Assessment and recommendations

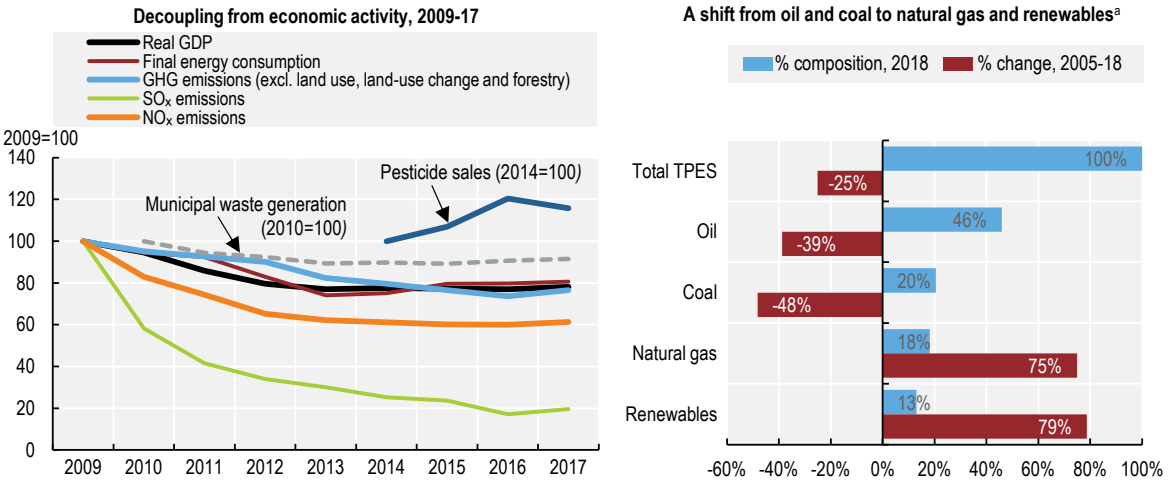
This document presents the Assessment and Recommendations of the OECD Environmental Performance Review of Greece. It was discussed, amended and approved by the OECD Working Party for Environmental Performance on 26 February 2020

1.1. Environmental performance: trends and recent developments

After a long, deep recession, the Greek economy started to recover in 2017. The country has undergone extensive fiscal and structural reforms, but faces difficult challenges in improving well-being, income and employment and reducing poverty. Between 2009 and 2017, some environmental pressures, notably emissions of greenhouse gases (GHGs), sulphur oxides (SO_X) and nitrogen oxides (NO_X), declined faster than GDP (Figure 1). Since 2013, however, energy consumption, municipal waste generation and pesticide use have grown more quickly than economic activity.

Although the energy mix has been shifting from oil and coal (lignite) to natural gas and renewable resources, Greece ranks among the ten most carbon-intensive economies in the OECD due to its strong reliance on fossil fuels. In addition, agriculture, transport, tourism and fisheries put pressure on the country's biological wealth.

Figure 1. Some environmental pressures declined and the energy mix changed



a) Total primary energy supply (TPES). The breakdown does not show electricity trade.
Source: Eionet (2019), *NECD Inventory 2019*; IEA (2019), *IEA World Energy Statistics and Balances* (database); OECD (2019), *OECD Agriculture Statistics* (database); OECD (2019), *OECD Environment Statistics* (database).

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Greece has made progress towards its climate and energy targets

Greece surpassed its Kyoto target for the first commitment period and is on track to meet the 2020 and 2030 targets for emissions not covered by the EU Emissions Trading System (EU ETS) (Section 4). In a welcome move, the government that was elected in July 2019 announced a lignite phase-out by 2028 and committed to the objective of climate neutrality by 2050.

The country developed a National Energy and Climate Plan (NECP) and a Long-term Strategy to 2050 in 2019 (MoEE, 2019) (MoEE, 2020). By 2030, the plan aims to i) reduce total GHG emissions, excluding those from land use, land use change and forestry (LULUCF), by 56% from 2005 levels (42% from 1990 levels); ii) reduce GHG emissions not covered by the EU ETS by 36% from 2005 levels, more than twice the reduction required for Greece by the relevant EU directive (16%);[1] iii) raise the share of renewables in gross final energy consumption to at least 35%; and iv) limit final energy consumption to 16.5 million tonnes of oil equivalent. The NECP expects promotion of renewables and improvement of the power system (decommissioning of all lignite power plants, expansion of gas-fired generation, interconnection of certain islands with the mainland grid) to contribute the most to GHG emission reduction.

Energy supply and demand dropped significantly in the aftermath of the economic crisis. Energy intensity (energy supply per unit of GDP) is below the OECD average but has decreased more slowly than in most other OECD countries. Transport accounts for the highest share of final energy consumption, followed by the residential sector and industry. Despite an increase in energy consumption since 2013, Greece is on track to reach its 2020 target on energy efficiency.

Significant progress has been made in deploying renewables (mainly wind and solar photovoltaics). In 2018, renewables accounted for 13% of total primary energy supply and 31% of electricity generation, above the respective OECD averages of 10% and 26%. The country achieved the overall binding target of 18% share of renewables in gross final energy consumption, set for Greece by the EU Renewable Energy Directive for 2020, but is unlikely to meet the sub-targets on electricity and transport.

Air emissions have dropped but urban air pollution is high

Since 2009, emissions of major air pollutants have decreased faster than economic activity. Reduced energy consumption, flue gas desulphurisation, changes in the electricity mix (increased use of gas and renewables, decommissioning of old coal power plants), reduction of fuels' sulphur content and scrapping of old vehicles have been the main drivers of this decline. However, levels of emission intensity per unit of GDP remain high, especially for NO_X emissions, mainly due to oil-based transport (OECD, 2019a). According to national projections, Greece is on track to meet its 2020 and 2030 emission reduction commitments under the National Emission Ceilings Directive. However, it has fallen behind in developing a national air pollution control programme.[2]

Although concentrations of the main air pollutants have decreased in the past decade, progress has stalled since fuel consumption started to grow again in 2013. In 2017, exceedances of EU air quality standards were recorded for NO_2, PM_{10}, benzene, benzo[a]pyrene and ozone (EEA, 2019a). Premature mortality statistically attributed to exposure to $PM_{2.5}$ and ozone pollution is among the highest in the OECD (OECD, 2019b). Natural sources, such as Saharan dust, are a significant factor in particulate pollution, especially in the south (Klein et al., 2019). Improving the air quality monitoring system would help in increasing the accuracy of exposure estimates and designing appropriate measures to reduce the health impact of air pollution.

The transition to a circular economy should be accelerated

In the aftermath of the financial crisis, domestic material consumption decreased faster than GDP as construction and coal extraction declined and renewables use increased. However, the material intensity of the economy remains higher than the OECD average, mainly owing to significant use of fossil energy material (OECD, 2019c).

According to the State of the Environment report, waste management is the most challenging environmental area (NCESD, 2018). Since 2013, municipal waste generation has been increasing faster than private consumption. In 2017, 80% of municipal waste generated was sent to landfill, nearly twice the OECD average. Greece missed the EU target of halving the amount of landfilled biodegradable municipal waste from the 1995 level by 2013. It is at risk of missing the 2020 Waste Framework Directive target of preparation of half of municipal waste for reuse/recycling.

In 2018, Greece adopted a National Circular Economy Strategy and a two-year action plan, later extended to 2023.The 2017 Law on Recycling aligned existing legislation with circular economy principles. The country also established a multi-stakeholder forum to promote circular economy business models and innovations. It has made strides in closing illegal landfills and expanding extended producer responsibility systems. However, more than 50 dumping sites[3] still do not comply with EU requirements, and hazardous waste management remains a challenge. Major efforts are needed to set up adequate treatment infrastructure and better enforce waste regulations (BiPRO, 2017) Data quality issues persist despite the establishment of an electronic waste registry in 2017. There is room to improve performance and oversight of extended producer responsibility systems.

In a welcome move, Greece introduced a tax in 2018 that significantly reduced consumption of single-use plastic bags. A 2019 law provides for a long-awaited landfill tax as part of a pricing policy based on regional and local waste management authorities' performance in recovering and diverting waste from landfill. Waste collection charges are generally based on property size. There is thus room to develop "pay as you throw" systems as part of instruments to encourage people to reduce waste.

Freshwater abstraction is high and water scarcity issues are expected to intensify with climate change

As Greece is generously endowed with freshwater resources, water stress at the national level is moderate but spatial and seasonal distribution and use vary widely (OECD, 2019d). Climate change is expected to increase pressure on water availability, especially in Attica, Central Macedonia, Thessaly, East Macedonia-Thrace and the South Aegean islands (MoEE, 2016). The country has one of the OECD's highest rates of water abstraction per capita, due in part to irrigation, which benefits from partial cost recovery and reduced electricity prices, and in part to leakage in the distribution system (EC, 2018a) (National Bank of Greece, 2015). The 2017 law on water pricing is expected to ensure cost recovery and promote sustainable water management.

The second River Basin Management Plans show that slightly more than 60% of surface water bodies achieved good ecological status, while 89% of surface water bodies and 85% of groundwater bodies reached good chemical status. Greece has improved its water monitoring system but changes in methods make it hard to infer trends in water abstraction and quality. Compliance rates with Drinking Water Directive requirements are high. Most bathing waters are of excellent quality.

Greece has made progress in wastewater treatment in large agglomerations: 90% of the wastewater load is collected and treated in urban wastewater treatment plants. However, the remaining 10% of the load is dealt with by individual systems which should be replaced by collecting systems and treatment plants where population density is high enough (EC, 2017).

Efforts to reduce the environmental impact of agriculture are needed

Over the past decade, nutrient surpluses have declined, but the use of fertilisers and pesticides has increased in recent years. The 2013 National Action Plan on Sustainable Use of Pesticides helped in certifying professional users and reducing acute poisoning incidents, although the targets to inspect sprayers[4] and reduce non-compliance with maximum pesticide residue limits[5] have not been achieved (Bourodimos et al., 2018). More than half of professional users dispose of empty pesticide packages in common waste bins, a further 12% do so without rinsing them, 19% burn or bury containers and less than 10% participate in collection/recycling programmes (MRDF, 2016). It is imperative to establish a system for the collection and safe disposal of empty pesticide containers and to further educate farmers about pesticide risks.

