Greece 2021 – Factsheet on Green Policies

The implementation of climate mitigation policies is advancing; the delignitisation of the energy sector, one of the most ambitious projects currently taking place in Greece, aims for the phasing out of existing lignite-generated electricity by 2023. This ambitious strategy is supported by the EU, for example through the Just Transition Fund, which is expected to provide strategic solutions for environmental and socio-economic problems, including through re-skilling those employed in the wider lignite value chain. The electrification of the transport sector has been initiated and is being supported by several incentivisation programmes (for private vehicles, taxis, etc.).

Greece's revised National Energy and Climate Plan (NECP) sets out a detailed roadmap for the attainment of specific energy and climate objectives by 2030. The roadmap is based on three pillars: GHG emissions reduction (42% compared to 1990), increase of renewable energy sources in gross final energy consumption at 35% and phase out of lignite in production of electricity by 2028. Further to the NECP is the implementation of a National Strategy for Climate Adaptation and a climate bill that is expected to be put under consultation within autumn 2021. The recent events of summer 2021 (extended dry season, heatwaves, fires in the Attica and Evia regions etc.) have only highlighted the **need for imminent actions to be taken to climate proof the Greek economy**.

The transition of the environmental sector in Greece is proceeding, albeit with small steps due to several exogenous and endogenous factors. The main environmentally related strategies (i.e. circular economy, climate mitigation, climate adaptation and biodiversity) are being supported by a legislative framework that in most cases is currently being upgraded.

Greece is still facing long-term challenges on various environmental areas. Waste management, despite being improved, still relies mostly on disposing municipal waste into land (landfills – 77,0%), while recycling has increased only moderately from 14.7% (in 2017) to 16.0% in 2019. The country's performance with regards to circular economy lags the EU average, increasing the pressure to the natural ecosystems.

The **funds available from several EU mechanisms** (Just Transition Fund, European Regional Development fund, Cohesion fund, Recovery and Resilience Fund) will be used for climate proofing the Greek economy and for protecting the natural environment in the medium run. Both the National Recovery and Resilience Plan (NRRP) and the National Strategic Reference Framework (ESPA) foresee significant amounts for climate and environment related projects for the next period.

Highlights per thematic

- **Energy and climate change mitigation**. Despite the economy's structure the country's per capita emissions are near EU average. This is mostly driven by the emissions of the energy sector. Ambitious projects are on-going, aiming to reduce the carbon footprint of the energy and transport sectors in Greece.
- **Climate change adaptation**: There is need to strengthen the implementation of the National Strategy for Climate Change Adaptation. The newly born Ministry of Climate Crisis and Civil Protection will be responsible for the implementation of the adaptation strategy.
- **Circular economy**: Marginal improvement in the relevant waste management indicators. Recycling, composting and reuse of waste need significant enhancements. Improved position of Greece recently in the circular material use rate, however, the country still remains below the EU average.
- **Wastewater and water treatment**: significant resources foreseen by the National Recovery and Resilience Plan for relevant infrastructure: €230 mil. in wastewater treatment plants for communities below 2,000 inhabitants, €780 mil. for water related projects.

Factsheet on Green Policies in Greece, prepared by the Foundation for Economic and Industrial Research – IOBE, in the context of the e-Conference on Greece and the EU Recovery and Resilience Facility, organized jointly with the European Commission in September 2021.

1. FACTS & FIGURES

Energy and Climate change

"Delivering the European Green Deal" (proposal by the European Commission)

The EU's ambitions for the decarbonisation and the 55% reduction target were enshrined in the adoption of the European Climate Law in June 2021. Consequently, this updated 2030 emissions reduction target has required an update of the EU's main climate, energy and transport legislation: this is the proposal put forward by the European Commission on July 14 to deliver the European Green Deal.

