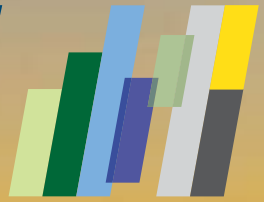


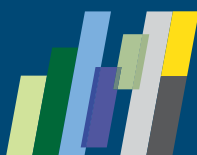
*Environmental
Performance
Reviews*



Finland

HIGHLIGHTS

2021



THE OECD

The Organisation for Economic Co-operation and Development (OECD) provides its 38 member countries with a forum to work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to help governments respond to new developments and concerns. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

WHAT ARE EPRs?

OECD Environmental Performance Reviews (EPRs) provide evidence-based analysis and assessment of countries' progress towards their environmental policy objectives. They promote peer learning, enhance government accountability and provide targeted recommendations to help countries improve their environmental performance. They are supported by a broad range of economic and environmental data. Each EPR cycle covers all OECD member countries and selected partner countries.

All reports, and more information, are available on the EPR website: <http://oe.cd/epr>.

THE THIRD EPR OF FINLAND

This is the third Environmental Performance Review (EPR) of Finland. The previous ones took place in 1997 and 2009. The EPR reviews the country's environmental performance in the last decade. The process involved a constructive and mutually beneficial policy dialogue between Finland and the countries participating in the OECD Working Party on Environmental Performance (WPEP). The OECD is grateful to the three examining countries: Norway, Switzerland and the United Kingdom.

The EPR provides 36 recommendations, approved by the WPEP on 13 October 2021. They aim to help Finland enhance policy coherence to build a strong, resilient and green economic recovery; advance towards sustainable development; and implement ambitious policies for environmental management, climate mitigation and circular economy. Particular emphasis is placed on climate change and well-being.

<http://oe.cd/epr>

KEY ENVIRONMENTAL INDICATORS 2020

Energy intensity

Total energy supply per capita

5.7 toe per capita (OECD average is 3.7)

Renewables (% of total energy supply)

37% (OECD average is 12)

GHG intensity—GHG Emissions per capita

9.6 t CO₂ eq. per capita (OECD average is 11.3)

Mean population exposure to PM_{2.5}

5.6 µg/m³ (OECD average is 13.9)

Municipal waste per capita

565 kg per capita (OECD average is 538)

Material recovery of municipal waste (% of composting and recycling in total treatment)

43% (OECD average is 36)

Material productivity (USD, 2010 PPPs/Domestic material consumption, kg)

1.5 USD/kg (OECD average is 2.9)

Wastewater treatment

(% of population connected to tertiary treatment)

85% (OECD average n.a.)

Intensity of use of forest resources (harvest or fellings over annual productive capacity)

0.82 (OECD average n.a.)

Environmental protection expenditure (% of GDP)

2.8% (OECD average is 1.5)

Share of CO₂ emissions priced above EUR 60/tCO₂ (excluding emissions from biomass)

48% (rank 8 in OECD)

R&D budget for environment and energy (% of total government R&D budget)

5.5% (OECD average is 6.4%)

Road vehicle stock

88 vehicles/100 inhabitants (OECD average 66)

Note: rounded figures.

Overview

Finland is a small, open economy with a prominent industrial sector. It is one of the most sparsely populated and rural countries in the OECD. Nearly three-quarters of its land are covered by forests, which support a strong forestry industry. Finland also hosts vast freshwater resources and many of Europe's peatlands. Finns enjoy one of the highest levels of well-being in the OECD and showcase a high level of environmental consciousness.

Finland has a strong reputation as a leader in environmental policy and sustainable development. It should be commended for its commitments to carbon neutrality by 2035 and to become a circular economy and fossil-free welfare society. However, it is not fully on track to meet its ambitious goals. Greenhouse gas emissions fell remarkably but need to decline faster. Waste generation, material consumption and nutrient losses to water bodies have continued to rise. Agriculture and forestry exert pressures on the country's biodiversity.

Finland should turn its ambitious strategies into effective and coherent action. It can tap into abundant renewable energy resources, a sound environmental policy framework, its experience with using economic and voluntary instruments and a strong innovative capacity. Finland needs to get the right policies in place, to secure sufficient resources and ensure continued and broad public consensus. Integrated policy packages are needed to encourage behavioural changes, and steer the economic recovery from the COVID-19 crisis towards the green transition.

FINLAND 2020

Population

5.5 million

GDP/capita

(current purchasing power parity)

USD 51 600

(OECD average is 46 500)

Total area

304 000 km²

Population density

16.4 inhabitants/km²

(OECD average is 36)

Currency

USD 1 = EUR 0.830

Note: rounded figures.