Diffuse pollution and abstraction for irrigation are the main agricultural pressures on water. Groundwater is threatened by salinisation caused by intensive groundwater pumping in coastal areas, leading to seawater intrusion. Water conservation efforts mostly focus on improving irrigation efficiency. Investment in infrastructure contributed to a slight reduction in abstraction for irrigation per hectare of cultivated area between 2015 and 2018, though the volume abstracted increased with the expansion of irrigated areas (AUA, 2019). Under the Rural Development Programme, agri-environmental measures have been found to have positive effects on soil erosion and reduction of nitrogen surplus. Their net effect on water savings and quality and on biodiversity would require a more detailed assessment. In 2019, Greece adopted an action plan to protect water from agricultural pollution covering all 30 vulnerable areas for nitrate pollution.

Box 1. Recommendations on air and water management, waste and circular economy

Air quality

- Swiftly adopt and implement the national air pollution control programme to comply with standards for protection of human health; further promote replacement of inefficient oil and biomass heating systems.
- Further improve the air quality monitoring system and develop knowledge of the drivers of air pollution and its impact on health.

Waste and circular economy

- Close and remediate the remaining illegal landfills without further delay.
- Build treatment facilities for the main hazardous waste streams.
- Improve the quality of waste statistics and the oversight of extended producer responsibility systems.
- Extend separate collection of waste, including biowaste, by establishing minimum service standards. Expand the use of "pay as you throw" systems as part of instruments to encourage people to reduce waste. Ensure effective implementation of the new waste pricing policy.
- Strengthen the institutional and policy framework to speed up the transition towards a circular economy by all economic sectors.
- Swiftly establish a system for collection and safe disposal of empty pesticide containers and promote farmer education about pesticide risks. Develop an extended producer responsibility system for agricultural plastics.

Water management

- Continue to improve water monitoring to build consistent time series of data on water abstraction and quality.
- Complete the infrastructure for the collection and treatment of urban wastewater in line with the EU requirements.
- Implement the action plan to protect water against pollution caused by nitrates from agricultural sources in all vulnerable areas.
- Further assess the impact of agri-environmental measures on water and biodiversity to improve their design in Greece's Strategic Plan under the Common Agricultural Policy 2021-27.

1.2. Environmental governance and management

Since the last Environmental Performance Review (EPR), Greece has made major efforts to streamline its environmental and spatial planning legislation so as to lessen the administrative burden on businesses. Increased government transparency has helped strengthen environmental democracy. However, ensuring compliance with environmental laws and regulations in the country's decentralised governance system is a significant challenge, further complicated by shortages of human and financial resources due to extensive fiscal and structural reforms. Reduced regulatory pressure combined with weak compliance represents an environmental risk, and many good international practices of environmental policy implementation have only recently been introduced.

National institutions have grown stronger, but co-ordination with the subnational level needs improvement

The Ministry of Environment and Energy (MoEE) holds most environmental policy and regulatory powers at the central level. Decentralised administrations of the national government have significant environmental management responsibilities, particularly with respect to spatial planning. Multiple horizontal co-ordination mechanisms are dedicated to the pursuit of policy coherence, implementation of Sustainable Development Goals (SDGs), environmental information exchange and key issues such as climate change, water and waste management, spatial planning and circular economy.

The regional and municipal government levels are administratively and financially independent and manage local matters in accordance with the subsidiarity principle. Regions regulate activities with low environmental impact, and municipalities deliver water- and waste-related environmental services. Decentralised administrations supervise local governments only with regard to the legality of their actions, not the substance of their policies. However, vertical co-ordination between the national and local governments' environmental policies should be enhanced.

Permitting reform reduced the regulatory burden on businesses, but special provisions can weaken environmental governance

Greece has updated and streamlined core environmental legislation to meet European Union (EU) and wider international obligations and enhance its coherence. However, the country still has a significant number of EU directive infringements, particularly in the area of waste. It simplified planning and licensing procedures to reduce the administrative burden on the regulated community, facilitate investment and create a business-friendly environment.

The 2011 Law on Environmental Permitting and its implementing regulations joined the environmental impact assessment (EIA) and permitting processes and completed cross-media integration of environmental permits. Importantly, low-impact activities, which account for about 70% of operators, became subject to standard environmental obligations (attached to an operating licence), in line with good international practice. However, extension of environmental permits for certain projects (e.g. power plants on off-grid islands, hotels, quarries) through special regulations without appropriate EIA (WWF, 2018) weakens environmental governance.

Strategic environmental assessment (SEA) of plans and programmes is regularly used. However, Greece ranks among the bottom five OECD countries on the quality of regulatory impact assessment (RIA) of laws and regulations (OECD, 2018). Cost-benefit analysis is seldom used. Many policies and programmes have implementation monitoring provisions. *Ex post* evaluations are envisaged in a 2019 law on government operations but are not yet part of established management tools.

Spatial planning is complex and undermined by illegal construction

Greece has committed to finally complete its land cadastre by mid-2021 after several attempts over the past 25 years. The land-use planning system is a complex combination of territorial, sector-specific and special regimes, all of which undergo SEA. However, local spatial plans are often absent. Special plans for strategic investments and public estates may override regional and local plans to fast-track strategic investment projects, often with expedited environmental permitting, creating a potential environmental risk (OECD, 2017a).

Illegal construction, particularly in coastal and forest areas, remains a major environmental concern. Addressing illegal construction is a government priority. The 2009 EPR recommendation to strictly enforce spatial plans and building permit regulations has not been fully implemented (OECD, 2010). Recent legislation preserved certain conditions that allow retroactive legalisation of illegal housing development. The spatial planning framework for marine and coastal areas adopted in 2018 is a positive step, with a National Maritime Spatial Strategy expected in 2020.

Compliance assurance is a major challenge

The rate of environmental non-compliance is high. Yet drastic staff cuts at the MoEE's environmental inspectorate have led to a sharp decline in the number of inspections at the national level. Compliance monitoring is predominantly in reaction to incidents and complaints. Despite the adoption in 2017 of a first five-year national environmental inspection plan, inspections based on risk assessment represent a small percentage of the total inspections conducted. Administrative fines are high, on average, but about a third remain unpaid.

The 2018 Law on Supervision of Economic Activities de-emphasises enforcement sanctions in favour of softer treatment of businesses. In line with good international practice, the government uses regulatory incentives (longer permit terms, licensing fee and insurance premium reductions) to encourage operators to adopt and certify environmental management systems. However, other instruments to promote environment-friendly behaviour, such as voluntary agreements and green public procurement (GPP), should be used more.

Greek law establishes strict liability for environmental damage (fault-based for damage to biodiversity) and specifies criteria for its assessment and remediation. Dedicated institutions at the national and regional levels handle environmental liability cases. The use of financial guarantees against environmental damage is mandatory for high-risk activities but in practice has so far been limited to hazardous waste management activities. This puts a significant burden on the state for environmental remediation if the responsible party is insolvent.

Greece is assessing and remediating several dozen contaminated sites of illegal municipal and industrial hazardous waste landfills, mostly with EU support. However, action plans on closing remaining illegal waste dumps are implemented with delays. No coherent regulatory process or standards for soil remediation exist.

Transparency and accountability on environmental matters have increased

Greek law guarantees broad access to justice on environmental matters for individuals and non-government organisations, which can file suits in administrative or regular courts. Accountability is enhanced by the office of the ombudsman, which has a dedicated team of investigators. It addresses cases of poor administrative practices related to the environment and urban planning, including wrongful permitting, illegal construction, and violation of protected areas and the coastline.

Greece has enhanced the effectiveness of public consultation and environmental information dissemination by using online platforms. Public participation in EIA, SEA and river basin management

planning is mandatory, as is consultation on draft primary legislation. However, public consultation on draft regulations is sometimes too short to be meaningful, and supporting and explanatory materials may be lacking (IEEP, 2019).

The MoEE has launched a national geoportal which provides access to environmental geospatial data. Access to environmental information is legally guaranteed, but practical accessibility and adequate interpretation could be improved through a coherent framework for data collection, classification and maintenance by various authorities.

Box 2. Recommendations on environmental governance and management

Strengthening the institutional and regulatory framework

- Enhance collaboration on environmental matters between the national, regional and municipal governments through, among other measures, co-ordination of compliance assurance activities and information exchange.
- Expand the use of ex ante cost-benefit analysis and *ex post* evaluation of regulations, policies and programmes.
- Avoid special provisions in environmental permitting.
- Increase substantially the share of the territory covered by local spatial plans so as to limit the use of special land-use planning regimes for strategic investments and public estates; end retroactive legalisation of illegal construction; adopt and implement spatial plans for marine and coastal areas in the framework of integrated coastal zone management.

Improving enforcement and compliance

- Increase the share of planned inspections based on risk assessment at the national and subnational levels; strengthen the capacity of all environmental inspection authorities.
- Enforce payment of fines through administrative and judicial measures; better monitor and measure effectiveness of enforcement actions.
- Expand GPP and the use of voluntary agreements with industry to promote green business practices.
- Develop standards and procedures for soil remediation.

Enhancing environmental democracy

- Improve the quality and usability of publicly accessible environmental information by dedicating more resources to its collection and management; support more active public participation in environmental decision making.

1.3. Towards green growth

Greece has renewed its commitment to sustainable development but needs to enhance policy coherence

After a severe recession, the economy started to recover in 2017. Despite progress on some environmental commitments made in economic adjustment programmes, the economy remains highly reliant on fossil fuels, road transport is predominant and compliance with EU requirements on waste and water management is a challenge.

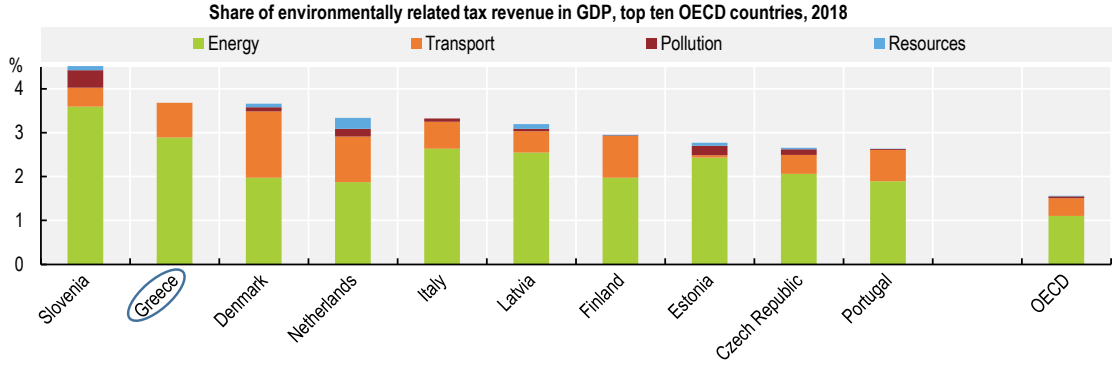
In 2018, Greece renewed its commitment to sustainable development in a voluntary national review on implementation of the 2030 Agenda that was presented at the 2018 UN High-level Political Forum on Sustainable Development (Government of Greece, 2018). Among its eight priorities are strengthening protection and sustainable management of natural capital as a basis for social prosperity and transition to a low-carbon economy. The 2019 National Strategy for Sustainable and Fair Growth 2030 (NSSFG) was expected to guide SDG implementation until an action plan was developed (Government of Greece, 2019).

