not encourage any efficiency gains. Several exemptions have therefore been abolished. For example, the CO<sub>2</sub> tax now applies to all fossil fuels used in domestic waters. Norway should continue to remove harmful subsidies and inappropriate exemptions from environment-related taxes. An analysis of possible negative effects of subsidies on biodiversity (Aichi Target 3) is underway. Green solutions have become more competitive thanks to economic instruments like the carbon tax, a lower electricity tax rate for commercial vessels and environment-related differentiation of port fees. Similarly, a higher carbon price provides incentives for the aquaculture industry to develop and deploy low- and zero-emission solutions.

Norway applies excise taxes on jet fuel to domestic aviation (NOK 1.51 per litre). International aviation to destinations outside the EEA is only taxed with a passenger tax (USD 9 on flights to European destinations and USD 24 for intercontinental flights). However, domestic aviation is taxed multiple times through a national carbon tax, carbon pricing within the EU ETS and a passenger tax of about USD 9 (temporarily suspended from 2020 to July 2022 due to the COVID-19 pandemic). Double taxation under the EU ETS will not help reduce European-wide CO<sub>2</sub> emissions significantly. However, higher flight prices can contribute to reducing domestic demand and make other more environmentally friendly options such as rail more competitive. However, travel time is also a major factor that determines customer choices.

### *Electricity tax*

Norway's tax on electricity consumption has a relatively limited impact on emission reduction since electricity generation is almost exclusively based on renewable energy. The electricity consumption tax can, however, encourage more efficient energy use and thus contribute to reducing total energy use. It also contributes to raising tax revenues. Although Norway is an energy exporter, Norwegians have by far the highest electricity bills in Europe, representing close to EUR 2 500 per year, compared to Sweden (rank 2, EUR 1 800) and Finland (rank 4, EUR 1 500 (Eurostat, 2021<sup>[52]</sup>). Due to soaring electricity prices, the government has announced plans to subsidise household electricity bills during the winter. Tax rate cuts in the electricity tax for 2022 are estimated at NOK 2.9 billion (USD 337 million). However, most industries and consumers in northern Norway already benefit from a reduced tax rate. Energy-intensive industrial processes, the greenhouse industry and railways are also exempted.

### **1.5.3. Transport-related taxes and charges**

#### *Vehicle taxes*

Vehicle taxation – including taxes on registration, ownership and usage of cars – is a key policy instrument for encouraging the purchase of low-emission vehicles. This, in turn, helps reduce GHG emissions in the transport sector. Norway levies several taxes on internal combustion vehicles, applying rates higher than in most OECD countries. This is one of the measures that helped substantially reduce Norway's average CO<sub>2</sub> emission levels from newly registered cars. Norway has already reached the EU target of 95 g CO<sub>2</sub>/km for 2020-24. In 2020, the average CO<sub>2</sub> emission level of new passenger cars was less than 50 g CO<sub>2</sub>/km (OFV, 2022<sup>[53]</sup>).

The taxation of vehicles and road usage has two main challenges. First, the tax does not largely apply to zero-emission vehicles. Second, it does not reflect differences in externalities depending on where and when the driving takes place. An introduction of a time- and place-based road use tax would allow for more accurate pricing of various externalities and would thus be a welcome development (van Dender, 2019<sup>[54]</sup>). The government started exploring a satellite-based, location and time-contingent, road usage charge system. This would allow a more coherent vehicle tax system based on the actual use of vehicles and related environmental costs.

The National Budget paper presented to Parliament in 2021 included a discussion of principles for a sustainable car taxation system in Norway, in terms of both the environment and revenue. The government emphasised that a sustainable vehicle taxation system must put a price on the negative external impacts caused by use of all vehicles. A sustainable car tax system will also need to include taxes on vehicle purchase and ownership, primarily for fiscal reasons. By outlining the principles above, which seem well founded and balanced, the government intended to provide some predictability for households and car importers. Norway should prioritise preparation of a place-based road-pricing system, covering all passenger and light-duty vehicle categories, while considering the needs of people in remote areas.

#### *Motor vehicle registration tax*

Norway has a one-off tax on motor vehicle registrations, using environmentally differentiated rates since 2008. This major tax on the sale of new cars has greatly contributed to cleaning Norway's vehicle fleet. For passenger cars, the tax rate depends on the weight of the vehicle, as well as on its CO<sub>2</sub> and NO<sub>x</sub> emissions. Compared to other Scandinavian countries, the Norwegian fiscal regime has by far the strongest CO<sub>2</sub> abatement effect (Østli et al., 2021<sup>[55]</sup>). EVs are fully exempt from the motor vehicle registration tax. Consequently, fiscal revenues from the motor vehicle registration tax were halved within the past five years and were estimated at NOK 8.5 billion (about USD 1 billion) in 2021 (Figure 1.21).

Norway also applies a scrapping deposit fee as an integral part of the motor vehicle registration tax. The measure aims to limit waste from end-of-life vehicles.

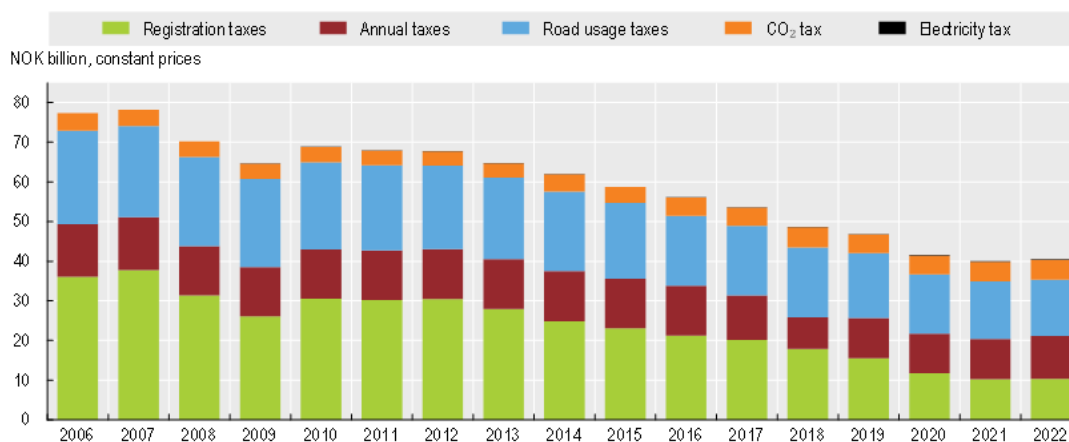
### Commuting allowances

In 2022, Norway introduced a fixed rate of NOK 1.65 (USD 0.2) per kilometre. This was an increase from the previous NOK 1.56 for up to 50 000 km and NOK 0.76 for over 50 000 km (Ministry of Finance, 2021<sup>[34]</sup>). The allowance benefits long-distance travelling, regardless of transport. The threshold amount was reduced from NOK 23 900 (USD 2 780) to NOK 14 000 (USD 1 600) to compensate people with long commutes. It does not include an environmental component as transportation is already taxed through the CO<sub>2</sub>-tax. It is unclear whether people in sparsely populated areas have on average a longer commuting distance than people living in more centrally located areas. According to national statistics, there is no clear correlation between driving distance and remote areas.

### Support to zero-emission vehicles

In 2021, about two-thirds of new passenger vehicles sold were fully electric. Several factors have contributed to this trend, including the exemption of zero-emission vehicles (ZEVs) from the registration tax, VAT and motor fuel taxes, as well as at least a 50% reduction in road taxes, ferry and parking fees (Table 1.3). These fiscal incentives contributed to shifting demand towards ZEVs (which are now cheaper than petrol or diesel cars) and increasing the share of ZEVs in the car fleet. However, it has also strongly reduced tax revenues. The tax expenditure from the VAT exemption reached NOK 11.3 billion (USD 1.3 billion) in 2021. The overall advantage of EVs (fully battery electric and plug-in hybrid) was estimated at NOK 30 billion (USD 3.5 billion) in 2021 (Figure 1.21). Revenue from car-related taxation is declining.

**Figure 1.21. Revenue from car-related taxation is declining**



Note: Adjusted for inflation, estimated 2022 NOK values.

Source: OECD (2022), *OECD Economic Surveys: Norway 2022*.