Key recommendations

AIR, WASTE, WATER AND BIODIVERSITY MANAGEMENT

- Allocate adequate resources for the implementation of the National Air Pollution Control Programme 2030, focusing on measures targeting PM_{2.5} pollution from small-scale wood burning and street dust.
- Consider introducing economic incentives to accelerate the renewal of older stoves and regulations on sauna stoves and studded tyres.
- Make greater use of voluntary agreements and economic instruments to encourage recycling and material recovery; consider introducing a nationwide weight-based pay-as-you-throw system with differentiated fees for sorted waste.
- Develop regulatory and incentive measures to achieve the targets set in the 2021 Strategic Programme to Promote a Circular Economy.
- Consider introducing new instruments to improve nutrient management and recycling (e.g. taxation of nutrient surplus at farm level; nutrient cap-and-trade system between farms in the Baltic Sea watershed).
- Improve monitoring and ensure compliance of independent wastewater treatment systems with tertiary treatment standards, by providing financial and technical assistance and strengthening enforcement.
- Develop an action plan with measurable targets to guide biodiversity policy and actions to 2030; regularly publish indicators to track progress and impact; ensure availability of sufficient financial and human resources, and extend the use of economic instruments to raise finance for biodiversity management.

CLIMATE CHANGE MITIGATION

- Explore GHG emission mitigation scenarios characterised by low energy demand; further emphasise system redesign and behavioural change.
- Improve projections and assessment of the bioeconomy – including the forest industry and use of domestic bioenergy – and of its impact on the potential of carbon removal and on biodiversity.
- Announce a clear phase-out date for peat extraction; strengthen assessment of the proposed measures to support workers and communities in the transition out of peat; consider setting up a commissioner or a multi-stakeholder commission to promote dialogue and ensure consensus about the transition.
- Continue to promote deep retrofits, as well as joint procurement of building elements and joint renovation projects; explore alternative financing mechanisms for deep retrofits.
- Further strengthen financial support for non-combustion technologies in district heating; further develop mitigation strategies beyond the dwelling level (e.g. promoting compactness, mixed land use and green spaces); improve the green factor method and mainstream it across Finland.
- Reduce car dependency by removing policies that encourage car ownership (e.g. minimum parking requirements), mainstreaming road management tools (e.g. reallocating road and parking space) and urban redesign; continue developing multi-modal networks.
- Develop metropolitan transport authorities across the country to better co-ordinate transport across municipalities; extend the purview of new and existing ones.
- Continue to financially support the deployment of public and smart charging stations for electric vehicles (EVs); increasingly target support to public charging hubs that enable charging for a variety of users and speed.
- Apply strong sustainability criteria to domestic and imported liquid biofuels, as well as raw materials for biofuel production; include electricity from EVs into the fossil-free fuel obligation.



GREENING THE ECONOMIC RECOVERY

- Accelerate the implementation of sustainable development or green budgeting procedures; to this end, build adequate capacity in administration and enhance co-ordination across government branches; ensure a systematic assessment of the environmental and social impact of policy packages and resource allocations.
- Maintain the commitment to the green transition in allocating resources to the Sustainable Growth Programme until 2026 and possibly beyond; establish a sound monitoring framework to track implementation of the programme and its effectiveness.
- Follow through on plans to increase R&D spending; further increase and better target environment-related R&D support to small and medium-sized enterprises.

GREENING TAXES AND SUBSIDIES

- Set a trajectory of future effective carbon prices to 2030, as part of a broader fiscal reform that addresses potential adverse impacts on households and competitiveness.
- Address misalignments and inefficiencies in the energy tax system and strengthen carbon pricing, notably by: phasing out the preferential tax treatment of peat and fuels used in agriculture; increasing the energy tax on diesel; and systematically adjust the energy and carbon tax rates to maintain their incentive function and fiscal revenue.
- Assess the option of extending the energy and carbon tax structure (based on lifecycle GHG emissions) to solid biofuels.
- Redesign tax incentives to steer a transition towards sustainable mobility, by removing tax-free parking at the workplace, removing the tax incentive for company-owned EVs and other low-emission cars, introducing distance-based road pricing for heavy goods vehicles, and enabling the introduction of congestion charges in Helsinki and other urban areas facing congestion problems.



Finland has made considerable progress towards the Sustainable Development Goals, but challenges remain

Finland's environmental performance over the past decade has been mixed. Finland topped the Sustainable Development Goal Index ranking in 2021, out of 165 countries. It has achieved the goals related to water and clean energy. However, challenges remain to meet the goals on climate, responsible consumption and production, and terrestrial and marine biodiversity.