The NSSFG was a welcome update of the previous growth strategy. It put greater emphasis on sustainable development, climate change adaptation and risk management, while keeping a focus on circular economy and GHG emission reduction. However, the coherence between environmental and economic objectives was not always clear; examples include developing both mega-yacht chartering and eco-tourism, promoting renewable energy resources along with hydrocarbon exploration, and reducing GHG emissions in the transport sector while becoming a leading regional logistic hub. While the new government should partly reconcile environmental and energy ambitions in the updated Growth Strategy, improving environmental-economic accounts would help in understanding and managing the trade-offs between policies. Available information on environmental protection expenditure, the environmental goods and services sector, material flow and natural capital accounts is not sufficient to support policy making.

Carbon prices rose but taxes and charges could be better aligned with environmental objectives while protecting those in need

In 2018, Greece recorded one of the OECD's highest levels of revenue from environmentally related taxes: 3.7% of GDP (Figure 2). The share nearly doubled over the past decade due to increased energy taxation, especially on electricity (to cover the cost of support to renewables) and transport fuels. Greece has some of the highest petrol prices and taxes in the OECD. However, the taxation gap with diesel was among the largest in the OECD in 2018 and has widened since the beginning of the crisis despite diesel's higher carbon and local air pollutant emissions. This, combined with the introduction of CO_2 emission criteria in the circulation tax in 2010 and the end to a ban on diesel cars in metropolitan areas in 2011, helped boost sales of diesel cars.

Figure 2. Greece's share of environmentally related tax revenue in GDP is among the OECD's highest



Source: OECD (2019), "Environmental policy instruments", *OECD Environment Statistics* (database); OECD (2019), "Revenue Statistics: Comparative tables", *OECD Tax Statistics* (database); EC (2019), "Data on taxation", Taxation and Customs Union website.

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Overall, effective tax rates on CO_2 emissions from energy use are high compared with other OECD countries. However, tax variation across fuels and uses, as well as tax concessions, provides inconsistent carbon price signals. Although decreasing, support to fossil fuel consumption accounts for more than

one-quarter of energy tax revenue, among the highest rates in the OECD. This includes tax expenditure compliant with the EU Energy Taxation Directive (e.g. excise tax exemption on specific industrial use of coal and coke and on diesel for aircrafts and vessels, plus reduced excise on oil for heating) and budget transfers (subsidies for oil-based power generators in non-interconnected islands, oil heating allowances to households, capacity payments to gas- and coal-based electricity producers). There is room to improve the monitoring of these direct and indirect subsidies and evaluate their social costs and benefits. In the NECP, the phasing out of fossil fuel subsidies is seen as an effect of the energy transition rather than as an incentive to speed it up. CO_2 emissions are also priced via the EU ETS. The recent rise in allowance prices makes coal-based power costly (Section 4).

Transport tax revenue has decreased, driven by a sharp drop in car registrations. In 2016, Greece introduced a CO_2 component in the registration tax in addition to the Euro emission criteria. This is a welcome step to encourage renewal of the car fleet, which is among the oldest in Europe. However, vehicle tax reductions for old vehicles have helped increase the share of used vehicles in registrations since the recovery of the market in 2013. Greece plans to introduce a distance-based charging system, varying with vehicle emission class, on the motorway network, which would be a cost-effective way to tackle air pollution (van Dender, 2019). Until the system is in place, it could set criteria on local air pollutants in the annual road tax for cars and heavy-duty vehicles. The taxable benefit of using a company car for private purposes has not encouraged employees to drive less and there was no incentive for companies to buy cleaner vehicles or limit their use. The law on Tax Reform, enacted in December 2019, introduces environmental criteria in the tax treatment of personal use of company cars and provides incentives for the use of public transport. While the metro network is being extended in Athens and under construction in Thessaloniki, Greece should further develop incentives to commute by public transport or bicycle. Access restrictions for the most polluting vehicles in Athens and Thessaloniki are not enforced.

Greece is among the few OECD countries that do not raise revenue from other environmentally related taxes (single-use plastic bags is a recent exception). Collecting taxes on landfilling, as provided by the 2019 legislation on waste pricing, would encourage moving up the waste hierarchy (Section 1). There are also opportunities to better reflect environmental and resource costs in water charges, as envisaged by the 2017 law on water pricing, and to address diffuse pollution with taxes on fertiliser and pesticide.

Social tariffs have been introduced to improve the affordability of electricity and water services, but have not been effective in targeting the poorest[6] (Marini et al., 2019). Greece developed an energy poverty observatory, which is a positive step to identify households in need. However, social tariffs distort prices, do not promote efficient resource use and reduce capacity for investment in key infrastructure. They could be replaced with direct payments, not linked to energy or water use, as part of the Social Solidarity Income programme supporting the poorest households since 2017. Supporting renovation of the building stock, as in the Saving at Home programme, and expanding gas central heating would also help alleviate energy poverty.

Effective use of EU funds is key to leverage green investment

In a context of overall decline in investment, environmental protection[7] has been particularly affected (OECD, 2019e). Public investment in waste and wastewater management collapsed during the crisis, rebounded over 2013-15 but has since fallen. EU funds are the main source of public investment. As part of the financial assistance programmes, the co-financing rate of Cohesion Policy programmes over 2007-13 was increased to make the national contribution negligible. Greece spent about 30% of EU funds[8] for this period on roads. Only 13% was spent on environmental protection (mainly for wastewater treatment) and water supply in addition to 12% on energy saving and clean urban transport (EC, 2016). Projects on waste infrastructure, rail and public transport have been delayed by poor planning and limited capacity problems, notably for small municipalities, utilities and other local beneficiaries. Allocations to these areas were increased under the Operational Programme on Transport, Infrastructure, Environment

and Sustainable Development 2014-20[9] to catch up with the backlog from the previous period and address high needs.

Greece should continue to strive to make the best use of EU funds to meet environmental goals. Investment worth EUR 1.6 billion is needed to ensure that urban wastewater is properly collected and treated (EC, 2019a). While nearly EUR 1.5 billion in EU funds is allocated to water and wastewater management over 2014-20[10], projects have been delayed by the late adoption of the laws on water pricing and public procurement and the second round of River Basin Management Plans. Combined with a new system for benchmarking water utilities, these measures should help prioritise investment, improve water provision sustainability and enhance accountability and co-ordination of the sector (EC, 2019b).

Greece is actively promoting public-private partnerships in waste management, combining private capital and Cohesion Policy funds (European Parliament, 2017). However, investment in residual waste treatment seems too high, compared with investment in separate collection, sorting and recycling infrastructure (EC, 2019a). High operational expenditure on waste management (0.5% of GDP in 2016-17) is not reflected in the performance of services provided by municipalities, highlighting the need to better control costs.

Most GHG emission reductions to 2030 are expected to come from development of renewables-based electricity and energy efficiency improvement (Section 4). Related investment needs are estimated at more than 2% of 2018 GDP annually. As in other OECD countries, overly generous feed-in tariffs and decreasing costs have supported impressive growth in solar and wind power generation capacity, but changes in support policy have discouraged solar photovoltaic investment. In addition to a recent feed-in premium system, developing renewables will require investing in the grid to interconnect islands with the main network, where cost-effective, and in hybrid systems with energy storage technology for smaller islands (IEA, 2017). There is significant potential to improve energy efficiency in buildings, most of which were built without insulation. Beyond effective use of EU funds, developing private funding through energy performance contracts, as planned by the NECP, can help overcome limits on access to bank loans (Section 4).

The motorway network has doubled over the past decade. In 2017, investment in roads accounted for 2.3% of GDP, a higher share than in any other OECD country. This contributes to better connectivity and growth but does not support long-term climate targets. The shares of rail in passenger and freight transport are among the lowest in the EU. Despite significant funding to extend public transport systems, a lack of sustainable urban mobility plans and poor development of soft transport modes have resulted in continued reliance on cars. While the National Transport Plan 2019-37 projects increased investment in rail infrastructure, expected growth in transport activity means the dominance of road in the modal split is not expected to change significantly (MIT, 2019).

Developing markets and innovation in circular and low-carbon economy require better monitoring and targeting

Despite significant progress in recent years, Greece's eco-innovation performance is modest, ranking in the bottom third of EU countries in 2017 (EC, 2019c). The government research and development (R&D) budget on environment has increased since 2012 but the trend on energy is unclear (OECD, 2019f). While an information system is in place for public-funded R&D projects, there is no inventory of private spending on energy-related R&D or on beneficiaries and outcomes that would allow assessment of the technological outlook in the sector (IEA, 2017). In a context of limited green patent applications, those related to climate change mitigation (mostly energy generation, transmission and distribution) have been declining.

Important demonstration projects have been achieved thanks to EU research programmes. For example, Tilos island is now fossil-fuel free thanks to a pioneer hybrid system combining renewables and energy storage technology. Environmental issues, energy and transport are among the eight priorities[11] of the 2015 National Research and Innovation Strategy for Smart Specialisation 2014-2020, which has been

allocated EUR 1.1 billion in EU funding. However, there is a need to focus investment on Greece's strengths and long-term needs. The 2018 Circular Economy Strategy, 2019 NECP and long term mitigation strategy provide opportunities to develop a coherent approach on eco-innovation.

More efforts are needed to monitor the transition to a circular and low-carbon economy. There is insufficient information on the environmental goods and services sector. While waste management accounts for a high share of total value added, circular economy sectors[12] are underdeveloped compared with other EU countries. In 2017, the renewables industry provided employment for 25 000 people, twice the upper-bound estimate of coal-related jobs (EurObserv'ER, 2018) (Alves Dias et al., 2018). The NECP expects to create nearly 60 000 full-time jobs in the renewables and energy efficiency sectors (MoEE, 2019). National statistics need to be improved to support reallocation of labour from shrinking to growing activities.