The EU policies endorse the vision of a climate neutral and resource efficient economy, with a goal of achieving climate neutrality by 2050 and a renewed ambition of reducing 2030 CO2 emissions levels by 55% as compared to 1990 levels. In December 2019, the European Commission put forward the European Green Deal, the new EU growth strategy. This is a set of deeply transformational policies for increasing the EU's climate ambition, preserving and restoring ecosystems and biodiversity, and creating a zero pollution ambition for a toxic-free environment.

The recent proposal put forward by the European Commission proposes changes across a range of policy areas and economic sectors: climate, energy and fuels, transport, buildings, and land use and forestry. The emissions trading system, ETS, is the core instrument for this ambition. The European Commission is proposing to increase the environmental contribution of the ETS by reducing the emissions cap and by extending its sectoral coverage, including in aviation, maritime, road transport and buildings As the ETS may lead to an increase in carbon price differences with the EU's trading partners, leading to an increased risk of carbon leakage, the Commission is proposing to create a Carbon Border Adjustment Mechanism (CBAM).

Further, the "Delivering the European Green Deal" proposal includes two dedicated energy proposals – on renewables and energy efficiency respectively. First, it suggests that the energy efficiency ambitions are increased further by raising the target for 2030 to 40%. This will require fundamental changes in the EU's energy systems, prioritising green sources and networks, fostering renovations of the building stock and putting a real price on carbon. Second, the package proposed by the European Commission also suggests to increase the ambition in the Renewable Energy and Energy Efficiency Directives, lays down rules on aviation and maritime fuels, and proposes new sectoral goals in the CO2 for cars. Additionally, to address any social impacts that arise from the extension of the ETS to buildings and road transport, the package introduces a Social Climate Fund, which will aim to finance both temporary direct income support for affected vulnerable households as well as support national measures and investments that reduce costs for vulnerable households, micro-enterprises and transport users.

Climate change mitigation

Despite the structure of the Greek economy, the annual per capita emissions are close to the EU average (Figure 6).

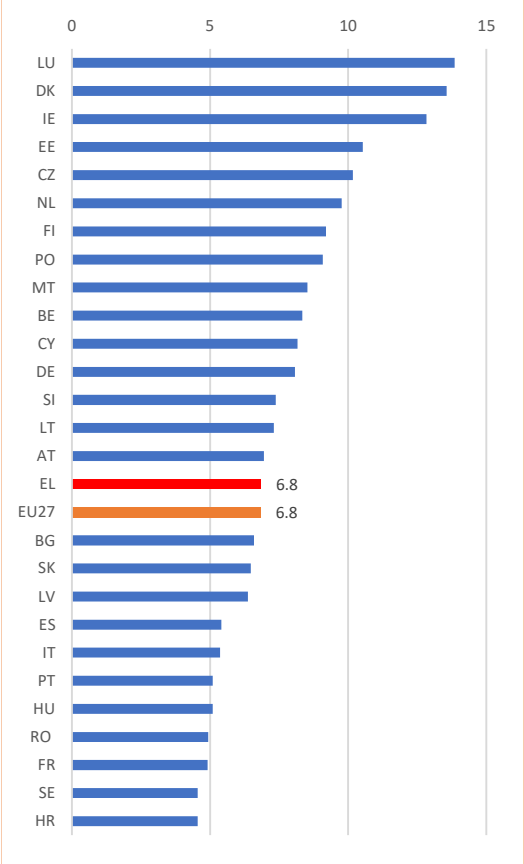
This is due to several characteristics related to the energy sector, the low energy efficiency of buildings, the old fleet of vehicles and so on.

The Greek climate change mitigation policies foresee the reduction of the GHG emissions in polluting sectors (Error! Reference source not found.). The reform of the energy sector,

responsible for the 74.5% of the annual GHG emissions (Eurostat, 2019) is necessary. One of the most emblematic projects towards the transition to the new energy paradigm is the delignitisation of the Greek electricity sector that includes the development of alternative energy sources of lower environmental footprint. The progressive delignitisation will reduce the GHG emissions of the energy sector, however, it is expected to generate socio-economic challenges in the regions where the local economy is developed around the lignite mining value chain.