StatLink  <https://stat.link/prjvgi>

As the EV market is maturing, it makes economic sense to reduce tax incentives gradually. As of 2021, the government aligned the annual road tax rate for ZEVs with the amount for motorcycles (NOK 2 135 or USD 248 per year). This rate represents 70% of the traffic insurance tax for petrol and diesel cars. Full road traffic insurance tax for ZEVs will be introduced as of March 2022. The government coalition parties

also announced plans to introduce VAT on the most expensive ZEVs (to be applied on the amount over NOK 600 000 or USD 69 775). These are first steps towards sharing the financial burden of road maintenance, infrastructure development and other externalities (congestion, noise, accidents). Other measures may become necessary.

**Table 1.3. Norway's incentives for electric vehicles**

Type of tax or fees	Level	Timeframe	Estimated tax expenditure (2021)	Estimated additional value of incentives*
Registration tax	Full exemption	1990 – current	NOK 5.8 billion	NOK 10.2 billion (2021)
25% VAT on purchase	Full exemption	2001 – current	NOK 11.3 billion	
Road usage tax for ZEV	n.a.		n.a.	NOK 1.1 billion (2021)
Company car tax	Reduced fee	2000 – current	NOK 340 million	
Re-registration tax	Full exemption	2018 – current	NOK 300 million	
Annual road tax (Traffic insurance tax)	Full exemption 30% reduction No exemption	1996 – 2020 2021 As of March 2022	NOK 950 million	
Charges on toll roads	For free 50% discount min.	1997 – 2017 2018 – current	n.a.	NOK 1.2 billion (2018)
Charges on ferry fares	For free 50% discount min.	1997 – 2017 2018 – current	n.a.	NOK 45 million (2019)
Municipal parking	For free 50% discount min.	1999- 2017 2018 – current	n.a.	
Access to bus lanes	For free Under certain conditions	2005 – 2006 2006 – current	n.a.	

Note: \*The estimated tax expenditure does not include the full economic advantage given to low- and zero-emission vehicles. The tax system has been adjusted over many years to promote the uptake of EVs. An average battery electric vehicle has several strong comparative advantages over a conventional car and lower operational costs. The overall advantage is estimated at NOK 30 billion (USD 3.5 billion) in 2021 (nearly three times higher than the VAT-related tax expenditure).

Source: Country submission.

### *Road tolls with environmentally differentiated rates*

Norway has a long history of toll roads for financing road and public transport development. All major cities have established toll rings using environmentally differentiated rates to discourage urban traffic and reduce related congestion problems. Toll revenue has been steadily increasing since 2010. Despite the COVID-19 pandemic and related mobility restrictions, Norway collected a record high of NOK 12.3 billion (about USD 1.3 billion) from tolls in 2020 (Ministry of Transport, 2020<sup>[56]</sup>). Some tolls also include congestion charges; they are powerful tools that can address many externalities from road transport more effectively than fuel taxes (van Dender, 2019<sup>[54]</sup>).

In 2021, Norway counted 62 toll road projects, collecting tolls from 332 stations and 4 ferry connections. A recent road toll reform simplified the price and discount schemes through an electronically managed AutoPass; some tolls serve as congestion pricing. For example, the Oslo area has a combined congestion charge and low-emission zone. The toll rate depends on the Euro standard and fuel type, as well as time and distance. EVs no longer benefit from free access. The city of Oslo intends to transform the central area into a zero-emissions zone (ZEZ). Bergen is planning to implement a pilot ZEZ in 2023. Both cities also apply temporary driving bans for diesel-powered vehicles non-compliant with Euro 6 or increased price schemes at times of high pollution.

#### **1.5.4. Taxes on pollution and resource use**

As in other OECD countries, pollution and resource taxes play a minor role in generating environment-related tax revenue in Norway. The country applies a tax on plant protection products, which is area-based and differentiated according to the health and environmental risks related to the product. There are seven different tax classes. The environmental tax has helped reduce the use of plant protection products with the highest risks over the years. While products with the highest risks have been used less, pesticides in lower risk categories have been used more.

Norway also applies various waste taxes. It introduced its first beverage packaging plastic tax, for example, as early as the 1970s. Since 1994, it has applied two separate taxes on beverage containers. A basic tax is imposed for single-use containers, while a variable tax depends on packaging return rates. The bottle deposit system is successful, but beverage bottles represent less than 10% of Norway's plastic waste. A plastic bag levy has also been in place since 2017 (Box 1.4).

In 2022, the government introduced a tax on CO<sub>2</sub> emissions from waste incinerators. Given that incinerators are high carbon emitters, the tax could help decarbonise the waste sector. It would be useful to extend the tax to cover air pollutant emissions. When Norway introduced such a tax more than a decade ago, tax rates were set according to estimates of the social costs caused by a large range of pollutants (OECD, 2004<sup>[57]</sup>). The tax was cancelled in 2010 due to the financial difficulties of some incinerator operators caused, in part, because Sweden abolished its tax on waste incineration the same year. A reintroduction of a more comprehensive emission tax on waste incinerators could be a welcome extension of the CO<sub>2</sub> emission tax.

Better use of taxation and other economic instruments could help Norway make faster progress towards a more resource-efficient, circular economy. Many waste reduction schemes are handled through voluntary agreements with industry, which do not always reflect the full cost of waste to society. Norwegian municipalities made only limited progress in differentiating waste collection fees according to the amount of waste generated (OECD, 2019<sup>[58]</sup>). Norway has many opportunities to strengthen regulatory frameworks and provide stronger incentives to change business models. According to the “Achieving Circularity” report, “(i)t is not the lack of technical solutions that is preventing a zero-waste circular plastic economy in Norway, but rather insufficiently ambitious regulatory frameworks, business models, incentives, and funding mechanisms” (Systemiq and Norwegian Retailers’ Environment Fund, 2021<sup>[59]</sup>).

#### Box 1.4. Norway's plastic bag levy needs to be increased

In 2017, the Norwegian retailers' trade association introduced a voluntary levy for plastic bags. Income from bag sales goes to the Norwegian Retailers' Environmental Fund, which promotes behavioural changes to reduce plastic pollution. A fee of NOK 1 per bag is earmarked for the fund. More than 85% of retailers adhere to the scheme. The fund helped reduce the use of plastic carrier bags by 16% between 2016 and 2019 (Norwegian Retailers' Environment Fund, 2021<sup>[60]</sup>). However, changing eating and consumption habits during the COVID-19 pandemic contributed to use of an additional 39 million plastic carrier bags in 2020 compared to 2019. In 2020, Norwegians bought 782 million plastic carrier bags, which corresponds on average to 146 plastic bags per person (Norwegian Retailers' Environment Fund, 2021<sup>[60]</sup>). Hang (2018<sup>[61]</sup>) analysed the average willingness to pay for plastic bags in Norway (estimated at NOK 2.66 or USD 0.3). The study concludes the price per plastic bag should reach at least NOK 3.26 to induce a change in consumers' shopping behaviour. Stronger measures will be needed to put Norway back on track to achieving the EU target (which Norway shares under the EEA Agreement) of using 40 lightweight plastic carrier bags per person per year by 2025. A downstream tax, applied to the end user, proved to be successful in Ireland, which allowed the country to reduce use of plastic bags by 94% (OECD, 2021<sup>[62]</sup>).