Fragmented R&D policies, limited research activity, weak business participation and limited co-operation between academia and business are barriers to eco-innovation (MoEE, 2019) (EC, 2018b). The policy mix is mainly composed of financial R&D support while demand-side instruments, including regulations, standards and certification, are undermined by weak enforcement of environmental policies. GPP uptake is low (Section 2).

Box 3. Recommendations on green growth

Framework for sustainable development and green growth

- Adopt the national SDG implementation plan and ensure coherence with the revised Growth Strategy and its future updates.
- Further develop environmental accounts (environmental protection expenditure, environmental goods and services sector, material flow and natural capital accounts) and promote their use in policy making.

Greening the system of taxes, charges and prices

- Review tax variation across fuels and uses to provide a consistent carbon price signal. Gradually close the gap between diesel and petrol taxes.
- Establish an institutional mechanism to assess the environmental effects of fiscal instruments, identify subsidies with adverse environmental effects and prioritise which to phase out.
- Harmonise the taxation of new and old vehicles. Vary the circulation tax by air emission standards in addition to CO_2 until road tolls are linked to vehicle emissions. Enforce access restrictions for the most polluting vehicles in metropolitan areas.
- Continue to improve information on energy poverty to better target assistance and assess the cost-effectiveness and environmental impact of such assistance. Consider replacing social energy and water tariffs with direct payments (not linked to energy or water use) as part of the Social Solidarity Income.

Investing in the environment to promote green growth

- Ensure effective use of EU funding for environment-related infrastructure by strengthening beneficiaries' administrative capacity for management of the funds, improving project planning and co-ordination, reinforcing public procurement procedures and supporting municipalities in implementing investment plans.
- Improve the accountability and co-ordination of actors in the water sector. Further assess utilities' performance to ensure that water prices cover the cost of service provision and reflect environmental and resource costs.
- Align waste investment with circular economy objectives. Establish a system to assess municipalities' performance in providing waste services.
- Rebalance investment from road to rail. Implement sustainable urban mobility plans and develop soft transport modes.

Promoting eco-innovation and environment-related markets

- Strengthen energy research and promote eco-innovative technological solutions in the framework of Smart Specialisation Strategies. Focus investment on the R&D activities with the highest social return.

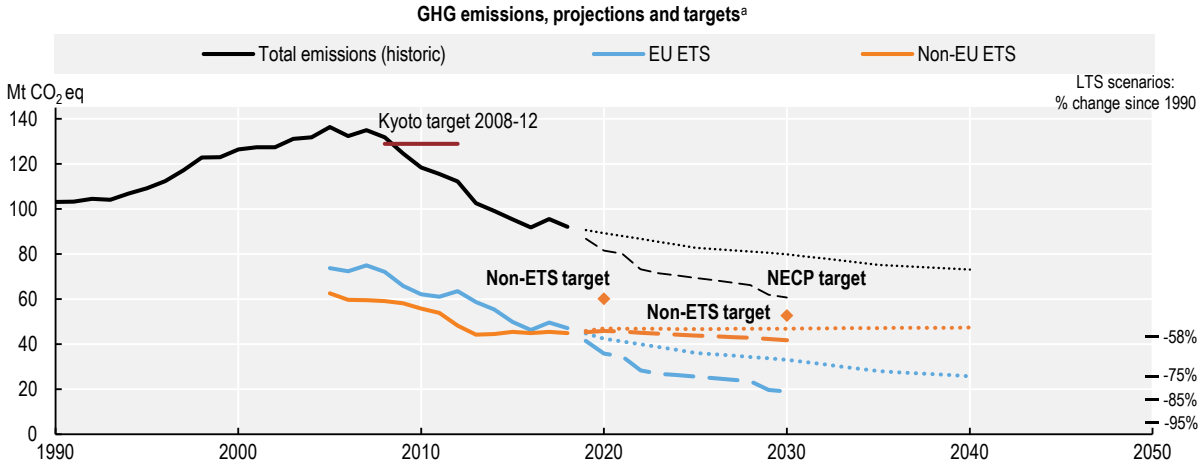
1.4. Climate change mitigation and adaptation

Climate neutrality requires effective implementation of ambitious policies

GHG emissions fell by 33% between 2005 and 2018. Greece achieved the second largest decline in the OECD over 2005-17. The financial and economic crisis, which reduced energy demand, explains much of the decline, although a shift from coal and oil towards natural gas and renewable resources also played a role. Greece surpassed its target for the first Kyoto Protocol commitment period of limiting the increase of GHG emissions (excluding those from LULUCF) to 25%, achieving a 17% rise over 2008-12 from 1990 levels (Figure 3). GHG emissions not covered by the EU ETS decreased by 28% between 2005 and 2018, putting Greece on track to meet its targets to reduce related emissions by 4% by 2020 and by 16% by 2030.

Greece's emission profile is similar to that of most other OECD countries, with most emissions coming from energy use, notably power generation and transport. The LULUCF sector is a small net sink. Per capita emissions are below the OECD average. However, the economy's carbon intensity is high owing to significant reliance on lignite for power generation and on oil for transport, heating and power generation on many islands. Greece does not use nuclear energy and is not considering this option. Lignite, which is particularly carbon intense, is the only significant domestic fossil fuel. Even though lignite use has declined, in line with climate targets, it still accounted for one-fifth of energy supply and one-third of electricity generation in 2018 (IEA, 2019).

Figure 3. Greece adopted ambitious targets for 2030 but the transition to climate neutrality is challenging



a) GHG emissions excluding land use, land-use change and forestry.
Notes: 2018: Preliminary data. Dotted lines refer to projections submitted under Art. 14 of the EU Monitoring Mechanism Regulation, with existing measures. Dashed lines refer to projections of the National Energy and Climate Plan (NECP). Non-ETS targets: Under the EU Effort Sharing legislation.
2050: Emission reductions in the Long-term Strategy scenarios (LTS). From top to bottom: Continuation of NECP measures after 2030; acceleration of NECP measures after 2030; with additional measures in a 2° scenario; with additional measures in a 1.5° scenario.
Source: EEA (2019), *Country Profiles: Greenhouse Gases and Energy 2019* (database); MoEE (2019), Climate Change Emissions Inventory: Submission of the Information under the Articles 12, 13 and 14 of the Monitoring Mechanism Regulation (EU) 525/2013; MoEE (2019), *National Energy and Climate Plan*; MoEE (2020), *Long-term Strategy to 2050*.

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In December 2019, the government endorsed an NECP with more stringent targets for 2030 than the EU requirement (MoEE, 2019). Greece should be commended for increasing its ambition, in line with the Paris Agreement. The NECP expects that emissions will decline primarily due to falling emissions from power generation, and that emissions in non-EU ETS sectors will slightly decrease from today's level mostly

thanks to energy efficiency measures in the residential sector (Figure 3). Emissions from transport are expected to decline only moderately.

Greece has also developed a Long-term Strategy to 2050 reviewing possible evolution of the energy system to bring the economy to a long-term net-zero emission pathway by mid-century (MoEE, 2020). According to projections, should the country achieve its 2030 goals, additional measures will need to be implemented. Continuation of NECP measures beyond 2030 would reduce total GHG emissions by 58% from 1990 levels by 2050. The expected intensification of these measures would lead to a 75% reduction.

Trajectories in individual non- EU ETS sectors could be further detailed

The merger of the energy and environment ministries in 2009 raised the profile of climate change and facilitated integration of climate change, energy and air pollution policies, as recommended by the 2010 EPR. The MoEE now bears the main responsibility for national climate change mitigation and adaptation activities, while line ministries are responsible for implementing climate action in their areas. Inter-ministerial committees aim to facilitate collaboration among ministries and stakeholders. About one-third of Greek cities have developed climate change action plans through the Mayors for Climate and Energy initiative; several of them also cover adaptation activities.

Climate-related targets and goals are largely set by EU legislation. The NECP, which integrates climate objectives and energy planning up to 2030, is the most comprehensive document outlining how Greece plans to meet its mitigation commitments. It puts particular emphasis on the energy and energy-related sectors. However, mitigation policies in sectors other than energy could be further detailed (agriculture, LULUCF, transport, waste). In addition, Greece should specify options to enhance the LULUCF sink to achieve its long-term goal of carbon neutrality.

Greece's GHG emission reporting complies with EU requirements and guidelines and those of the UN Framework Convention on Climate Change. Reports on mitigation efforts and progress made towards climate-related targets (e.g. on renewables and energy savings) are published regularly, in line with EU requirements. Nevertheless, oversight of climate policy development and implementation could be strengthened. Emission reduction trajectories of individual non-EU ETS sectors could be specified to ensure accountability in these sectors.

Most emission reductions are expected to come from the shift to renewables

Mitigation efforts are focused on decarbonising energy industries, which accounted for 42% of national GHG emissions in 2017. The NECP sets an objective to diversify the energy mix and reduce its CO_2 intensity while increasing energy security and making the sector more competitive. The NECP aims to reduce emissions in non-EU ETS sectors by 36% compared to 2005 levels, to reach a renewables share of at least 35% in gross final energy consumption and to limit final energy consumption to 16.5 million tonnes of oil equivalent by 2030. Most emission reductions are expected to be achieved through promotion of natural gas and renewables, interconnection of islands with the mainland grid and faster decommissioning of lignite power units.

Greece has seen remarkable growth in renewables. Their share in electricity generation increased from 11% in 2005 to 31% in 2018. This increase was driven by a boom in solar and wind that was supported by generous feed-in tariffs, lower technology costs and simplified licensing and permitting. In 2016, a feed-in premium programme was put in place to replace a feed-in tariff system that had become too costly, as in other OECD countries. Since 2018, the aid has been granted to specific solar photovoltaic and wind installations that have successfully participated in competitive bidding processes. The feed-in premium is more market-oriented than feed-in tariffs and should help bring down public support costs. The feed-in premium and auctions are considered the most important policy measures supporting renewables through 2030. To encourage decentralised renewables-based power generation, Greece is promoting energy

communities through which citizens and/or local authorities own or participate in the production and/or use of renewables, as well as net metering, which offsets electricity costs for customers who generate their own power.

Interconnection of islands to the mainland electricity grid is a government priority that has considerable potential to foster renewables development, reduce emissions of GHGs and other air pollutants and increase energy security. Despite high renewables potential, the lack of storage systems results in many islands relying on diesel generators, which are both expensive and environmentally undesirable. Investment in renewables-based electricity generation combined with battery storage is the preferred alternative when interconnection is not cost-effective. Other priorities of the NECP include implementing the new electricity market model[13] to facilitate participation of renewables, improving the licensing system and revising the spatial plan for renewables.