This ambitious effort is supported by the EU Just Transition Fund (JTF), which provides targeted support of €17.5 billion to relevant Member States supporting the mobilisation of at least €65-75 billion over the 2021-2027 period in the most affected regions. Greece is expected to receive €755 million from the JTF, mobilising €1.6 billion of investments. Most of these investments are expected to take place in the two lignite mining areas (Western Macedonia and the Peloponnese). The transition to a zero-emission energy system is a great challenge, since currently a significant part of the local economies is driven directly and indirectly from the activity of the lignite mines.

Figure 1. Per capita greenhouse gas emissions in 2019 in EU27 (tons)



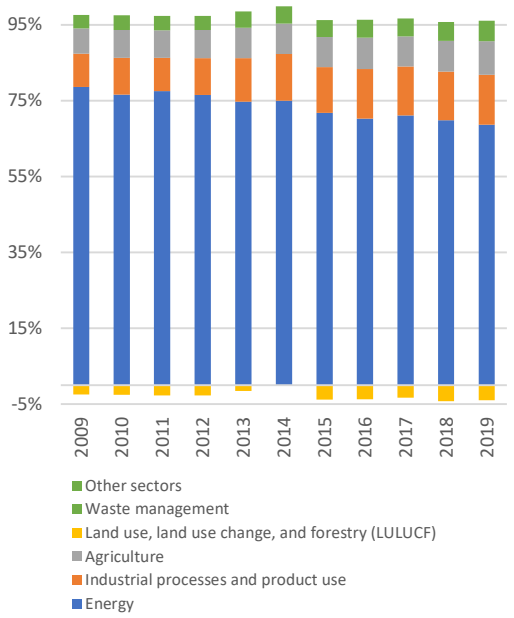
Source: Eurostat

The National Energy and Climate Plan (NECP), presented at the beginning of 2019 and revised in December 2019, set a detailed roadmap for the attainment of specific energy and climate objectives by 2030. The roadmap is based on three pillars: GHG emissions reduction (42% compared to 1990), increase of renewable energy sources in gross final energy consumption at 35% and phase out of lignite in production of electricity by 2028.

The only sector of the Greek economy whose emissions grew compared to 1990 is transport. Greece has one of the oldest fleets of private passenger cars in Europe. The NECP foresees the increase of the penetration of electric vehicles (EVs) so that, by 2030, these vehicles represent 30% of new car sales. A relevant incentivisation programme for private EVs has

been initiated in August 2020. Furthermore, the NRRP foresees approximately €220 mil. for the installation of charging stations, the wider electrification of public transportation and the replacement of old polluting taxis by EVs.

Figure 2. Emissions breakdown by activity in Greece



Source: Eurostat

Climate change adaptation

The recently published report of the IPCC concluded that climate change is already affecting every inhabited region across the globe (IPCC, 2021). To that end, the impact of climate change has begun to make their presence imminent in Greece, affecting its natural environment and the productivity of the economy. During the 2021 summer, intense heatwaves followed by catastrophic forest fires in the Attica and Evia regions led to significant losses of the natural ecosystem and a severe, yet uncounted, economic impact in high added value sectors (i.e. agriculture, tourism, etc.). Greece is already facing the impact of climate change deeming the need for integrated adaptation actions imminent.

In 2016, Greece adopted the National Adaptation Strategy (NAS) through Law 4414/2016. The strategy identifies the need for the development of a monitoring system and the design of adaptation measures that will reduce the impact of climate change in economic sectors of high contribution to the economy which, however, are most vulnerable by climate change. Tourism, energy, health, insurance, agriculture, fishing, water management, transport are some of the sectors covered by the strategy. It also foresees management at a regional level through the design of Regional Adaption Action Plans (RAAPs) that highlight the vulnerability of each region and suggest specific adaptation measures for the next implementation period. In the 2020-2021 period, and despite the effects of the pandemic, several policy related actions progressed. The new Climate law is expected to be put in consultation during autumn 2021, making Greece one of the first countries among the EU Member States that are proceeding towards legislating climate action. Finally, the creation of a dedicated ministry for Climate Crisis and Civil Protection, in early September 2021, is another policy related aspect that is expected to support the implementation of the adaptation policies.