Air quality is among the best in the OECD, but there is scope to further reduce pollutants' emissions.

Smallscale wood burning causes about half of pollution from fine particulate matter. The relatively old vehicle fleet and the high share of coal, peat and biomass burning are major sources of nitrogen oxides. Finland should consider regulating the use of studded tyres to reduce emissions from road dust. Limited funding has slowed down implementation of the National Air Pollution Control Programme 2030.

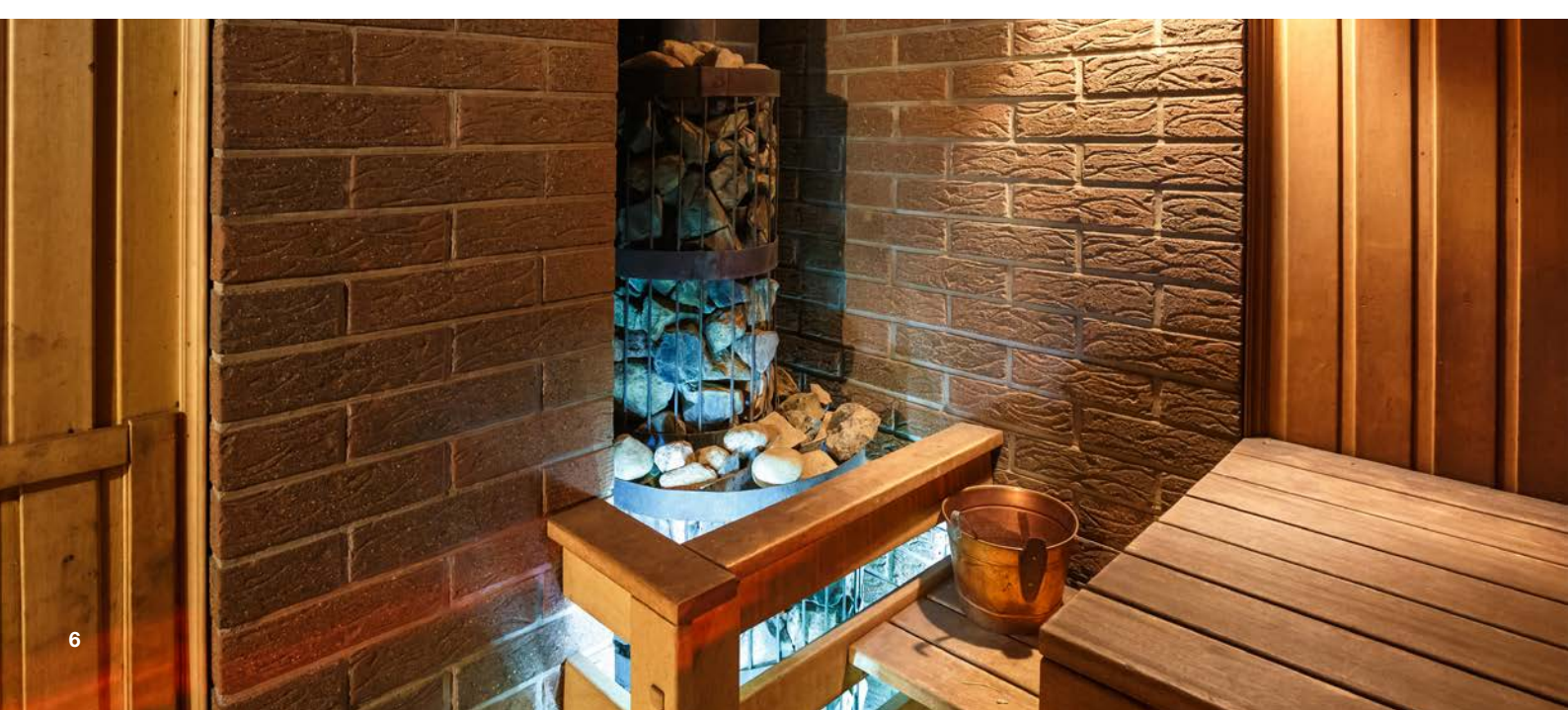
In 2019, Finland's annual average exposure to fine particulates (PM_{2.5}) was **5.6 µg/m³**, the lowest in the OECD

Water quality is generally good, but diffuse nutrient pollution from agriculture exerts pressure on surface water bodies.

Some rivers and lakes and most coastal waters fail to achieve good ecological status. Economic incentives to improve nutrient management and recycling would help reduce nutrient losses. The efficiency of urban wastewater treatment is high. However, compliance of independent treatment systems with the required tertiary treatment standards should be better monitored.