Stricter EU emission standards and increasing CO_2 prices under the EU ETS make lignite-fuelled power generation increasingly expensive. The NECP outlines a roadmap for decommissioning all currently operating units (3.9 GW) over 2019-23. Ptolemaida V (0.7 GW), under construction, will be the only lignite power plant in operation beyond this date. Adjustments are being studied to fire it with other fuels by 2028 (energypress, 2019). As the new plant will need to acquire emission allowances under the EU ETS, there is a risk of it not being profitable without additional subsidies. Greece is starting to address the impact of the clean energy transition on lignite-producing areas through its engagement in the EU Coal Regions in Transition initiative and its Fair Transition Fund, which since 2018 has redistributed some revenue from EU ETS allowances to development activities in coal-dependent areas. Developing a Just Transition Plan will allow the country to get access to funding from the recently launched EU Just Transition Mechanism.

Improving energy efficiency should be a priority. Efficiency improvement was modest over the review period, as the economic situation, lack of funding and insufficient data limited the effectiveness of implemented measures. The establishment of energy audits (2016) and an energy efficiency obligation (EEO) programme (2017) are important steps in the right direction. The EEO programme is in pilot phase but could be strengthened for its second implementation period, starting in 2020. While Greece is on track to meet its 2020 energy savings targets, its 2030 target seems to require limited additional saving (-1.8%) compared to 2017 final energy consumption. There is potential for Greece to improve efficiency in its building stock. The NECP proposes improving the energy performance of between 12% and 15% of the current building stock by 2030, which corresponds to 60 000 buildings renovated annually until 2030. The 2018 long-term renovation strategy will have to be strengthened to decarbonise the building stock by 2050, as required by the revised EU Energy Performance of Buildings Directive.

Transport's contribution to mitigation is expected to be relatively small, even though the sector accounts for nearly 20% of GHG emissions. Most reductions are expected to be achieved through increased use of biofuels. The NECP sets a target for electric passenger cars to reach a 30% share of new registrations by 2030, which is challenging given the limited deployment of such cars to date (0.3% of new cars sold in 2019). An Inter-ministerial Committee has been mandated to develop an operational electro-mobility development plan by 2020. Mitigation potential also lies in promotion of electric powering of docked ships. The NECP includes projections but no overall target for emission reductions in transport; a lack of information on estimated quantified emission reduction from envisaged measures limits transparency and accountability for climate action in the sector. Coherence with the National Transport Plan should be ensured.

Greece is highly vulnerable to climate change effects and should continue pursuing adaptation efforts

As a Mediterranean country with thousands of islands, Greece is highly vulnerable to the impact of climate change (Barros, 2014). It has already experienced rising mean temperatures and changes in precipitation levels and is prone to extreme climate events such as heatwaves, fires (including a deadly 2018 event)

and floods (Bank of Greece, 2011). By the end of the century, the decrease in precipitation levels is estimated to range from 5% to 19% countrywide while air temperature is projected to increase by between 3.0ºC and 4.5ºC. Sea level rise and freshwater shortage are the priority risks. Sea level rise is projected between 0.2 to 2 metres by 2100, rendering 1 000 km of Greece's 18 400 km of coastline highly vulnerable to climate change.

To prepare for these risks, Greece has improved the evidence base on potential impact and vulnerability. The Bank of Greece published a comprehensive study with detailed climate projections and models of the environmental, social and economic impact. The study concluded that, without action, climate change may reduce GDP by up to 2% per year by 2050 and up to 6% by 2100.[14] Agriculture is among the sectors expected to be hardest hit, but the impact on tourism and coastal areas will also particularly affect household income as well as the economy as a whole (Bank of Greece, 2011). An update of the study is envisaged for 2021. In addition, a geospatial database including climate data, maps and projections for the 13 regions is expected to be released online in 2020.

Greece has strengthened its policy and institutional framework for adaptation. The National Adaptation Strategy was formally endorsed through Law 4414/2016 (MoEE, 2016). It sets out general objectives, principles and implementation tools for adaptation and lists potential measures for 15 priority sectors identified in the Bank of Greece study. It does not provide for a national adaptation action plan. Instead, the 13 regions are expected to develop regional action plans, taking into account their circumstances and needs, to operationalise and implement the national strategy. The regional plans are required to identify local impact and vulnerabilities, prioritise actions based on their cost-effectiveness, identify synergies with other policies (e.g. land use), outline budget needs and potential finance sources, and include a mechanism to monitor progress. The relatively significant responsibility assigned to regional governments necessitates capacity building and cross-government co-ordination to align actions and share information and knowledge. A National Climate Change Adaptation Committee acts as the formal co-ordination and advisory body at the national level for adaptation policy monitoring, evaluation, formulation and implementation. It has been convened only once to date, however.

Progress has been made in considering adaptation in sector strategies, such as the National Biodiversity Strategy, the National Strategy for Forests, the Maritime Spatial Planning Law and the National Research and Innovation Strategy for Smart Specialisation. There is room, however, to clarify how the various objectives interact. The NECP, for example, does not outline how climate change may affect energy supply (e.g. through reduced hydropower potential, cooling water shortages and the impact on biomass resources) or how the plan will make the energy system more resilient. Plans call for such an analysis to feed into the 2023 NECP update. Implementation of adaptation measures in agriculture and water management plans remains to be assessed.

The Greek authorities expect the regional action plans, which will include sectoral activities, to facilitate integration of adaptation considerations. Once the plans are finalised, the MoEE will assess whether additional action is needed at the national level. While this bottom-up approach reflects and accounts for regional circumstances, it may delay national-level action, notably in sectors considered highly vulnerable (e.g. agriculture, tourism). It may also miss cross-cutting risks (e.g. concerning water, infrastructure, energy) and risks that go beyond regional boarders (e.g. regarding coastal zones, health). Nevertheless, the first results of the regional risk assessments, expected in June 2020, will provide a useful basis to inform national-level action. While climate resilience is considered in EIA, it is not explicitly mentioned in the national legislation on SEA (EC, 2018c).

Greece has yet to establish a monitoring and evaluation framework that would track integration of climate risk in sectoral policies, as well as the implementation and effectiveness of adaptation actions. It plans to develop a national framework in 2020, however, learning from other OECD countries such as Austria, Finland, Germany, Spain and the United Kingdom. There is also a need to build capacity and disseminate knowledge. The national adaptation committee could play a role in advising and supporting regional

governments in developing their plans, identifying knowledge and action gaps at the sectoral level and establishing a monitoring and evaluation mechanism. Building on the experience of other OECD countries, such as France and Spain, Greece plans to establish a national adaptation platform or hub to inform target groups by 2020.

Box 4. Recommendations on climate change mitigation and adaptation

Policy and institutional framework

- Implement the NECP to put the economy on a long-term decarbonisation pathway. Endorse a long-term, economy-wide mitigation strategy, with contributions by sectors, that is consistent with the EU goal of climate neutrality by 2050.
- Develop and implement a Just Transition Plan to support lignite-dependent areas.
- Ensure the national adaptation committee convenes regularly and has the resources to exercise its legal mandate. Consider asking the committee to identify priority policy areas where regional action plans should be complemented by national-level plans (e.g. on tourism, agriculture).

Monitoring and evaluation

- Set up a comprehensive monitoring and evaluation mechanism with clear roles and responsibilities to track the status of implementation of mitigation and adaptation policies and measures. Conduct, where possible, cost-benefit and cost-effectiveness analysis to inform measures' prioritisation.

Mitigation

- Continue to reduce the carbon intensity of power generation by phasing out lignite on schedule by 2028, pursuing the planned interconnection of non-interconnected islands, investing in renewables and developing storage system operation framework, including hybrid plants on autonomous islands.
- Implement ambitious energy efficiency policies, drawing on evaluation of outcomes from past and current measures. Strengthen the building renovation strategy to decarbonise the building stock by 2050, as required by EU law.
- Develop quantified targets and action plans to reduce energy intensity in transport and decarbonise the sector, focusing on intermodality and vehicle fleet renewal. Ensure coherence of climate targets in the NEPC and National Transport Plan.

Adaptation

- Ensure that adaptation considerations are integrated in the sectors most affected by climate change, including water, agriculture and tourism.
- Develop guidelines on mainstreaming adaptation into major projects or programmes. Make climate resilience part of strategic environmental assessment.

1.5. Biodiversity conservation and sustainable use

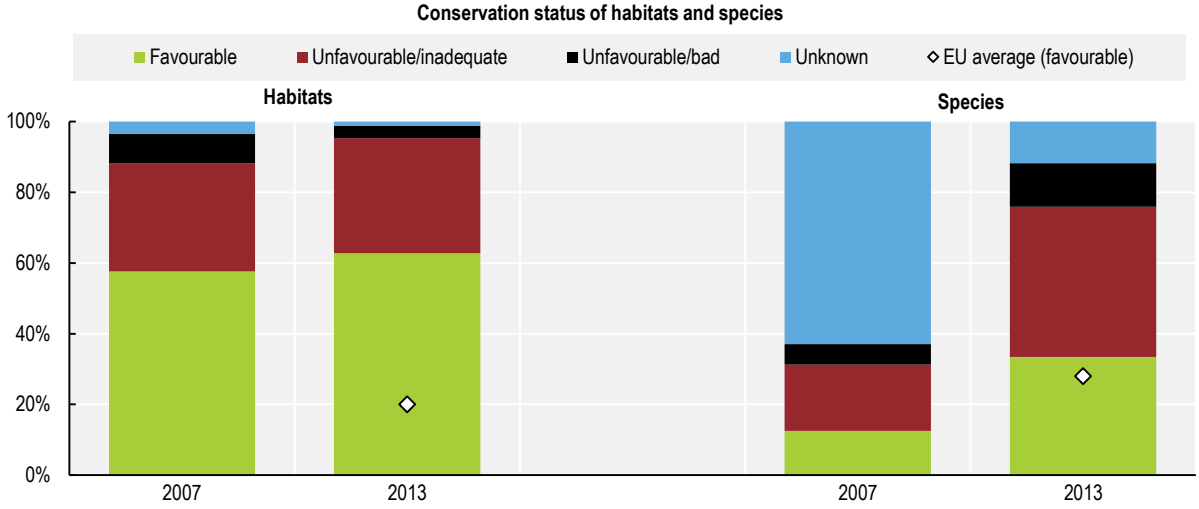
Pressures on biodiversity stem from key economic sectors

Greece is home to abundant European and Mediterranean flora and fauna, including a large number of endemic species, and a wide variety of ecosystems and habitats, many of which are of international interest.