The implementation of the NAS continues to be facilitated by the EU LIFE integrated project "AdaptInGR - Boosting the implementation of adaptation policy across Greece", led by the Ministry of Environment and Climate change. In the past two years, the project supported several core actions related to the creation of the RAAPs and the construction of pilot adaptation infrastructure that will demonstrate the importance of adaptation measures in climate proofing the Greek regions from climate change threats. The project's total budget is €14.2 million over 7 years and is expected to mobilise complementary funding of €446 million in climate change adaptation investments. (The LIFE programme, 2021).

The funds to be used in both mitigation and adaptation actions derive largely from sources such as the NRRP and the 2021-2027 National Strategic Reference Framework (ESPA). As with all Member States, 37% of the NRRP's budget is allocated to climate action (for both mitigation and adaptation). Among the approved projects of the NRRP, there are several aiming in improving infrastructure and in adopting technologies that will support the emissions reduction of several sectors (manufacturing, transport, buildings, etc.), protection of forests, reforestation, implementation of monitoring systems, creation of regional civil protection centres etc.

The new ESPA allocates approximately €3.6 billion in environmental and climate change projects. Following the recent environmental disasters, a great part of the foreseen budget is expected to be allocated on adaptation measures and on actions to enhance biodiversity and land renewal.

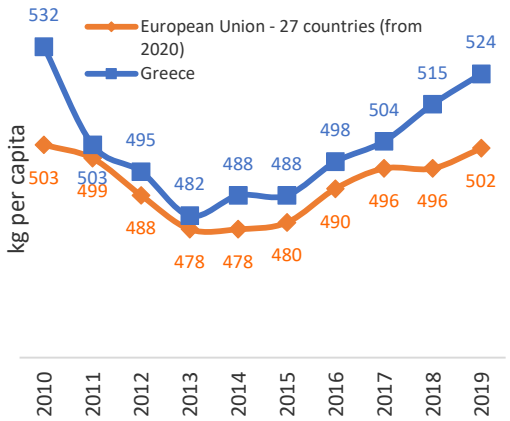
Waste management

Waste management remains one of the most pertinent environmental problems in Greece, affecting not only the natural ecosystems but also the country's transition to circularity.

The Greek legislative framework is currently being harmonised with the relevant EU directives in line with the Green Deal objectives. Among others, the recent National Waste Management Plan (NWMP – 2020) is based also on leveraging private investments in several stages of waste management to achieve the 2030 targets (10% landfill, increase of recycling to 60%, energy exploitation of waste). In addition, the new law on the single use plastics foresees the ban of several plastic materials, the reduction of plastic use and the use of recycled polymers when use of plastics cannot be avoided. Finally, the Circular Economy action plan, together with the National Strategic Plan for waste prevention, foresee the capacity development of several productive sectors supporting the transition from a linear to a circular economy.

The per capita generation of municipal solid waste (MSW) in Greece is above the EU average (Figure 1), while the gap continues to grow (3.8% in 2018, 4.4% in 2019). In EU27, the relevant figure increased anew in 2019, after the 2017-2018 stabilisation period, showing that more effective policies decoupling growth from environmental footprint should be implemented.