85% of the population is connected to plants applying tertiary wastewater treatment, among the highest in the OECD

Swift action is required to make Finland a circular economy leader. Finland needs to prioritise waste prevention and recycling, as well as promote new business models, to achieve the ambitious targets of the Strategic Programme to Promote a Circular Economy to 2035. Municipal waste is expected to continue to





increase. The ban on landfilling of organic waste and a higher landfill tax have contributed to diverting waste from landfills (Figure 1). While all municipalities use pay-as-you-throw schemes, only a few differentiate charges to encourage separate collection. Waste recovery has grown but remains below 50% of treated municipal waste (the 2020 target). Both the circularity rate and the material productivity are among the lowest in Europe. The 2021 revision of the Waste Act aims to strengthen collaboration among service providers to improve efficiency of waste management.

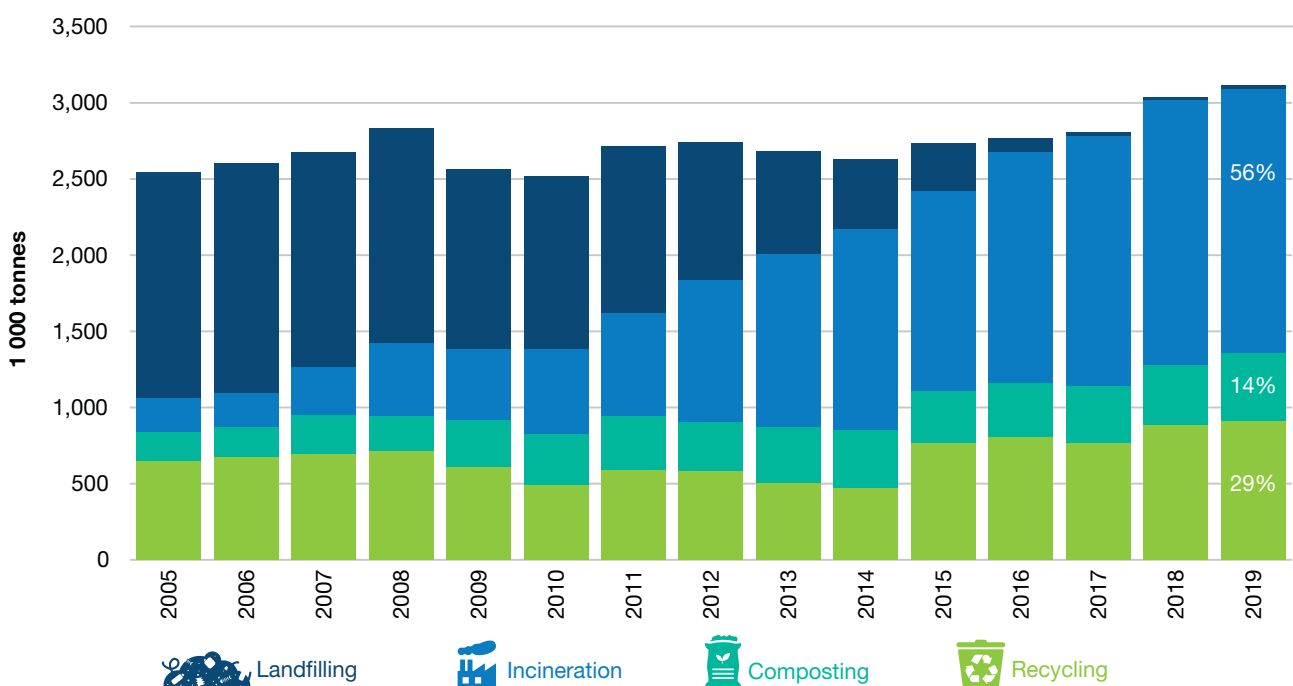
Finland should do more to halt biodiversity loss. It has strengthened its biodiversity policy framework, but the status of biodiversity has not improved significantly. Lack of resources is among the causes. In response, in 2020 the budget for biodiversity protection was increased to a record-high level. The forestry sector is a driver of wood habitats degradation. The emphasis on bioenergy for climate mitigation will increase forestry activity and

may add pressures. Environmental impact assessment should better cover forestry projects. Financial compensations to private owners for protecting part of their land have helped restore some ecosystems. However, nature management on private lands needs to be strengthened, especially in commercial forests. Finland met the 2020 Aichi target on protected terrestrial and marine areas. Nonetheless, an expansion of protected land is warranted in southern regions, where pressures on land use are higher.