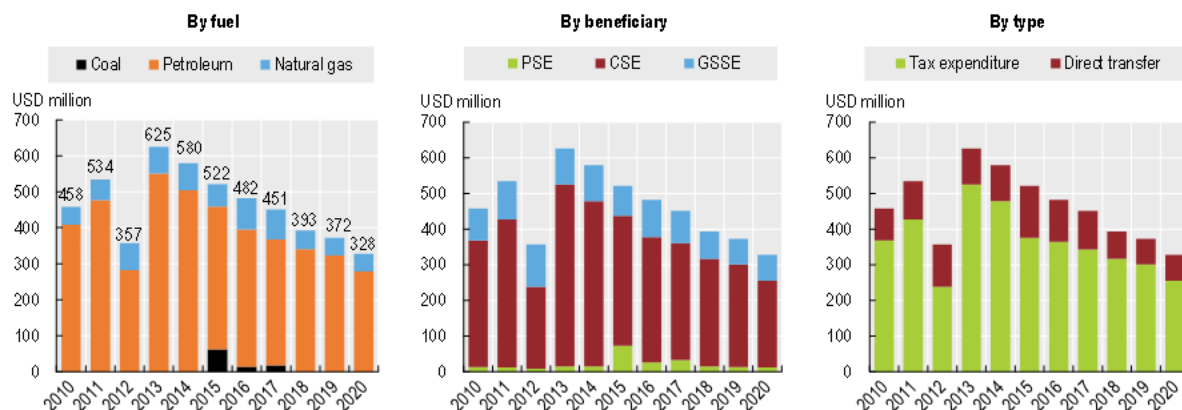
#### 1.5.5. Fossil fuel support

For more than a decade, many OECD countries have prioritised phasing out inefficient fossil fuel support (Box 1.5). They also committed to phasing out environmentally harmful subsidies by 2020 under the Aichi Targets of the UN Convention on Biological Diversity. The Glasgow Agreement at the COP26 in 2021 called upon parties to accelerate efforts towards a phase-out of inefficient fossil fuel subsidies. However, there is still a gap between official declarations and actual support. It is difficult to measure and compare progress among countries without an internationally agreed definition of environmentally harmful subsidies, including fossil fuel subsidies. Norway does not have a national inventory of fossil fuel subsidies and other environmentally harmful or potentially harmful subsidies (Box 1.6).

Norway's fossil fuel support, both forgone tax revenue and direct budgetary transfers, declined over the past decade (Figure 1.22). This decline was thanks to the gradual phase-out of several energy and carbon tax exemptions and reduced consumption of transport fuels with the uptake of EVs (Figure 1.22). Total fossil fuel support represents about 0.2% of tax revenue. In 2020, support for fossil fuels was estimated at USD 328 million (USD 60 per capita) (OECD/IISD, 2021<sup>[63]</sup>). The lion's share (84%) supported petroleum and the rest natural gas (16%). Norway does not provide any fossil fuel support for end-use electricity. Its electricity comes from 98% renewable energy sources. Consequently, the recently announced government subsidy to help households reduce their electricity bills during the winter will not include any fossil fuel subsidies.

**Figure 1.22. Norway's fossil support declined over the past decade**

Composition of fossil fuel support, 2010-20



Note: PSE = Producer Support Estimate; CSE = Consumer Support Estimate; GSSE: General Services Support Estimate; fossil fuel subsidy data may be partial. Tax expenditure is an estimate of revenue forgone because the tax system reduces or postpones tax relative to a jurisdiction's benchmark tax system (to the benefit of fossil fuels). Hence, i) tax expenditure estimates could increase due either to greater concessions relative to the benchmark treatment, or to a raise in the benchmark itself; ii) international comparisons of tax expenditure could be misleading, due to country-specific benchmark tax treatments. Definitions of tax expenditure, and the benchmarks used to estimate the size of expenditure, are nationally determined and may hamper international comparisons. The OECD uses a bottom-up method of estimating government support to fossil fuels by identifying and quantifying individual policy measures. This approach measures fossil fuel support as all direct budgetary transfers and tax expenditures (tax reductions, preferential treatment for cost recovery) that provide a benefit or preference for fossil fuel production or consumption.

Source: OECD (2021), "Fossil Fuel Support", *OECD Environmental Indicators* (database).

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Most support measures are related to fiscal taxes (e.g. exemptions from the tax on mineral oil used for domestic shipping and fishing and off-road agricultural vehicles). Norway reports on tax expenditures diligently; debate is underway whether it makes sense to consider some of these expenditures as fossil fuel subsidies. Norway should systematically screen actual or proposed subsidies, including tax provisions to identify those that are not justified on economic, social and environmental grounds, and develop a plan to phase out fossil fuel and other environmentally harmful support. The government should also strengthen transparency by disclosing fossil fuel production and support plans in its commitments under the Paris Agreement (SEI et al., 2021<sup>[17]</sup>).

### Box 1.5. Norway's commitments to support national and international reform of fossil fuel support

Norway does not have a national inventory of fossil fuel subsidies and other environmental harmful or potentially harmful subsidies. Calculations of the SDG indicator 12.c.1<sup>11</sup> on responsible consumption and production measures fossil fuel subsidies as a share of GDP. In this context, direct transfers, price support and tax benefits are considered subsidies. Indirect subsidies in the form of tax reductions often have similar effects as direct transfers.

Like some other countries, Norway questions the use of tax expenditures as a measurement for fossil fuel subsidies because it is complex to define the scope of a subsidy in a coherent manner. Tax expenditures can have positive and negative environmental impacts. The OECD is working on a new methodology to better consider the complex realities of fossil fuel support in different countries. National and international reporting of fossil fuel subsidies needs to be further improved and harmonised to make data better comparable.

At the international level, Norway has been supporting various global initiatives to phase out fossil fuel support. The country is a member of the informal grouping of non-G20 countries,<sup>12</sup> known as the "Friends of Fossil-Fuel Subsidy Reform". Established in 2010, the group organised many international events focusing on the links between climate change, trade and sustainable development. On the fifth anniversary of the Paris Agreement, the group issued a joint statement urging governments, businesses and other organisations to accelerate action to eliminate fossil fuel subsidies through a focus on green recovery (OECD/IEA, 2021<sup>[64]</sup>).

In a 2016 Joint Statement of the US-Nordic Leaders' Summit, Norway committed to "promote access to affordable, reliable, sustainable and modern energy for all by encouraging the reduction of fossil fuel subsidies, promoting renewable energies and fuels, and enhancing energy efficiency". More recently, in November 2021, Norway joined a group of 15 countries of the World Trade Organization that promotes "shared understanding" to achieve "effective disciplines on inefficient fossil fuels subsidies" (WTO, 2021<sup>[65]</sup>). It notably called for a clear timeline to rationalise and phase out inefficient fossil fuel subsidies that encourage wasteful consumption. The eighth EU Environment Action Programme of December 2021 did not set deadlines. However, it confirmed a collective commitment "to phase out all environmentally harmful subsidies, in particular fossil fuel subsidies, at Union, national, regional and local level without delay". Norway has not yet established quantified time-bound targets.

In response to the COVID-19 pandemic and the oil price drop in spring 2020, the government provided massive support to rescue the petroleum industry and fast-track new projects on the Norwegian continental shelf. The temporary changes to the petroleum tax are estimated to reduce tax revenues over time by about NOK 10 billion (USD 1.2 billion), measured in NOK 2020 terms. In the short term, the tax revenue loss is greater because the change entails a tax deferral. In 2020 and 2021, the accrued tax revenue loss is estimated at NOK 74 billion (USD 8.6 billion) and NOK 57 billion (USD 6.6 billion), respectively (Section 1.7.1). Tax concessions to the petroleum sector allow immediate tax deduction of all investment in 2020 and 2021, as well as investment under new field development plans delivered by 2022 and approved by the government before the end of 2023. In addition, companies benefit from an uplift deduction of 24% of investment costs. The tax breaks did not change the headline tax rate of 78% that oil companies pay on profits but rather increased deductions for new investments. This investment-friendly scheme is expected to be applied until 2028. Taxable profits can thus be reduced for several years. This massive push for Norway's petroleum industry represents more than double the amount of the country's fossil fuel support over the past decade. If these measures persist beyond emergency packages related to



COVID-19, they will become part of a structural policy landscape that needs to change to phase out fossil fuel support.

Furthermore, it would be useful for Norway to engage in a self-review and/or peer review of inefficient fossil fuel support. Such reviews, similar to the ones within the G20, could help identify scalable good practices. In line with its international commitments, Norway should further reduce fossil fuel support and set time-bound targets for such reductions.