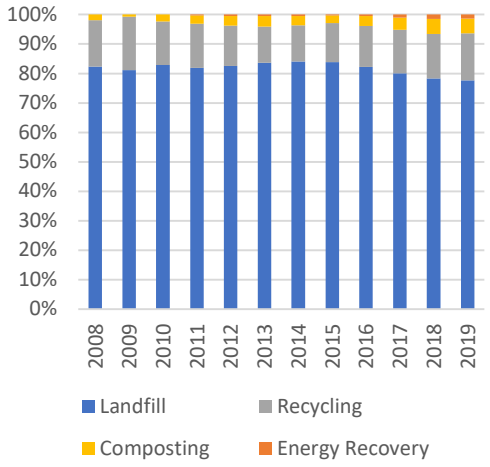
*Figure 3. Per capita generation of municipal solid waste, Greece and EU28**



Source: Eurostat

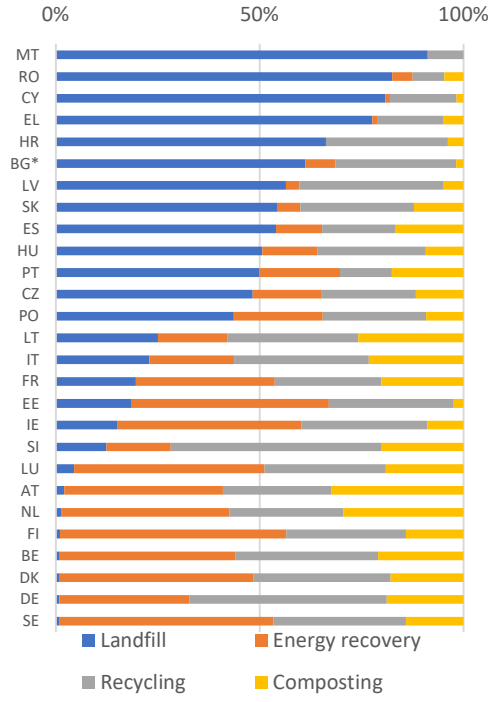
In Greece, the existing waste management system continues to rely on disposal of waste in landfills, the least preferred treatment practice in the waste management hierarchy (Figure 2), lagging EU average practice (Figure 3). However, since 2017, a reduction is noted in the actual amounts that are disposed in land (from 80.1% in 2017 to 77.6% in 2019) mostly as a result of the increased efforts for recycling (increased from 14.7% in 2017 to 16.0% in 2019) and composting (from 4.1% to 5.0% in 2019).

Figure 4. Municipal Solid Waste management in Greece during 2008-2019



Source: Eurostat

Figure 5. Municipal Solid Waste management across the EU27 in 2019



Source: Eurostat

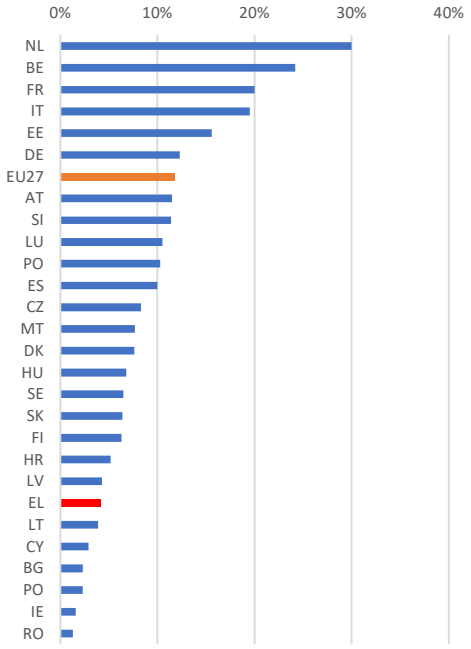
* Data for BG refer to 2018

Despite the above, Greece continues to exhibit the 4th lowest recycling rate among EU countries, being ahead of Romania, Malta and Portugal. In contrast, Sweden recycles more than half of the generated MSW (51.6%) followed by Germany (48.5%) and Belgium (34.9%).

Greece ranks low also in the energy exploitation of the MSW, an uncommon practice, since less than 1.3% of the generated amounts of MSW are diverted in this treatment process.