In 2019,
48%
of habitats were classified as threatened, especially mires, forests and semi-natural grasslands

Figure 1. **Waste disposal shifted from landfilling to incineration**

Municipal solid waste treatment, 2005-2019



Note: Nearly all incineration occurs with energy recovery. Estimation method of recycling waste changed in 2015. Source: OECD (2021), "Municipal waste, generation and treatment", OECD Environment Statistics (database).

GHG emissions fell, but uncertainties remain on the path to carbon neutrality

Finland overachieved its climate mitigation commitments.

Reaching the carbon-neutrality target by 2035 requires annual emission reductions more than 2.5 times higher than in the past decade. Carbon removal by forests is essential to achieve the target (Figure 2). However, trade-offs exist between forests' carbon sink potential and harvesting levels, including for biomass. Lowering energy demand would reduce the need for biomass and make carbon neutrality more likely to achieve. Finland's climate policy need to focus more on redesigning energy and transport systems to deliver on climate and well-being goals.

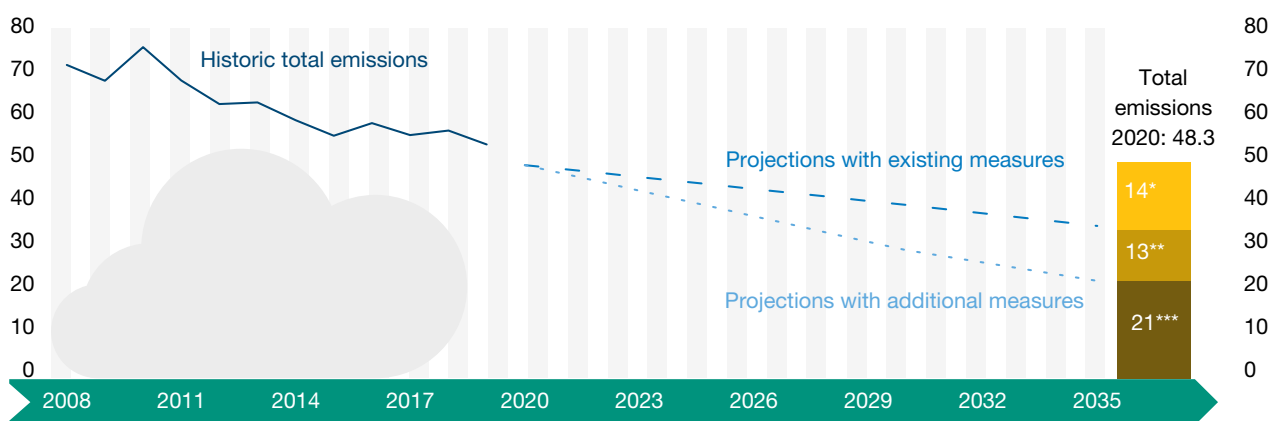
A flexible and zero-carbon electricity sector is key to decarbonise the economy. Finland has one of the least carbon-intensive energy and electricity mixes in the OECD (Figure 3). Biomass is the main renewable source. Finland aims to phase out coal by 2029 and to at least halve peat consumption by 2030. It could consider adjusting the coal and peat phase-out dates in view of the carbon-neutrality target. Finland should better assess the proposed measures to support affected communities, and set up mechanisms to ensure broad support for the transition.

Energy efficiency improved, but energy intensity remains comparatively high due to Finland's cold

climate, low population density and relatively energy intensive industry. Electricity demand has grown since 2015 and is expected to increase further with digitalisation and electrification of transport and heating. This calls for enhanced co-ordination across sectors. Finland is a frontrunner in the deployment of smart grids to enhance flexibility of the electricity system. A shift to a more decentralised grid would enable consumers to provide on-site generation, storage and demand response. This, in turn, would reduce the need for investment in plants and network infrastructure.

There is scope to reduce the carbon footprint of buildings and neighbourhoods. Finland provides some targeted financial support for deep energy retrofits of buildings but needs to put more emphasis on whole-building renovations. Mandatory energy saving targets or efforts to industrialise retrofits could significantly reduce costs. Increased use of non-combustion technologies (e.g. large-scale heat pumps and waste heat recovery) would reduce the need for woody biomass to fuel the country's extensive district heating network.

Figure 2. **GHG emissions must decline faster to achieve carbon neutrality by 2035**
GHG emissions and projections, Mt CO₂ eq



Note: * Emissions reductions by 2035 with current development and policy measures; ** Emissions reductions by 2035 with additional measures; *** Remaining emissions in 2035 to be neutralised by carbon sink.
Source: Country submission; EEA (2021), Member States GHG Emission Projections (database); EEA (2021), ESD and ETS Data Viewers (database); Statistics Finland (2021), National Inventory Report to the UNFCCC.