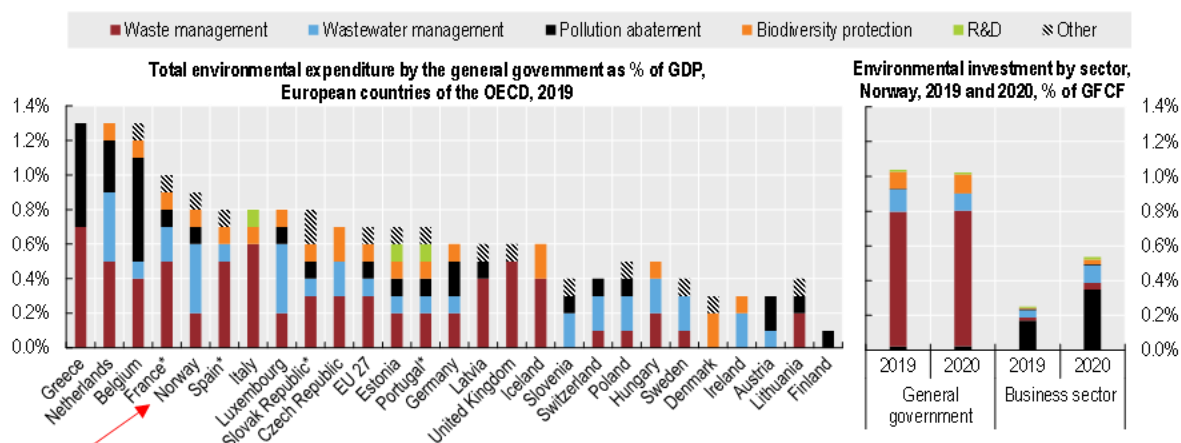
## 1.6. Green investment and practices

### 1.6.1. National environmental protection expenditure

Like other Scandinavian countries, Norway has a high level of government spending, representing 58% of GDP in 2020 compared to 41% in the OECD area (OECD, 2021<sup>[41]</sup>). Over the past decade, Norway heavily increased public investment, which was mostly driven by expenditures in the transport sector. Public investment reached 6.2% of national GDP, nearly twice as much as the OECD average (OECD, 2021<sup>[41]</sup>). Norway also spent nearly twice as much on environmental protection as the OECD average (0.9% of GDP), ranking above the Europe-27 average. Wastewater and waste management made up the bulk of environmental protection spending (Figure 1.23).

**Figure 1.23. Norway's environmental protection expenditure is among the highest in Europe**

Environmental protection expenditure by environmental media



Note: \*Provisional data.

Source: Eurostat (2022), "General government expenditure by function (COFOG)", (database).

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### 1.6.2. Investment in water infrastructure

As noted in the previous OECD EPR for Norway (OECD, 2011<sup>[27]</sup>), the country's ageing water supply and wastewater infrastructure requires substantial upgrades. According to Norsk Vann estimates, NOK 81 billion (USD 9.4 billion) and NOK 114 billion (USD 13.3 billion) will be required for drinking water infrastructure and wastewater infrastructure, respectively, over the next two decades. The rate of

improvement in infrastructure has been slow despite substantive investment. In 2020, only 0.7% of the total water pipeline system has been renewed (Environment Norway, 2021<sup>[23]</sup>). Norway has invested by far the largest share in infrastructure renewal in Europe: EUR 225 per inhabitant per year compared to EUR 82 in other EU member states (five-year average) (EurEau, 2021<sup>[66]</sup>). Norwegians also pay the largest annual water bill per household (EUR 950 per year, 2017-19 average).

Water is mostly managed by local government departments with sometimes limited capacity. A recent study analyses the potential for rationalisation in the water and wastewater sector, including proposals on how municipalities could renew the pipe networks faster and in a cost-efficient manner. Drawing on key findings, the Ministry of Local Government and Regional Development, the Ministry of Health and Care Services and the Ministry of Climate and Environment work together to identify required action. In 2017, Norway revised its national goals for water and health. It introduced a new drinking water regulation with requirements for operation and maintenance of the drinking water pipe network. As of 2021, the central government offers co-funding for municipalities and market operators to create stronger incentives for upgrading water pipes. Norway could further strengthen incentives to encourage greater efficiency and effectiveness of local service delivery.

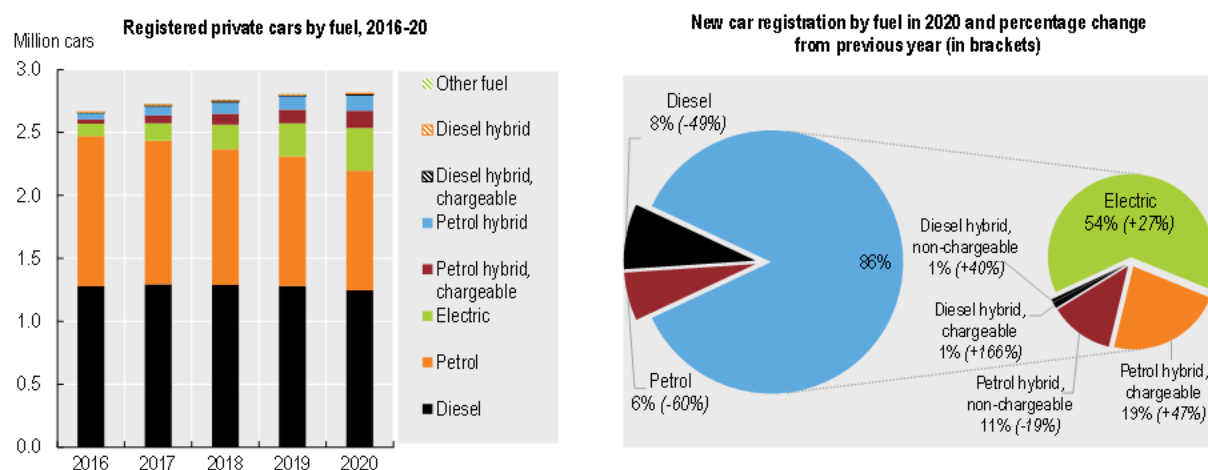
### **1.6.3. Investment in sustainable transport**

The government has set requirements for the use of zero- and low-emission technology and promotes strong investment support schemes. A large amount of public investment in sustainable transport and a climate-neutral and circular economy is channelled through Enova. Enova granted a total of NOK 3.7 billion (USD 393 million) in 2020. In addition, funding provided by Enova triggered private investment estimated at NOK 1.6 billion (USD 170 million) in 2020. Enova supports technology development and early market introduction to decarbonise transport, including the road, maritime and air sectors.

#### *Zero-emission vehicle adoption*

Norway is a world leader in ZEV adoption and made good progress towards achieving its policy targets to electrify its vehicle fleet (Table 1.4). The country has by far the largest share of ZEVs worldwide. In 2021, Norway had some 470 000 ZEVs, the largest number in Europe and 16% of total stock. The market share of newly registered ZEVs in 2021 was 64.5%; diesel and petrol engines represented 4% and 4.3%, respectively. The impact of these changes on the overall composition of Norway's vehicle fleet will take time. Despite the sharp increase in the number of EVs, diesel and petrol cars still made up 45% and 34% of Norway's car fleet, respectively in 2020 (Figure 1.24). This downward trend was pursued in 2021 when the share of diesel and petrol cars further dropped to 41% and 32%, respectively. The government should place a stronger emphasis on phasing out older, more polluting cars to accelerate changes in the composition of its vehicle fleet rather than encourage additional increases in passenger cars. According to projections (Ministry of Climate and Environment, 2020<sup>[67]</sup>), the stock of ZEVs might reach 1.25 million by 2030 (compared to 225 000 without incentives). This represents 44.5% of the vehicle fleet. The full greening of the car fleet will take more than a decade.

Figure 1.24. Norway is on track to electrify its vehicle fleet



Source: Statistics Norway (2021), *StatBank* (database).