The conservation status of habitats has improved in recent years (63% have favourable status), but more than half of species (55%) are in an unfavourable state (EC, 2019a). The main causes of biodiversity loss in Greece are natural system modifications, including urbanisation and habitat fragmentation, pollution,

invasive alien species, climate change and fires. Key pressures come from agriculture, fisheries, transport and tourism (especially coastal).

Figure 4. The conservation status of habitats and species has improved



Source: EEA (2019), *Habitats of European Interest* (database); Eionet (2019), *Reporting under Article 17 of the Habitats Directive*.

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Greater effort to improve biodiversity is urgently required in light of rising pressures, many of which stem from policies outside the purview of the MoEE, such as fisheries, agriculture and tourism.

The legal framework meets international commitments, but further efforts are needed to establish a more comprehensive approach to monitoring

Since the last EPR, Greece has made notable progress in improving its legal biodiversity framework. It issued important laws on biodiversity conservation (2011) and on management bodies of protected areas (2018). In 2017, the Natura 2000 network was expanded, especially with regard to marine areas, albeit starting from a low base, in order to address gaps in protected marine habitats and species.

The National Biodiversity Strategy and Action Plan (NBSAP, 2014) provides a solid framework with detailed targets and sub-targets to improve knowledge and the status of biodiversity and mainstream it into sectoral policies. Preparation of the new action plan beyond 2019 offers an opportunity to assess achievements and address remaining challenges, including updating the 2009 red list of threatened species.

Despite positive ad hoc initiatives aimed at filling data gaps, Greece has not yet established a comprehensive national monitoring system for biodiversity. The NBSAP includes targets for monitoring and evaluating its implementation, which should facilitate access to scientific knowledge regarding Greek flora and fauna and fill remaining data gaps.

For biodiversity protection, Greece prefers regulatory approaches

As in many OECD countries, protected areas are the main regulatory instrument to protect biodiversity. According to national data, they cover an extensive share of terrestrial areas (32%), while marine protected areas account for 20%15 of territorial sea. Greece has thus largely achieved the 2020 Aichi target 11. To date few protected areas have management plans. The current objective is to develop management plans for all protected areas by 2022. Additional obstacles to effective management of protected areas are insufficient funding, especially in light of the expansion of territorial responsibilities under the 2018 law establishing management bodies for protected areas, and lack of capacity and awareness among

authorities and the public (EC, 2019a). Capacity building and awareness raising are being done through LIFE Integrated Project LIFE-IP 4 NATURA, which should boost overall efforts.

Greece lacks an overarching framework for green infrastructure, which is also an NBSAP sub-target and a target of the EU 2020 Biodiversity Strategy. Further integration of biodiversity concerns into spatial planning would go a long way towards reducing illegal activities harmful to biodiversity and ultimately ensuring sufficient protection of habitats and species. There is not yet any legally binding national maritime spatial plan (EEA, 2019b), but Greece plans to develop its National Maritime Spatial Strategy in 2020. Economic instruments related to biodiversity are underused.

Mainstreaming biodiversity into economic sectors is an opportunity to balance trade-offs

Greece needs to better mainstream biodiversity into economic sectors by making explicit links between ecosystem services, biodiversity conservation and sustainable resource use in key policy areas. NBSAP target 5 indicates the need to enhance synergies among the main sectoral policies for biodiversity conservation. The eight sub-targets focus on integration of biodiversity considerations into key sectors such as tourism, agriculture, fisheries and forestry.

As tourism expands in Greece, it will be increasingly important to create links between this sector and national biodiversity priorities. Tourism significantly contributes to the Greek economy in terms of direct GDP and employment, shares of which are among the largest in the OECD. The strongest environmental impact of tourism occurs in coastal areas due to infrastructure, including roads leading to tourist destinations, and overcrowding on beaches. The NBSAP includes actions to achieve the sub-target on compatibility of tourist activities with biodiversity conservation. To date, however, it is unclear where Greece stands with respect to this target. The development of the National Maritime Spatial Strategy in 2020, along with the updated Spatial Planning Framework for Tourism, could lead to more effective management of coastal and marine areas.

NBSAP actions related to mainstreaming biodiversity into agriculture are not very specific; they refer to improving sustainable management of agricultural ecosystems. Biodiversity mainstreaming into agriculture is mostly done through the Rural Development Programme (RDP). However, the net effects of agri-environmental measures of the RDP on biodiversity would require a more detailed assessment to improve their effectiveness under the next RDP. Unlike in other countries, there are no quantitative national targets on organic farming. The organic share in agricultural area increased from 7% in 2005 to 9% in 2018, above the 2017 OECD average (7%) (OECD, 2019g). It has grown less rapidly than in most countries despite significant EU support.

Fish stocks in 2015-16 indicated overfishing of hake in the Aegean Sea, while other species remained stable or increased (OECD, 2017b). Mainstreaming of biodiversity into fisheries is mainly done through regulatory instruments, including banning of drift nets and of pelagic trawling, and restricted areas for fish juveniles. In addition, fishing is restricted in certain areas to conserve marine habitats and protect endangered aquatic organisms. NBSAP targets include revising the regulatory framework for fisheries, based on conservation needs of species and habitat types, and enhancing port authorities' ability to control illegal recreational fishing.

A National Forest Strategy was adopted for 2018-38. It identifies specific objectives as well as the necessary resources and means of implementation. It also endorses the Mediterranean forestry model in Greece's management of forest ecosystems, which aims at strengthening their multifunctional role. However, national data gaps on forestry make it difficult to determine forest cover and intensity of use. As of 2019, forest maps had been drafted for most of the country, and the objective is to complete the mapping by the end of 2020.

Box 5. Recommendations on biodiversity conservation and sustainable use

Improving biodiversity data and information

- Continue to improve knowledge of the extent and value of ecosystem services, habitats and species within and outside protected areas. Complete the mapping and assessment of ecosystem services, in co-operation with all relevant stakeholders and in line with commitments under the Convention on Biological Diversity and the EU 2020 Biodiversity Strategy. Update the red list of threatened species.

Implementing effective policy instruments

- Complete management plans for all protected areas, with legal force and sufficient resources for implementation. Ensure consistent and effective implementation of existing plans. Create ecological corridors to reduce fragmentation.
- Support municipalities in effectively implementing local spatial plans that integrate biodiversity considerations. Develop a strategic policy framework for green infrastructure.
- Identify the priority research and data gaps that need to be filled to better prevent and manage the spread of invasive alien species.

Mainstreaming biodiversity in tourism, agriculture, fisheries, forestry

- Promote the use of relevant indicators and frameworks for infrastructure development to reduce or mitigate the impact of tourism and related infrastructure on biodiversity. Monitor progress towards the relevant NBSAP actions. Support sustainable tourism initiatives and promote thematic forms of tourism in line with protection and conservation of resources. Consider expanding financing sources, including visitor fees to protected areas and fees for tourism operators.
- Provide training and technical assistance to farmers to better implement agri-environmental measures under the RDP so as to reduce pressures on biodiversity. Increase the share of organic farming.
- Introduce additional measures to improve the sustainability of fisheries, including expanding management plans for overexploited species and special habitats. Revise the regulatory framework for fisheries, in accordance with the NBSAP.
- Upgrade the national forestry accounts. Explore opportunities to increase the use of economic instruments for forest conservation, such as payments for ecosystem services, while introducing sustainable management certifications for forestry and derived products.

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Notes

[1] An EU-wide cap is in place to reduce emissions in the ETS sectors by 21% from the 2005 level by 2020 and by 43% by 2030.

[2] The programme was due by April 2019 according to 2016/2284/EU.

[3] As of mid-2018, 14 illegal landfills were still in use, 24 sites were not in use but had not been restored, and 19 had been restored but not fully closed in accordance with the legal framework.

[4] Only 19% of pesticide application equipment had been inspected by early 2018 while all equipment should have been tested by 2016 under the Sustainable Use of Pesticides Directive (2009/128/EC).

[5] Partly due to more active substances being detected.

[6] In 2018, less than half of Social Solidarity Income recipients took advantage of social tariffs on electricity and 10% benefited from social tariffs on water.

[7] Including the following domains of the Classification of the Functions of Government: waste and waste water management, pollution abatement, protection of biodiversity and landscape, and R&D related to environmental protection.

[8] Cohesion Fund and European Regional Development Fund, after decommitment and correction.

[9] EUR 4.6 billion budget excluding national contribution. Environment and transport each account for half of the budget.

[10] Under the various operational programmes.

[11] Agrofood; life sciences and health – pharmaceuticals; information and communication technologies; energy; environment and sustainable development; transport and logistics; materials – construction; culture – tourism – cultural and creative industries.

[12] The waste recycling sector, repair and reuse sector and rental and leasing sector.

[13] Greece will introduce a forward, intraday, and balancing market over a transition period to 2020, to complement the day-ahead market.

[14] The Bank of Greece study estimated that a mitigation scenario would cut this by 40% and an adaptation scenario by 20%.

[15] Using harmonised international data for the denominator, the percentage of marine protected areas in Greece is less than 5% (OECD, 2019h).