Some cities (e.g. Helsinki) aspire to become more compact to lower energy, transport and materials demand. Helsinki also applies the green factor method for the built environment, which aims to preserve sufficient green spaces to mitigate flood risk, store carbon and enhance liveability. The green factor method could be strengthened and extended to other municipalities.

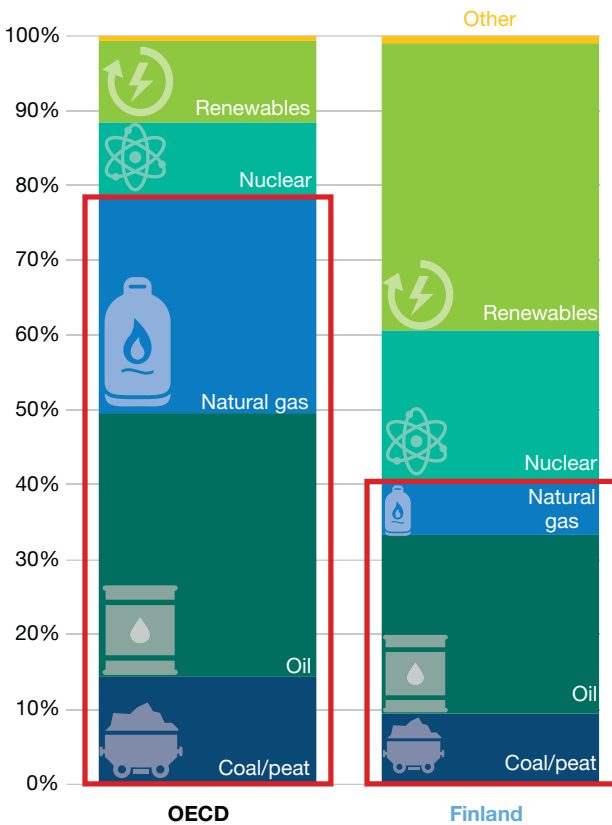
Policies to reverse car dependency should be at the core of climate action. Finland's dispersed settlement pattern implies that road transport is by far the dominant transport mode (Figure 4). Vehicle and fuel taxation, biofuel mandates and support to electric vehicles encouraged the shift to lower-emitting vehicles and fuels. In 2020, hybrid and electric cars jointly accounted for 38% of car sales. Emissions declined, but road transport remains a major GHG source. The roadmap on fossil-free transport suggests distance driven should not increase in the 2020s, which is welcome.

Finland needs to remove policies that encourage car ownership such as tax-free parking at the workplace;

it should enable the introduction of congestion charges in Helsinki and other urban areas facing congestion problems, as well as consider distance-based road pricing for heavy goods vehicles.

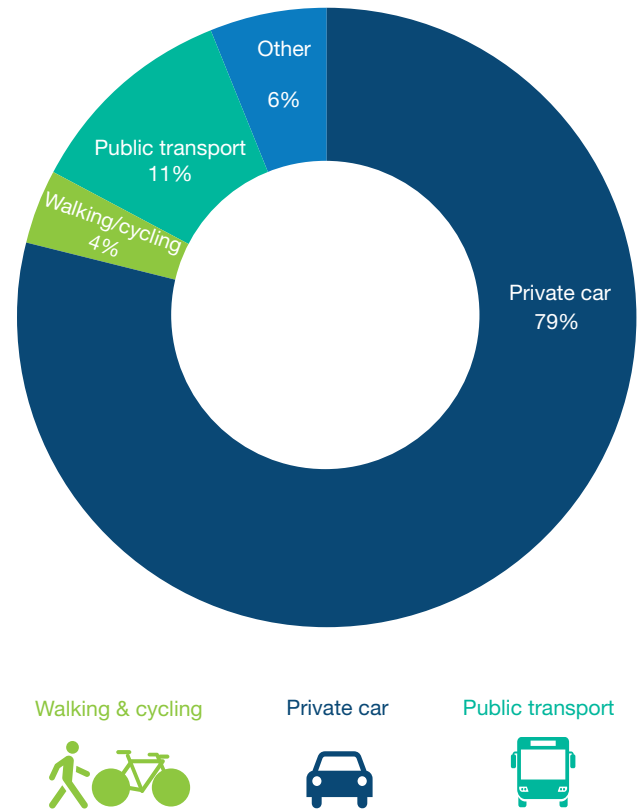
Finland should also reallocate road space to public transport and active mobility and steer spatial planning to increase accessibility. Agreements on land use, housing and transport (so-called MAL) between the central government and municipalities of functional urban areas have enhanced co-ordination of urban and transport systems. Setting up metropolitan transport authorities, as done in Helsinki, would help strengthen integrated planning and co-ordinate public transport across neighbouring municipalities. Finland should build on its Mobility as a Service experiments to develop multi-modal networks across the country based on enhanced public transport. In addition, further supporting road transport electrification would allow to channel biofuels to aviation and shipping. However, stronger sustainability criteria for biofuels are warranted.