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Table 1.4. State of progress on selected policy targets of the National Transport Plan 2022-33

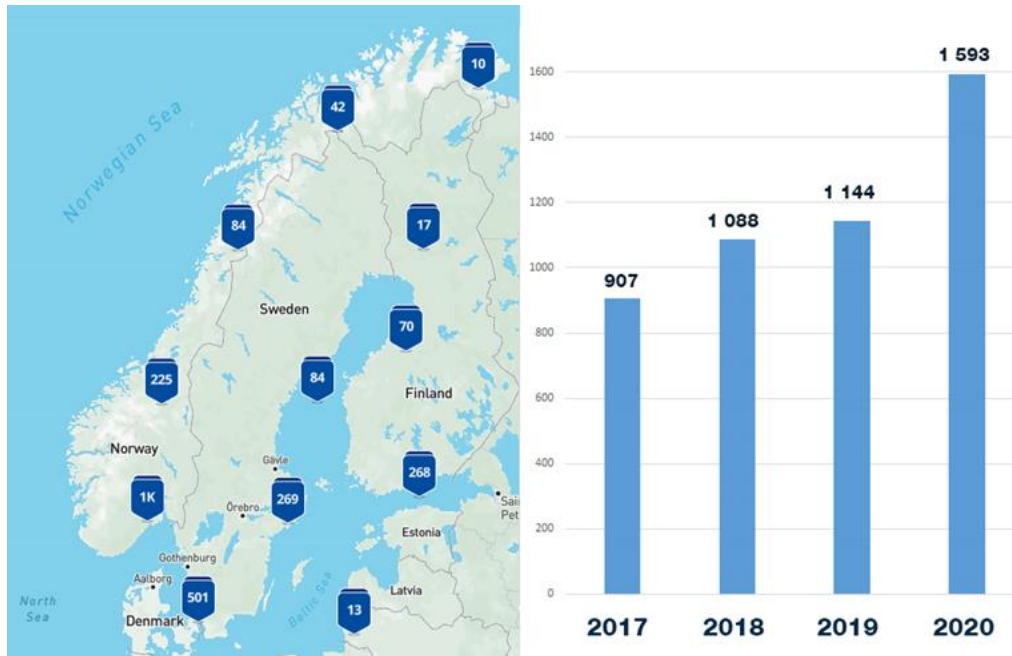
Policy target	Year	Status	Comment
All new passenger cars and light vans shall be zero-emission vehicles by 2025	64.5% (2021)	On track	Norway is the world's leader in terms of market share of EVs (16% in 2021).
All new city buses shall be zero-emission vehicles or use biogas by 2025	22.6% (2020)	On track	Proposal for a new regulation is undergoing public consultation. The proposal suggests an exception for city buses that operate with biogas.
All new heavier vans, 75% of new long-distance buses and 50% of new lorries shall be zero-emission vehicles by 2030	Heavier vans: 3% (2020) Long-distance buses: 7.6% (2020) Lorries: 0.5% (2020)	In progress	State aid is available through Enova.
Goods distribution in the biggest city centres shall take place with virtually zero emissions by 2030	n.a.	In progress	Some distribution hubs with zero emissions have been established with support from Enova; for example, the Oslo City Hub.

Source: Country submission.

Norway's success in promoting EVs has mainly been driven by generous tax incentives (Table 1.3). It was also boosted through public investment in the development of a dense network of charging stations, as well as low costs of batteries and related services. In 2020, Norway counted more than 13 000 charging points, including nearly 1 600 high-speed charging points, which were developed with public subsidies (Figure 1.25). Enova has also supported a charging infrastructure for nearly 150 city buses in Oslo. While this infrastructure is increasingly dense, Norway needs to pursue public financial support to establish and maintain public charging stations in areas that lack a commercial market, particularly in the north. The expansion of EVs will require massive investments in the development of a smarter and more flexible charging infrastructure covering the entire territory.

### Figure 1.25. Norway has a dense charging infrastructure for electric vehicles

Number of publicly available fast charging points (above 50 kW)



Note: The figure does not include Tesla superchargers, which in 2021 amounted to an additional 1 049 charging points.

Source: Country submission and Elbil, Norway, <https://ladekart.elbil.no>.

### Green shipping

Norway is a pioneer in developing and deploying zero- and low-emission technology in the maritime sector. The country has already electrified a third of its domestic ferries and aims at introducing zero-emission requirements for all new public procurement of ferries in 2023. A first hydrogen-driven ferry will be launched in 2022, and a hydrogen-driven short sea shipping vessel is scheduled to operate as of 2024. However, decarbonising long-distance maritime transport remains a challenge. Close co-operation with the business sector and industry partners will be key. The government supports a series of public support schemes for boosting the competitiveness of the Norwegian maritime industry, as well as the development and uptake of Norwegian environmental technology. Between 2015-19, Enova allocated more than NOK 2.6 billion (USD 294 million) to maritime projects; many projects were also supported by the Business Sector's NO<sub>x</sub> Fund or EU funding.

### Green aviation technology

Norway is leading the way towards sustainable air travel alongside its Scandinavian neighbours. Avinor, a state-owned company, announced in 2018 that it aims at making all short-haul flights all-electric by 2040. It also intends to make Norway the first country with a significant market share of electric aircrafts. The regional airline Widerøe intends to deploy a first all-electric 11-seater aircraft (P-Volt) by 2026. Norway has a strong comparative advantage in electrification of aviation. This advantage is due to its renewable power production, a well-developed airport network (48 airports and 3 000 docks) with relatively short distances and strong political will to boost electrification of the aviation sector. It will be important to provide clear, predictable, long-term incentives and a regulatory framework to make the electrification of commercial air traffic a success.

### 1.6.4. Investment for a climate-neutral and circular economy

#### *Carbon capture and storage*

Norway is a frontrunner in developing CCS solutions in Europe, together with the Netherlands and the United Kingdom. Norway's Longship project (Box 1.6) aims at kick-starting CCS development both in Norway and Europe, as well as enabling other countries to replicate technological solutions. The project benefits from long-term funding with the government's total investment reaching NOK 3.45 billion (USD 0.4 billion) in 2022 out of NOK 17 billion (USD 2 billion) state aid pledged until 2034, covering the construction phase (2021-24) and the first ten years of operations (2025-34). The practical application of CCS technologies could help set new industrial standards. By 2026-27, the Oslo Varme's facility could become one of the world's first carbon-negative incinerators (Box 1.6). However, there is concern that investment in CCS will privilege end-of-pipe solutions, removing focus from reducing emissions in the first place. For example, CCS-equipped incineration can contribute to a lock-in effect in waste management systems, impeding waste minimisation.

#### **Box 1.6. Longship: Norway's largest-ever industrial climate project**

Launched in 2020, Norway's carbon capture and storage project known as "Longship" is the country's largest-ever industrial climate project (total cost of NOK 25 billion – about USD 2.9 billion, including NOK 16.8 billion – close to USD 2 billion – in government funding, 2021-34) (Ministry of Petroleum and Energy, 2019<sup>[68]</sup>). The project brings together all components to form a complete CCS chain: it covers the capture of CO<sub>2</sub> from Norcem Heidelberg Cement's factory in Brevik and from Fortum Oslo Varme's waste-to-energy plant in Oslo. Northern Lights covers the transport and storage part of the project and is based on a joint venture of Equinor, Shell and Total. If successful, Longship could help scale back the use of emission-intensive construction materials and decarbonise waste. For example, Norcem aims to capture around 400 000 of 800 000 tonnes of CO<sub>2</sub> per year from its cement factory. The post-combustion capture technology of the Fortum Oslo Varme's facility could catch about 90% of Norway's largest "waste-to-energy" plant. This represents up to 14% of Oslo's emissions per year. Longship might also generate many jobs. The government estimates that Norcem and Forum Oslo Varme could directly create up to 3 000 jobs during the construction phase, and many more indirectly. Successful implementation of the Longship project could open other opportunities and provide lessons for research and development support in circular economy initiatives. Synergy could be developed with many other European CO<sub>2</sub> capturing projects that are funded by the EU Innovation Fund (e.g. Kairos@C in Belgium, Eqiom cement factory in France, Neste/Porvoo refinery in Finland and Sweden's largest biofuel heat and power plant). Nevertheless, it is unclear whether societal benefits of this bridging technology will outweigh the high investment costs.

Source: Ministry of Petroleum and Energy (2019), Longship – CCS.

#### *Offshore wind*

Norway has a competitive advantage in large-scale deployment of offshore renewables, particularly wind. The government has given a green light to open two new offshore areas – Utsira Nord and Sørlige Nordsjø II – that have a potential 4.5 GW wind power capacity. More active state involvement will be required along the whole value chain to create stronger incentives for private sector investment (Afewerki et al., 2019<sup>[69]</sup>). As part of the third COVID-19 recovery package, the Research Council of Norway has given NOK 120 million (USD 14 million) the creation of a Norwegian Research Centre on Wind Energy

(NorthWind). It aims to create export opportunities for Norwegian business and industry, and minimise the environmental impacts from wind power development.