Annex 1.A. Actions taken to implement selected recommendations from the 2009 OECD Environmental Performance Review of Greece

Recommendations	Actions taken
Chapter 1. Environmental performance: trends and recent developments	
Strengthen the analytical basis for decision-making, including *environmental data*, and *economic information* on the environment (*e.g.* environmental expenditure, environment-related taxes, resource prices, employment).	Despite progress such as the establishment of registries on waste generation and water abstraction, there is room to strengthen the analytical basis for policy making. For example, available data do not allow inference of trends in water abstraction or assessment of hazardous waste generation (Chapter 1). Progress on environmental accounts is slow (Chapter 3).
Further *reduce air emissions*, especially SO_2 emissions from electricity generation (e.g. lignite fired power plants) and VOCs emissions from transport, so as to meet national emission ceilings; strengthen the *monitoring and management of particulate matter* (including $PM_{2.5}$) *and ground level ozone*.	Since 2009, emissions of major air pollutants have decreased faster than economic activity (Chapter 1). Reduction in energy consumption, abatement measures such as flue gas desulphurisation, changes in the electricity mix, reduction of fuels' sulphur content and scrapping of old vehicles have been the main drivers of this decline. Greece met its 2010 emission reduction commitments under the National Emission Ceilings Directive except in the case of NO_X. According to national projections, the country is on track to meet its 2020 and 2030 targets. The National Air Pollution Monitoring Network needs further improvements to increase the accuracy of exposure estimates.
Address *air pollutant emissions from ships*, *e.g.* taking measures to improve vessel performance and fuel quality.	Greece transposed into national law the revised Annex VI to MARPOL (Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto) containing regulations for the prevention of air pollution from ships and Directive 2016/802/EU relating to a reduction in the sulphur content of certain liquid fuels. As of 2020, Greece has to ensure that ships use fuels with a sulphur content of no more than 0.5%. In 2018, the port of Killini undertook the first cold ironing pilot in the eastern Mediterranean, paving the way for wider implementation (Chapter 1).
Continue efforts to fully comply with the *EU Water Framework Directive*.	In 2017, Greece adopted its second round of River Basin Management Plans (RBMPs) under the Water Framework Directive (WFD) after a two-year delay.
Formulate and implement a *national irrigation policy*, integrating agronomic, water and environmental policy objectives, which promotes the rational use of water, aims to reduce groundwater abstractions and to improve irrigation efficiency and practices in both communal and private irrigation networks, and ensures that all water abstractions are properly licensed	The Rural Development Programme (RDP) is the key agricultural policy framework. Its environmental objectives include the rational use of water and the enhancement of irrigation efficiency and practices. However, ascertaining the net effect of RDP agri-environmental measures to address water pollution and abstraction would require a more detailed assessment (Chapter 1). According to Ministerial Decision 146896/2014, issuance of a permit for water use or exploitation works is subject to availability of the necessary water quantity as evidenced by the relevant RBMP. A national register of water abstraction points was established in 2014. A law (JMD 135275/2017) sets the rules for pricing water services and recovering the costs of water services for various uses.
Further *improve wastewater management*, in compliance with the EU Urban Waste Water Directive, and consider the wastewater treatment needs of smaller settlements; encourage utilities to improve water quality assurance (*e.g.* through participation in international benchmarking).	Greece has made progress in wastewater treatment in large agglomerations. However, 10% of the wastewater load is dealt with by individual systems, which should be replaced by collecting systems and treatment plants where population density is high enough (Chapter 1). Investment amounting to EUR 1.6 billion is needed to ensure that urban wastewater is properly collected and treated. A national registry of urban wastewater treatment plants was established. Guidelines are available on management of sewage from small settlements (less than 2000 inhabitants).
Intensify efforts to *reduce water pollution* by dangerous substances, to prevent illegal discharges of wastewater, and clean up pollution hot spots.	RBMPs include programmes of measures to address point source and diffuse water pollution. Legal provisions have been provided for individual river basin districts, e.g. setting water quality standards and emission limits in the Asopos River basin. However, more data is needed to characterise river basins and address pollution issues.

Introduce new measures to improve the *allocation of water* to ensure water flows to the highest-value uses.	Economic analysis in the RBMPs takes water resource cost into consideration. A 2017 law provides for cost recovery in water services but there is room to better reflect financial, environmental and resource costs with water charges (Chapter 3). In 2019, an information system was set up to monitor water utilities' operational and financial performance.
Raise greater *public awareness and understanding*, particularly among farmers, of the economic, social and environmental aspects of water management.	RBMPs include actions to increase public awareness and understanding of sustainable water management (e.g. information meetings on new technologies, modern irrigation techniques, environmental protection issues, fertility of land). The RDP includes educational programmes and awareness actions.

Chapter 2. Environmental governance and management

Utilise fully the *institutions on sustainable development* now in place to ensure the implementation of the revised National Strategy for Sustainable Development; continue focusing sector integration and sound long-term planning with a view to achieve a low-carbon, energy and material efficient economy.	Protection and sustainable management of natural capital and transition to a low-carbon economy constitute one of eight national priorities related to implementation of Sustainable Development Goals (SDGs). Over 2017-19, the General Secretariat of the Government played a key role in ensuring a whole-of-government approach to implementing SDGs. The Inter-ministerial Co-ordination Network for the SDGs brings together focal points of all line ministries responsible for mainstreaming SDG-related issues into sectoral legislation, policies and programmes. Since 2019, the Presidency of the Government has been in charge of monitoring and co-ordinating SDG implementation.
Further strengthen the visibility, human and financial resources, and influence of the environmental administration at all levels.	Key environment-related functions of the central government are concentrated in the Ministry of Environment and Energy (MoEE). The 2009 merger of the environment and energy ministries increased the influence of environmental administration and raised the profile of climate change policies. The decentralised administrations have general directorates for spatial and environmental policy and for forestry and agriculture. Every regional authority has a directorate for development planning, environment and infrastructure. Although central, regional and local government responsibilities are defined legislatively, their practical division is not always clear, leading to implementation gaps or overlap.
Streamline the *administrative procedures* associated with environmental impact assessments and the application for planning and building permits; reduce building and housing *construction without prior planning*.	The 2011 Law on Environmental Permitting and over 25 related regulations combined the EIA and permitting processes and significantly modified EIA requirements. The reform also incorporated hazardous and non-hazardous waste management and wastewater discharges, which previously were permitted separately, into the Approval of Environmental Terms, an integrated environmental permit issued according to a uniform process. The introduction of standard environmental obligations for low-impact facilities that previously required a permit and the quasi-elimination of preliminary environmental assessment for large projects significantly reduced the number of EIA cases and the average time to complete the permitting procedure. A new spatial planning framework for marine and coastal areas was adopted in 2018, a National Maritime Spatial Strategy is expected in 2020, and maritime spatial plans are to be completed by 2021. However, Illegal construction, including in coastal and forest areas, remains a concern.
Ensure adequate control and strict enforcement of the existing legal framework regarding *construction without prior building permit.*	Law 4495/17 defines measures to prevent illegal construction (e.g. prohibition of real estate transactions with illegally constructed buildings or connecting them to utility networks). Fines for illegal construction have increased. However, Law 4495/2017 on the Built Environment preserved certain conditions for retroactive legalisation of illegal housing development.
Complete the *National Cadastre and the National Forest Registry* as soon as possible.	The authorities have committed to complete the cadastre and an associated land register by mid-2021. As of 2019, forest maps had been drafted for most of the country and Greece intends to fully establish the cadastral agency and complete 45% of the cadastral mapping by mid-2020.
Implement plans to strengthen the financial and human resources devoted to the new environmental inspectorate; continue to promote *compliance with and enforcement of environmental and land-use regulations*.	The Hellenic Environmental Inspectorate, initially a separate service, joined the MoEE's other inspection services (for mining, energy and building activities) in 2014 and became part of the ministry in 2017. However, the number of environmental inspectors at the central level fell from 35 in 2011 to 15 in 2018. The number of inspections at the national level thus declined from 313 in 2008 to 88 in 2018. The publication in 2017 of the country's first five-year national environmental inspection plan (2018-22), covering all 21 national and regional environmental inspection authorities, is a positive development. However, in 2018 the central inspectorate carried out only 43% of its target inspection load and the regional authorities 24%.
Adopt and implement the proposed Framework Plans for *Coastal Areas and Islands* and for *Mountainous Areas*; set up a transparent monitoring system to *track*	A new spatial planning framework for marine and coastal areas was adopted in 2018, and maritime spatial plans are expected to be completed by 2021. Revised Regional Spatial Planning Frameworks (for 8 out of 13 regions) have been broadened to include

and report on the effectiveness of the Frameworks for Spatial Planning and Sustainable Development.	protection of coastal areas. Evaluation of all regional spatial planning frameworks has been completed. Evaluation of sectoral-specific spatial planning frameworks is under way.
Continue efforts to collect, process and disseminate *environmental information* at national and territorial government levels.	A dedicated 2011 law promotes e-governance in public administration, which facilitates online access to information. A 2015 presidential decree codified regulations on access to public documents and data, including environmental information. All public authorities are required to upload every administrative act on the Diavgeia (Clarity) website as a result of a major initiative by the Ministry of Interior. The MoEE has launched a first version of the National INSPIRE Geoportal. The latest State of the Environment Report was published in 2018 by the National Centre for the Environment and Sustainable Development. However, the absence of a coherent framework for data collection, classification and maintenance remains a key barrier to accessibility and adequate interpretation of environmental information.
Continue to encourage more active *public participation associated with decision-making*, as well as effective implementation of provisions for access to environmental justice and follow-up to judicial decisions; enhance the effectiveness of consultation procedures.	Public participation in EIA and environmental permitting for category A1 and A2 activities, in SEA and in river basin management and other planning is mandated by law. Relevant documents are posted for comment on websites of competent authorities and/or the open government portal (www.opengov.gr). The law requires government authorities to consult the public on draft legislation before its submission to the parliament. Consultation on presidential decrees and ministerial decisions can also take place but is not mandatory. Greece guarantees broad access to justice on environmental matters for individuals and NGOs. Citizens can invoke the right to a clean environment, provided in Article 24 of the Constitution, as the basis for suits in administrative or regular courts. However, there are no special judicial procedures for environmental matters, and court procedures are very long.
Take further steps towards the integration of environmental themes at all stages of *education*, including professional training.	Greece has integrated environmental aspects in education at all levels. The Institute of Educational Policy developed the curriculum on environment and sustainable development, approved in 2015. About 80% of primary and secondary schools participate in sustainability initiatives. The majority of Greek universities have introduced environment-related subjects in their curricula. However, there is limited financial support for environmental education, leading to a lack of technical infrastructure and specialised staff.
Raise *awareness and understanding of sustainable development* among the major stakeholder groups and in the Greek society at large.	Fifty-three Environmental Education Centres support schools in designing and using sustainability curricula that go beyond the purely environmental dimension, and will provide teachers with training and promote sustainability initiatives in collaboration with local communities. The vast majority of the public (around 90%) considers damage to the natural environment and extinction of species to be a serious risk. Around 80% support adopting stricter environmental laws.