Figure 3. Finland has a low-carbon energy mix
Total energy supply by source, 2020; red box indicates fossil fuels



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

Figure 4. Finland is car-dependent
Distribution of one-person journeys by mode, 2016



Source: Finnish Transport Agency (2018), SUMPs in the Finnish Context.

Sustainable investment, innovation and carbon pricing are key for Finland’s green transition

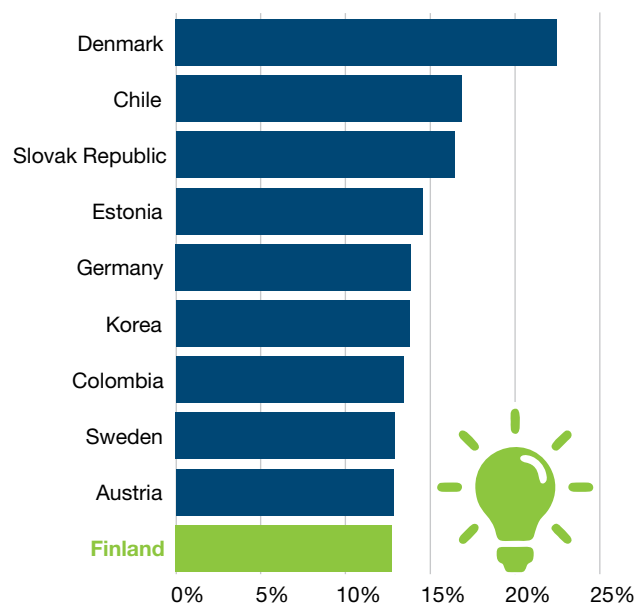
The recovery plan is geared towards a carbon-neutral and circular economy. In response to the COVID-19 crisis, the government provided sizeable funding for investment in sustainable transport, clean energy infrastructure and energy efficiency, biodiversity protection, and research and development (R&D). Sustainable recovery criteria guided budget allocations. The green transition pillar of the Sustainable Growth Programme 2021-26 absorbs over half of the Recovery and Resilience Facility. The actual contribution of the programme to the green transition will depend on the design of the relevant measures and on the balance of resource allocation in the next annual state budgets. The scope of the programme may be too broad and not commensurate to available resources, which may hamper its effectiveness. Finland could reinforce its sustainable budgeting procedures. This will help better

anchor the Sustainable Development Goals in decision making and resource allocations.

Finland’s businesses are innovative and active in green markets. Finland is among the green innovation leaders in the OECD (Figure 5). The country has often pioneered the implementation of EU environmental policies, which has given its companies a first-mover advantage. National expenditure on R&D is high and the government plans to increase it further. Most R&D spending occurs in the business sector. However, public spending on environment- and climate-related R&D is relatively low. It should be increased and better support small and medium-sized enterprises. There is scope to improve collaboration between the basic research institutions and the business sector to bring innovative cleaner technology and products closer to the market.



Figure 5. **Finland is among the green innovation leaders in the OECD**, share of green patent applications, average 2016-18, top-ten OECD countries



Note: Patent statistics are taken from the Worldwide Patent Statistical Database of the European Patent Office, with algorithms developed by the OECD. Data refer to patent applications filed in the inventor’s country of residence according to the priority date and apply solely to inventions of high potential commercial value for which protection has been sought in at least two jurisdictions
 Source: OECD (2021), "Patents in environment-related technologies: Technology indicators", OECD Environment Statistics (database).

The green industry is large and growing. Finland's businesses are active in investing in environmental management and in providing environmental goods and services. Finland's regulatory culture is based on voluntary compliance and promotion of green business practices, including through Green Deal voluntary agreements. The accelerated deployment of new technology for a carbon-neutral and circular economy is projected to generate employment. Finland has expanded its environmental education system and made environmental competence a requirement for every profession. It needs to continue investing in up-skilling and re-skilling its labour force to support the green transition.