### Buildings

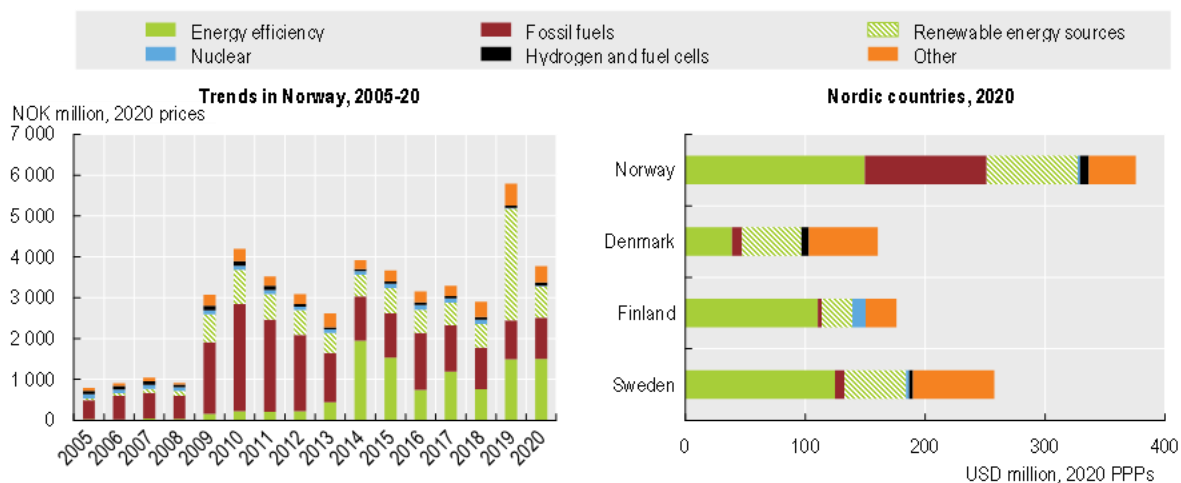
Energy efficiency of Norway's buildings is excellent in international comparison, with high energy standards for new homes. Enova has already implemented many measures to retrofit buildings. Individual measures should continue to be regularly assessed to check they are delivering anticipated energy savings and remain cost-effective. The revision of the construction products regulation within the European Green Deal could help create a European market for the re-use of building materials.

### 1.6.5. Environment-related innovation

The total amount of public support for research, development and demonstration (RD&D) has increased by 56% from NOK 9.3 billion (about USD 1 billion) in 2015 to NOK 14.6 billion (about USD 2 billion) in 2020 (Statistics Norway, 2021<sup>[70]</sup>). Spending for environmental objectives represented about 3% of total public R&D. Public funding in renewables has been increasing since 2010 and was boosted in 2020 by the recovery packages (Figure 1.26). Public funding notably targets the development of energy and climate technology with a view to supporting lasting climate-friendly market changes. Enova provides funding for new technology development in all sectors (NOK 3.7 billion or USD 393 million in 2020, 3 850 projects). A new framework agreement defines new Enova priorities for 2021-24. Moreover, a Green Platform encourages investment and innovation in all sectors (Section 1.7.1). Norway also contributes to finance a partial membership in InvestEU, providing access to European capital investments.

**Figure 1.26. Norway's public spending in renewables and energy efficiency has increased**

Public spending in energy research, development and demonstration technologies



Note: Other includes other power and storage, and other cross-cutting and unallocated technologies. Right panel: data for Finland refer to 2019.  
Source: IEA (2021), *Energy Technology RD&D Budgets*.

StatLink  <https://stat.link/pxz80s>

Norway counts a lot on technological developments to achieve its climate goals and strives to reap the gains from innovation. While strong government support for innovation will further boost Norway's green transition, technical solutions alone may not be sufficient. Norway's green transition will also need to involve behavioural changes and require adjustment to consumption patterns.

### **1.6.6. Voluntary agreements and eco-certifications**

Norway applies soft approaches such as voluntary agreements to reduce negative environmental impacts, particularly in the field of agriculture and waste management. Thanks to voluntary commitments with stakeholders from across the food value chain (involving 12 commercial organisations and 5 ministries), Norway reduced food waste by close to 10% between 2015 and 2020. However, NOK 22 billion (about USD 2.3 billion) in food is still wasted each year, representing about 1.3 million tonnes of CO<sub>2</sub>-eq emissions. Awareness campaigns to promote better consumer choices and better understanding of best-before dates need to be pursued. Binding measures to reduce food waste may be needed.

The government and Norway's two main agricultural organisations signed a voluntary agreement in 2019 to reduce and enhance removals by a total of 5 million tonnes of CO<sub>2</sub>-eq over 2021–30. Moreover, the Business Sector's NO<sub>x</sub> Fund provides support and incentives for enterprises to further reduce their NO<sub>x</sub> emissions. Voluntary agreements are most effective when combined with a serious threat for regulatory action.

Norway also uses eco-certifications (ISO 14001 and EMAS). The Eco-Lighthouse Certification Programme counts close to 7 500 certified businesses. These firms commit to improving performance in the areas of working environment, waste management, energy use, procurement and transport. Eco-lighthouse certification – the first national scheme in Europe – is also used in green public procurement.

### **1.6.7. Green public procurement**

Norway's general government procurement spending more than doubled over 2011-19 from NOK 275 billion (USD 29.2 billion) to NOK 595 billion (USD 63.2 billion). Public procurement represented 29.3% of government expenditures and 17.1% of GDP in 2020 (OECD, 2020<sub>[71]</sub>). Consequently, public procurement can be a powerful policy instrument for aligning public expenditure with green objectives, promoting low-emission solutions and reducing GHG emissions.

The promotion of low carbon technologies in the transport sector is a striking example of aligning public spending with green objectives. Within the government's National Transport Plan 2022-33, the country actively uses public procurement regulations to boost the development and uptake of low-emission solutions: about a quarter of city buses are zero-emission vehicles and by 2025, all new city buses shall be zero-emission vehicles or use biogas. Climate requirements for public procurement (construction, vehicles, food/meal services) are also set in the Climate Action Plan 2021-30.

According to the 2016 Public Procurement Act, contracting authorities have a legally binding duty to develop and implement green procurement practices. It encourages a stronger focus on life cycle costs and requires the entire procurement cycle to consider sustainability criteria. There is still room for improvement when it comes to implementation. Norway needs to enhance countrywide uptake and strengthen the accountability framework. Audit and control continue to be weak points in relation to green public procurement in Norway (OECD, 2020<sub>[71]</sub>). As already noted by the previous OECD EPR (OECD, 2011<sub>[27]</sub>), there is no systematic approach for monitoring outcomes of sustainable procurement. Availability of data for monitoring purposes remains a challenge. Data on the share of green spending in public procurement could usefully inform decisions but are not yet systematically available. Preliminary findings of the Norwegian Agency for Public and Financial Management indicate an increase in the share of green public procurement spending in food purchases and meal services, as well as in the construction sector,

in 2021. A 2021-30 action plan for climate- and environment-friendly public procurement and green innovation proposes measures to increase the share of green public procurement.

## 1.7. Towards a just and equitable transition

### 1.7.1. Green recovery

The health and economic impacts of the global COVID-19 pandemic have been less severe in Norway than in other European countries. As elsewhere, local pollution and GHG emissions declined in line with the lower level of activity. While its economy was initially hit hard by slumping oil prices, Norway is recovering quickly and will reach pre-pandemic GDP per capita levels in 2022 (OECD, 2021<sup>[3]</sup>). Policy makers can now turn more fully to structural challenges (OECD, 2022<sup>[20]</sup>).

Unemployment in Norway increased from 3.5% in February 2020 to 5.3% in August 2020 – its highest rate during the pandemic. It reached its pre-pandemic level of 3.5% in November 2021. The tourism and transport sectors were hardest hit, even though many job cuts can be classified as temporary due to time-bound containment measures. About 8.5% of Norwegian workers benefited from job retention schemes (OECD, 2022<sup>[72]</sup>).