Chapter 3. Towards green growth

Include appropriate targets and objectives in the revised National Strategy for Sustainable Development	In 2018, Greece renewed its commitment to sustainable development in a voluntary national review on implementation of the 2030 Agenda (Chapter 3).The 2019 National Strategy for Sustainable and Fair Growth 2030, adopted by the previous government, was expected to guide Sustainable Development Goal implementation until an action plan would be developed. It lists 40 key performance indicators, mostly relating to SDG implementation.
Strengthen overall environmental financial efforts, moving progressively towards full implementation of the polluter-pays and user-pays principles.	Presidential decree PD148/2009 transposed the EU Environmental Liability Directive (ELD, 2004/35/EU) into Greek law and specified criteria for assessing and remediating environmental damage (Chapter 2). Financial security is mandatory for operators with high environmental risk but has so far been implemented only for hazardous waste management activities. A 2017 law provides for cost recovery in water services but there is room to better reflect financial, environmental and resource costs with water charges (Chapter 3). A 2019 law provides for a pricing policy based on regional and local waste management authorities' performance in recovering and diverting waste from landfill (Chapters 1 and 3). There is as yet no information on its outcomes.
Expand the use of economic instruments as part of a green fiscal reform (e.g. energy taxation, progressive car taxation in relation to pollution). Review and revise prices, taxes and subsidies, with the aim of internalising environmental externalities; expand the use of economic instruments to serve environmental objectives	The share of revenue from environmentally related taxes in GDP nearly doubled over the past decade due to increased energy taxation, especially on electricity and transport fuels (Chapter 3). Overall, effective tax rates on CO_2 emissions from energy use are high compared with other OECD countries. However, tax variation across fuels and uses, as well as tax concessions, provide inconsistent carbon price signals. Greece also puts a price on CO_2 emissions via the EU ETS. In 2016, Greece introduced a CO_2 component in the registration tax in addition to the Euro emission criteria. A 2018 tax has significantly reduced consumption of single-use plastic bags.

	A 2019 law provides for a pricing policy based on regional and local waste management authorities' performance in recovering and diverting waste from landfill. Waste collection charges are based on property size. A 2017 law provides for cost recovery in water services but there is room for progress.
Review transport prices and taxes, to better internalise environmental impacts and reflect vehicle environmental performance and fuel efficiency (e.g. linking vehicle taxes to the EU CO_2 vehicle labelling).	Taxes on transport fuels have been increased but the gap between petrol and diesel has widened since the beginning of the crisis, despite diesel's higher carbon and local air pollutant emissions. The tax differential was among the largest in the OECD in 2018. In 2016, Greece introduced a CO_2 component in the registration tax in addition to the Euro emission criteria (Chapter 3). Hybrid cars benefit from a reduction and electric cars are exempt. Since 2010, the annual circulation tax has been based on CO_2 emissions for vehicles registered after October 2010. Electric cars are exempt. Vehicle tax reductions for old vehicles have helped increase the share of used vehicles in registrations since the recovery of the market in 2013. The annual circulation tax on heavy goods vehicles does not consider environmental parameters. The 2019 Law on Tax Reform introduces environmental criteria in the tax treatment of personal use of company cars and provides incentives for public transport use.
Strengthen efforts on energy demand-side management and on market-oriented instruments to achieve more effective and efficient energy use: review the energy price levels and structure, and assess the impact of exemptions and subsidies.	In line with the EU Energy Efficiency Directive (EED), Greece's third Energy Efficiency Action Plan (2014) aims to limit final energy consumption to 18.4 Mtoe by 2020, and the National Energy and Climate Plan (NECP) envisages maximum consumption of 16.5 Mtoe in 2030. Energy efficiency measures in the residential and tertiary sectors are expected to have the largest mitigation impact in sectors not covered by the EU ETS by 2030 (Chapter 4). Greece has been promoting energy efficiency in buildings through regulatory measures and financial support notably the Saving at Home programme, mostly financed by EU funds (Chapter 4). The 2018 long-term building renovation strategy aims to improve the energy performance of at least 7% of the current building stock by 2030. The NECP proposes raising this share to between 12% and 15%, which corresponds to 60 000 buildings renovated annually until 2030. Beyond the use of EU funds, Greece envisages developing private funding via energy service companies.
Progressively eliminate environmentally harmful subsidies (e.g. agriculture water tariffs); consider replacing tax exemptions (e.g. on heating oil) with more targeted social compensation schemes.	Although decreasing, support to fossil fuel consumption accounts for more than one-quarter of energy tax revenue, among the highest rates in the OECD. This includes tax expenditure (e.g. excise tax exemption on specific industrial use of coal and coke and on diesel for aircrafts and vessels, plus reduced excises on oil for heating) and budget transfers (subsidies for oil-based power generators in non-interconnected islands, oil heating allowances to households, capacity payments to gas- and coal-based electricity producers). Social tariffs continue to be applied to improve the affordability of electricity and water services. Irrigation benefits from partial water cost recovery and reduced electricity prices. The 2017 law on water pricing is expected to ensure cost recovery and promote sustainable water management. There is little information on potentially environmentally harmful subsidies and tax expenditure.
Review the economic efficiency of environmental subsidies (e.g. to renewable energy sources) and revise them accordingly.	As in other OECD countries, overly generous feed-in tariffs and decreasing costs have supported impressive growth in renewables (Chapter 4). A feed-in premium programme was put in place in 2016. Since 2018, the aid is granted to specific solar photovoltaic and wind installations that have successfully participated in competitive bidding processes.
Continue to invest in efficient and reliable public transport systems, including in cities other than Athens; further develop transport demand management in urban areas.	Out of the EUR 6 billion (EU funds and national contribution) allocated to transport over 2014-20, 48% is to be spent on public transport (Chapter 3). Major sustainable transport projects include extension of the urban public transport systems in Athens and the Attica region and construction of the metro in the Thessaloniki metropolitan area. Despite delays, Greece is moving these projects forward but the lack of sustainable urban mobility plans and weak development of soft transport modes result in continued reliance on cars. The bus fleet was renewed and the Ministry of Infrastructure and Transport plans to procure 750 new buses equipped with anti-pollution technology in Athens and Thessaloniki.
Further develop an active and long-term environmental employment policy.	There is no long-term environmental employment policy and available information on the environmental goods and services sector is not sufficient to support policy making. The 2015 National Waste Management Plan quoted an EU report suggesting that 16 000 jobs could be created in the waste sector but progress is not being tracked. The NECP expects to create nearly 60 000 full-time jobs in the renewables and energy efficiency sectors.

Chapter 4. Climate change	
Continue efforts to *reduce greenhouse gases* with a view to achieving the EU emissions reduction target set for Greece; enhance efforts on energy efficiency and renewable energy sources.	Greece surpassed its Kyoto target for the first commitment period and is on track to meet the 2020 and 2030 targets for emissions not covered by the EU Emissions Trading System (EU ETS). The country is on track to achieve its 2020 target on energy efficiency and reached the 18% share of renewables in gross final energy consumption required by the EU Renewable Energy Directive for 2020. The government elected in 2019 announced a lignite phase-out by 2028 and committed to the objective of climate neutrality by 2050. It adopted an NECP with more stringent targets for 2030 than the EU requirement and a Long-term Strategy to 2050.
Continue *the shift towards cleaner fuels* (*e.g.* natural gas, low sulphur oil) and *renewables* for electricity generation and end-use.	Over the past decade, there has been a shift from oil and coal (lignite) to natural gas and renewable resources. Significant progress has been made in deploying renewables (mainly wind and solar photovoltaics). In 2018, renewables accounted for 13% of total primary energy supply and 31% of electricity generation, above the respective OECD averages of 10% and 26%. Implementation of the 2019 NECP is expected to continue the shift towards cleaner fuels and to phase out coal by 2028.
Chapter 5. Biodiversity	
Adopt and implement the National Biodiversity Strategy and Action Plan, as a comprehensive action-oriented framework for ecosystem and species conservation at both national and local levels; set time-bound objectives and periodically evaluate progress.	A National Biodiversity Strategy with a five-year action plan (NBSAP) was adopted in 2014. It sets time-bound objectives till 2029 and outlines the monitoring system to evaluate the implementation process.
Continue to extend protected areas, particularly including coastal areas and marine ecosystems; complete the implementation of the Natura 2000 network; ensure that all protected areas are provided with management plans and adequate conservation measures.	In 2017 Greece expanded the Natura 2000 network, with a focus on marine areas. It has added 32 areas and extended the boundaries of 63 existing ones. There are 446 Natura 2000 sites. The 2018 law on establishing management bodies for all protected areas provided every Natura 2000 site with such a body. A major ongoing project will update and draft presidential decrees and management plans covering all Natura 2000 areas by the end of 2022.
Further improve the human and financial capacity for nature conservation and the management of protected areas; review the future evolution of the funding system of biodiversity management, with substitutes to EU contributions (e.g. increased use of economic instruments; contribution of national and local public and private funding).	In 2018, Greece promulgated a law establishing management bodies for all protected areas. Capacity building and awareness raising are being further promoted through the LIFE Integrated Project LIFE-IP 4 NATURA, which should boost overall national efforts. All management bodies for Natura 2000 sites are funded by the 2014-20 Operational Programme Transport, Infrastructure, Environment and Sustainable Development and, to a lesser extent, by regional operational programmes. Greece should take the opportunity of the upcoming programming period to streamline and improve management of EU funds.
Increase and disseminate knowledge on the conservation status of species; carry out systematic monitoring of endangered and threatened species, and evaluate the effectiveness of protection projects.	The NBSAP includes targets for monitoring and evaluating its implementation, which should facilitate access to scientific knowledge regarding Greek flora and fauna and fill data gaps. A progress report on meeting targets is expected after the end of the action plan (2019). The LIFE-IP4 Natura project, which started in 2018, will map and assess ecosystems and their services in Natura 2000 sites.
Improve the integration of biodiversity concerns into the agricultural sector, through a targeted use of agri-environmental schemes and specific educational programmes.	The NBSAP actions related to mainstreaming biodiversity into agriculture are not very specific: they refer to improving the sustainable management of agricultural ecosystems. Over 2014-20, EUR 2.8 billion, almost half the RDP budget, is allocated to restoring, preserving and enhancing ecosystems related to agriculture and forestry. The RDP supports farmers to put 17.4% of farmland under contract to preserve biodiversity (relating to agri-environmental programmes, Natura 2000, afforestation and other biodiversity protection payments). The Hellenic Agriculture Organisation "Demeter" provides for education programmes to farmers which include environmental and biodiversity issues.
Increase the rate of *reforestation of burned and degraded forestlands*.	Forest Services are responsible for preventing fires and restoring burned areas either naturally or through artificial reforestation. Natural regeneration is expected in many areas with Mediterranean pine forests. Reforestation projects are carried out through public and private projects. Examples include a LIFE programme on Mount Parnonas in the Peloponnese and an NGO-led project to restore black pine forests, also in the Peloponnese.

Source: Country submission and findings of 2020 EPR.

Part I Progress towards sustainable development