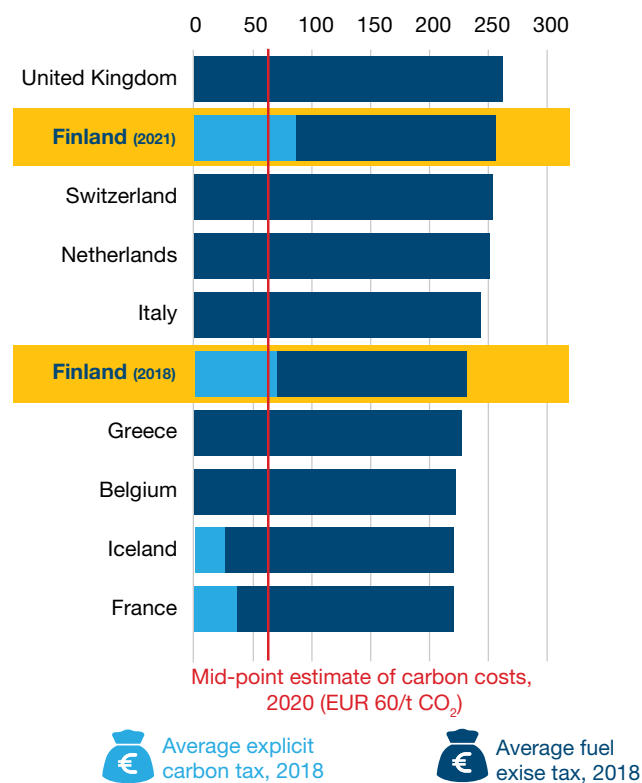
The government announced a "tax reform for sustainable development".

Finland's carbon tax, the first in the world, is uniquely based on lifecycle GHG emissions. The rates of the carbon and energy taxes are high by international standards. Nonetheless, there is scope to reinforce carbon pricing. Emissions from road transport face high carbon prices (Figure 6), but less than half of emissions in other sectors are priced. This is partly due to the prevalence of biomass use, which is untaxed. Finland could better assess the potential net effect of taxing biomass on GHG emissions. It should also consider progressively increasing the effective carbon price to reach a target level by 2030. This would provide a credible trajectory of carbon prices to investors. In addition, a mix of vehicle taxation and road pricing would contribute to decarbonising transport, while offsetting the likely decline in fuel tax revenue due to vehicle electrification.

Finland should address misalignment in the energy tax structure and reduce support to fossil fuels. Diesel faces a lower energy tax than petrol. Tax reductions and exemptions to certain energy sources or sectors (such as agriculture and mining) weaken incentives to save energy or switch to cleaner fuels. The tax rate on peat nearly doubled in 2021. However, peat continues to benefit from a beneficial tax regime, which should be removed.

Environmental goods and services contributed nearly **8%** to Finnish GDP and about **10%** to exports in 2019, more than in all other EU countries

Figure 6. **Emissions from road transport face high carbon prices**, average effective tax rate on CO₂ emissions in the road sector, in EUR/t CO₂, top 10 countries in OECD Europe

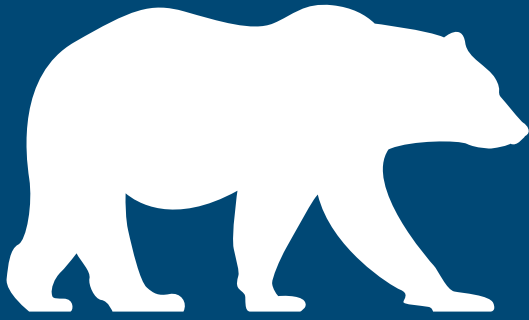


Note: Tax rates as applicable on April 2021 for Finland; tax rates as applicable on 1 July 2018 for all other countries. CO₂ emissions are calculated based on energy use data for 2016 from IEA (2018), World Energy Statistics and Balances. Emissions from the combustion of biofuels are included in the emission base.

Sources: Calculations of the OECD Centre for Tax Policy and Administration based on OECD (2019), Taxing Energy Use 2019: Using Taxes for Climate Action.

PUBLIC PROCUREMENT FOR INNOVATION

Finland is the most advanced EU country in implementing public procurement for innovation (PPI). In 2020, the government launched an action plan to reach 10% of PPI in all public procurement by 2023. This aims to stimulate demand for innovative goods and services, including in the environment field, thereby encouraging industries to produce them commercially on a large scale.



OECD Environmental Performance Reviews Finland 2021

MORE INFORMATION

OECD Environmental Performance Reviews: Finland 2021

The report and all data are available on

<http://oe.cd/epr-finland>

Environmental Performance Review programme

<http://oe.cd/epr>

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