**Table 1.5. The environmental impact of Norway's recovery measures was mixed**

Key measures	Sector	NOK (million)	USD (million)
Increased grant to Enova, which provides R&D funding for industries	Multiple	2 000	233
Increased grants to R&D-funding organisations via Green Platform (2020-22)	Multiple	1 125	131
Grant to "Nysnø", which invests in firms that develop climate-friendly technologies	Multiple	700	81
Grants to Klimasats to support municipalities in GHG emissions reduction efforts	Multiple	50	6
Increased funding for R&D to Norwegian Research Council to research funding programme ENERGIX, PTROMAKS2, DEMO2000 and FME wind	Multiple	120	14
Grants to promote green shipping (R&D and investments in low-emission ships)	Maritime transport	485	56
Loans to support green fleet renewal in the coastal transport and fisheries sectors	Maritime transport	600	70
Income support for commercial bus and ferry companies	Transport	200	23
Grants to stimulate a circular economy	Waste & recycling	100	12
Grants to support gene banks for wild salmon and similar projects	Biodiversity	20	2
Grants to increase the basic funding of environmental research institutions	Biodiversity	30	3
Increased grants to support measures to prevent invasive species	Biodiversity	13	2
Several temporary tax reductions for oil companies operating on the continental shelf, combined with new commitments to reduce emissions	Energy	131 000	15 234
Grant to cover the operating deficit for the last coal mine on Svalbard	Energy	91	11
Loan guarantees to airline companies under some conditions	Air transport	6 000	698
Suspension of the air passengers tax in 2020 and 2021	Air transport	n.a.	n.a.
Purchase of regional air transport services to compensate income losses	Air transport	2 039	237
Purchase of services from airline companies to help citizens return from abroad	Air transport	35	4
Grants to promote ocean-based wind turbines	Energy	55	6
Increased maintenance of road, railway and coastal infrastructure	Transport	1 330	155
Purchase of services from ferry companies operating in connection with national roads, in order to compensate to income losses	Maritime transport	356	41
Purchase of services from railway companies to compensate to income losses	Rail transport	2 575	299
Compensation for income losses for rail and other public transport companies	Transport	8 500	988

Note: Measures cover the period from the beginning of the pandemic in early 2020 until 31 December 2021, at 2021 exchange rates.

Colour code: green = positive impact; red = negative impact; grey = mixed impact; light grey = undetermined.

Source: Country submission and OECD Green Recovery Database (2021).



Economic measures included a mix of time-limited compensation and subsidy schemes, temporary changes in tax rules, income protection, investments in key infrastructure sectors, increased funding in technology development and a green transition package. The cost of these measures was NOK 230 billion in 2020 and 2021 (about USD 26.7 billion), including substantial support for the oil and gas industry and the aviation sector (Table 1.5). In addition, a system of tax concessions allow the immediate tax deduction of current/projected investment spending in the petroleum sector from 2020 to 2028. The temporary changes to the petroleum tax are estimated to reduce tax revenues over time by about NOK 10 billion (USD 1.2 billion), measured in NOK 2020 terms. Thanks to the rebound in oil prices, concessions in the pandemic's early months may have been more generous than necessary (OECD, 2022<sup>[20]</sup>).

Overall, the government has supported implementation of green restructuring measures and plans. For example, it set up a Green Platform (NOK 1.1 billion, about USD 119 million). The platform aims to stimulate “bigger and more rapid investments from companies in green sustainable solutions and products”. The initiative is cross-cutting and involves participation of five ministries. Other measures funded investments in key infrastructure sectors such as green maritime transport. In addition, the government increased funding in technology development and several green conversion packages, the largest of them were channelled through its state-owned enterprise Enova. As in other OECD countries, monitoring and evaluation are needed to ensure that funds are spent in an economically efficient, environmentally sustainable and publicly transparent manner (OECD, 2021<sup>[73]</sup>).

### **1.7.2. Foreign investment and climate finance for developing countries**

The government intends to better consider emissions associated with foreign investments. The equity-portfolio carbon emissions of Norway's Government Pension Fund Global (GPF) are estimated to be almost twice the country's total emissions (OMFIF, 2021<sup>[74]</sup>). The GPF pioneered ethical guidelines for investment decisions based on active ownership and the exclusion of firms from its portfolio. These guidelines explicitly include carbon emissions. While climate risk is not explicitly anchored in its investment mandate, the fund has started incorporating climate risks in its management. The government should follow through on recommendations from an expert group that has proposed to base the responsible investment management of the GPF on the Paris Agreement's goals<sup>13</sup> (Ministry of Finance, Expert Group, 2021<sup>[75]</sup>). At the COP26, Norway's prime minister announced government plans to make the GPF “(t)he leading fund in responsible investment and the management of climate risk”.<sup>14</sup> This would help make the fund's activities more consistent with Norway's commitments under international climate agreements. To date, despite its huge potential, the world's largest sovereign wealth fund plays almost no role in the domestic or global green transition (Kattel et al., 2021<sup>[16]</sup>).

Norway recognises the critical need for support to developing countries with respect to both climate mitigation and adaptation. So far, the large majority of climate financing for developing countries and emerging economies has been channelled into climate change mitigation. This includes support for the International Climate and Forest Initiative, which is the largest single element in Norway's public climate finance. At COP26, Norway's prime minister confirmed high-level support for this initiative until 2030. The government intends to double its total climate finance to NOK 14 billion (USD 1.6 billion) by 2026 at the latest, including three times more support for climate adaptation. The climate adaptation pillar of Norway's 2021 Strategy for Climate Adaptation, Prevention of Climate-related Disasters and the Fight against Hunger covers five priority areas: i) early warning systems and climate services; ii) nature-based solutions; iii) climate-resilient food production; iv) infrastructure; and v) innovative finance mechanisms (Ministry of Climate and Environment, 2021<sup>[76]</sup>). Norway is one of the largest donors to the Green Climate Fund, contributing NOK 3.2 billion (about USD 372 million) for 2020-23.

### 1.7.3. Preparing for a low-carbon future without oil and gas

Norway ranks number one on the Net Zero Readiness Index (KPMG, 2021<sup>[77]</sup>). It has a better track record than most other oil exporters in diversifying its economy. The country has many comparative advantages in other industries (e.g. low-carbon manufacturing in electricity-intensive industries, offshore wind, aquaculture, CCS). Building on its human capital with high education levels, well-functioning institutions, effective tax system and robust fiscal policy framework, Norway has the capabilities and financial means to accelerate a just transition within its own borders and abroad.

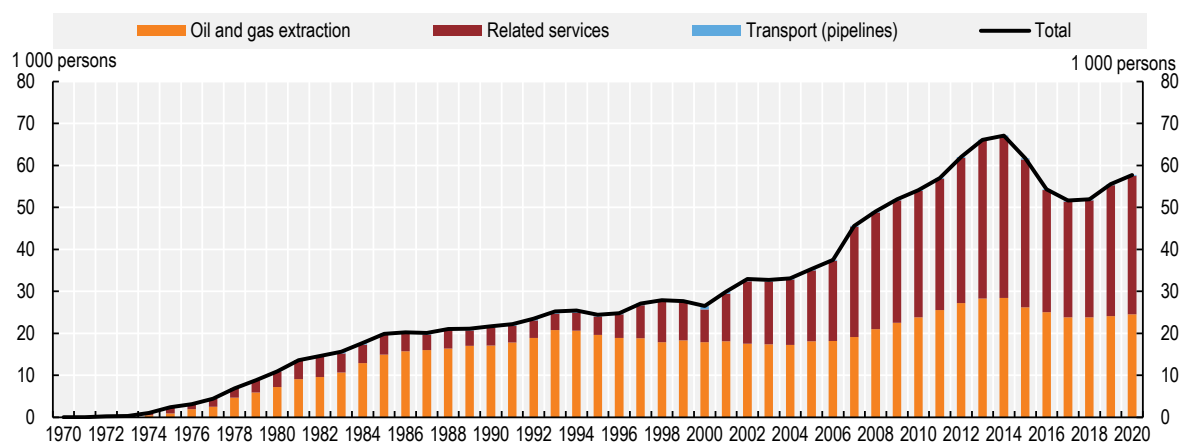
Uncertainty about the future global price of oil and gas due to shifting global energy demand represents a major risk for future investment. With intensifying global awareness of climate change, Norway's transition from oil and gas activities may be faster than previously expected. Norway is likely to face increasing international pressure with the forging of new coalitions such as the Beyond Oil and Gas Alliance. Six countries have already committed to ending new licensing rounds for oil and gas exploration and production. However, the challenges in economic adjustment brought by any such ban would be larger for Norway (OECD, 2022<sup>[20]</sup>). The European Union announced in October 2021 that it will seek a ban on oil and gas production throughout the Arctic. There is debate whether Norway should announce an end to new licences for oil and gas exploration. The transition to a less petroleum-dependent economy is already underway. The share of the petroleum sector within national GDP shrank from a peak of 25% in 2008 to 15% in 2021.<sup>15</sup> Employment in the petroleum sector dropped following the oil price plunge in 2014-16 and is set to decline in the long term (Figure 1.27). Facilitating the “creation of profitable green jobs through pricing, public procurement, regulations and measures that support technology development” is an official government priority with a view to promoting a just transition (Government of Norway, 2020<sup>[78]</sup>). A more circular economy could create many new job opportunities. Shifting employment will require strategic planning and co-ordination.

According to the OECD Economic Survey of Norway 2022, the speed of the transition will determine any critical macroeconomic consequences for the Norwegian economy. If labour and capital resources can be reallocated from the oil and gas sector at a speed that avoids massive unemployment or stranded assets, then the transition will be comparatively benign (OECD, 2022<sup>[20]</sup>). While reduced oil and gas activities will create important economic and societal repercussions, the impact will probably be less than previously feared (Government of Norway, 2021<sup>[79]</sup>).

Norway has a long-standing system of social protection and institutionalised tripartite dialogue between the government, trade unions and other labour organisations. The country adopted the 2015 Guidelines for a Just Transition<sup>16</sup> of the International Labour Organization and signed the COP26 “Just Transition” Declaration to ensure that no one is left behind in the transition to net zero economies. Beyond Norway's general system of workers' rights, the government has not yet developed an action plan for a “just and equitable transition” from fossil fuel production (SEI et al., 2021<sup>[17]</sup>). More clarity about the “fair and equitable” transition in the Norwegian context would be useful. The government also needs to show it will address economic, social, spatial and gender inequalities beyond traditional support for affected communities or unemployment relief for workers. This involves a reflection on root causes to address structural changes and avoid replicating the same inequality patterns in new green industries. Equity issues concern uneven exposure to risk, uneven ability to capture the benefits and uneven responsibility for damage.

**Figure 1.27. Employment in the Norwegian petroleum sector**

Direct employment in the oil and gas industry



Note: 2019 and 2020 data are preliminary.

Source: Statistics Norway (2021), "Annual National Accounts", *StatBank* (database).

StatLink  <https://stat.link/wme8cb>

Furthermore, the rate of change towards a more sustainable future could be accelerated. Achieving the 2050 targets of a low-carbon society will require government support, stronger private sector investment and civil society engagement. To that end, the government needs to pursue its efforts to help create profitable green jobs through pricing, public procurement, regulations and measures that support technology development (Government of Norway, 2020<sup>[78]</sup>). It should also ensure attractive conditions for business start-ups along with smooth insolvency processes, remain responsive to evolving skills requirements, and promote education and digitalisation.

The role of the private sector could be further leveraged by better integrating sustainability into business models. A recent survey found that about half of participating companies have a sustainability focus with a publicly stated commitment towards a net zero framework (S-Hub, 2021<sup>[80]</sup>). While awareness among senior management has increased, middle management needs to be more strongly involved in operationalising new strategies towards a green transition. Efforts to improve the level of competence in different parts of companies need to be pursued. Taxonomy via a common classification system could address greenwashing, promote sustainable investment practices and help companies improve their respective environmental performance.

Civil society groups, communities and – more broadly – citizens are important sources of creativity and innovation, which policy makers could engage more strategically (Bruyninckx, 2021<sup>[81]</sup>). Transformative change necessarily impacts lifestyle and consumption patterns. Today's children can drive the behavioural and lifestyle changes of tomorrow. Environmental education is of paramount importance.

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## Notes

<sup>1</sup> Norway does not formally register the number of Sami people. According to the Sami Parliament census/electoral roll, the number of registered Sami voters has increased from 12 500 people in 2005 to 20 500 in 2021. However, this does not reflect the total number of Sami living in Norway as the census excludes children and Sami people who did not register.

<sup>2</sup> Norway's oil production has been increasing over recent years, notably due to Johan Sverdrup, the country's third largest field coming on stream with record-low CO<sub>2</sub> emissions – 4% of the world average. In addition, despite delays, Johan Castberg fields are expected to become operational by the end of 2023.

<sup>3</sup> Norway starts the second cycle while other EU member countries will already be launching the third cycle. The timeline for Norway under the EEA is different.

<sup>4</sup> Due to long distances and low population density, Norway's sparsely populated areas have a natural disadvantage. For example, the north faces high transport costs and unpredictable weather conditions during the winter. These pose obstacles to business development and make the region less attractive.

<sup>5</sup> EEA regulation does not apply on Svalbard; projects on Svalbard are implemented in accordance with the Svalbard Environmental Protection Act.

<sup>6</sup> In most OECD member countries, non-compliance detection numbers cover only site inspections. In Norway, the coverage is much broader, which makes comparison with other countries difficult.

<sup>7</sup> Norway applies taxes on other GHG emissions, namely hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), which both can cause harm to human health and the environment. The tax rate in 2021 is NOK 0.591 per kg for each gas, multiplied by their respective global warming potential.

<sup>8</sup> As of July 2021, the price of an allowance permitting 1 tonne of CO<sub>2</sub> to be emitted had increased to slightly above EUR 50. The overall cap on emissions has gradually decreased, which is likely to cause allowance prices to increase further. Energy use subject to the EU ETS is generally exempt from the CO<sub>2</sub> tax on mineral products or benefits from a reduced carbon tax rate. For instance, most of the industry sector is exempted from taxes as it is assumed the EU ETS fully covers fossil fuel use in this sector. Natural gas used by the offshore industry is a notable exception: it is subject to both a carbon tax and EU ETS. Norway's domestic aviation is also covered by both the EU ETS and CO<sub>2</sub> taxes.

<sup>9</sup> This would entail a reduction in the pump price of NOK 0.31 for diesel and NOK 0.28 for petrol compared with the previous government proposal.

<sup>10</sup> Norway applies two taxes on petrol and diesel: the CO<sub>2</sub>-tax and the road usage tax. In 2021, these taxes amounted to NOK 6.38 per litre of petrol (NOK 1.37 + NOK 5.01) and NOK 5.16 per litre of diesel (NOK 1.57+3.58 NOK). Norway's road usage tax rate on petrol is higher than the rate applied to other fuels, measured in NOK per litre. The lower rate for diesel is partially justified by the lower energy content, but petrol also has a higher tax rate measured in NOK per megajoule. The same CO<sub>2</sub>-tax rate (NOK 766 per tonne of CO<sub>2</sub>) applies to all fossil fuels for all road transport.

<sup>11</sup> SDG target 12c aims to “rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions”.

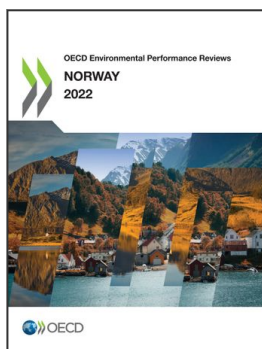
<sup>12</sup> Members include Costa Rica, Denmark, Ethiopia, Finland, New Zealand, Norway, Sweden, Switzerland and Uruguay.

<sup>13</sup> “Climate risk can affect all sectors of the economy in different ways, and a large fund that is broadly invested has nowhere to hide. The fund thus benefits from, and, based on its mandate, should contribute to the achievement of the targets of the Paris Agreement, and [make sure] that the transition to a zero-emission society takes place in an orderly manner”.

<sup>14</sup> Statement by Prime Minister Jonas Gahr Støre at the UN Climate Change Conference in Glasgow, 2 November 2021: [www.regjeringen.no/en/aktuelt/statement-at-the-un-climate-change-conference-in-glasgow/id2882242](http://www.regjeringen.no/en/aktuelt/statement-at-the-un-climate-change-conference-in-glasgow/id2882242)

<sup>15</sup> In 2021, the petroleum sector represented 41% of total exports, 19% of total investments and 5.8% of employment (Norwegian Ministry of Energy and Petroleum, 2021).

<sup>16</sup> Key elements of a just transition include social protection for people who are adversely affected by the green transition and support for a green transition in the business sector; skills development for everyone; and a green transition based on social dialogue.



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