The transition of the Greek economy from linear to circular is hindered by the country's poor performance in waste management. As a result, Greece ranks low in the circular material use rate (Figure 4). The share of material recycled and fed back into the economy, is far below the EU average, followed only by 6 Member States, which exhibit similar waste management characteristics (i.e. high volumes disposed in landfills, low recycling rates etc). It is noted that while no investments directly related to improvements in the waste management sector have been included in the National Recovery and Resilience Plan (NRRP), the plan does foresee an important reform of the legal framework by mid-2023 including, among others, the provision of incentives to the Greek municipalities to achieve higher recycling rates and to render the economy in a more circular path.

Figure 6. Circular material use rate, 2019*



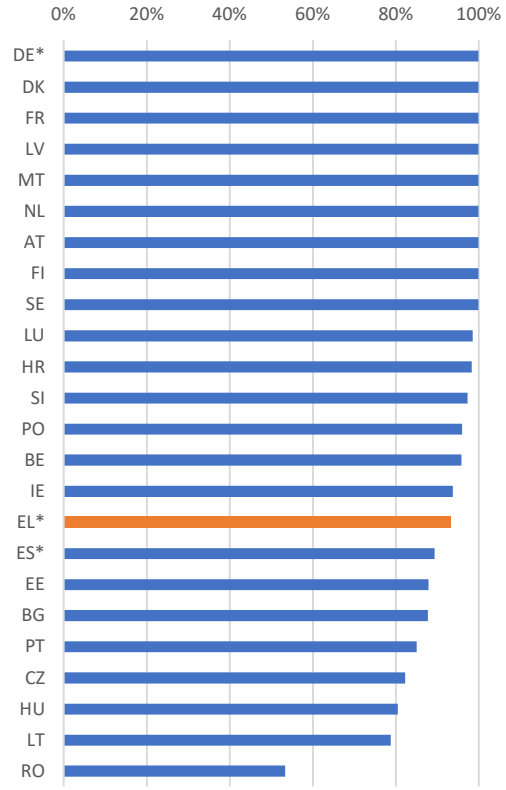
**Defined as the share of material recovered and fed back into the economy*
Source: Eurostat

Wastewater & water treatment

In terms of wastewater, most of the population is connected to wastewater treatment plants (Figure 7). Due to geographical peculiarities, more than half of the Greek agglomerations located in rural areas of the mainland and islands remain not connected. Wastewater in these cases is treated through individual systems (i.e. septic tanks), which in many cases need upgrading (European Commission, 2020). The environmental law 4685/2020 targets the termination of septic tanks, especially in buildings located in highly populated areas. The new law imposes the need for infrastructure upgrade works with the use of national and EU funds.

In addition, the existing policy foresees that communities below 2,000 inhabitants should not invest in expensive wastewater collection systems (i.e. grids) but focus on alternative solutions of similar environmental performance.

Figure 7. Population connected to wastewater treatment plans, EU27, 2018



Limited data availability for all EU27 Member States. Starred countries refer to 2016 data.
Source: Eurostat.

The Greek Recovery and Resilience Plan foresees €230 mil. in wastewater treatment plants in communities below 2,000 inhabitants and approximately €780 mil. for projects related to the upgrade of water networks and water management in general. These projects are expected to be implemented by 2025.

2. Open Discussion Questions

- What can Greece learn from the best practices in Green transition across Europe? What are the key policy priorities for the green transition in Greece and at European level?
- What is the scale of the Commission's ambition for the Green Transition? How can the principle of "do no significant harm" be a game changer in EU and national policies?
- How can the climate change adaptation strategy be best accelerated in light of current infrastructure gaps and tragic wild fires? What models can Greece adopt with regards to sound forest management that will maximise ecosystem services, reduce the risk of uncontrolled fires or fllods and, at the same time, create sustainable business models?
- To what extent can Greece benefit economically from the transition to a more climate-proof economy? Which are the sectors that can benefit from such a transition? How can an integrated approach be developed to prioritise climate-proofing measures taking under consideration environmental impacts and green investments?
- What new types of RES investments can be game changers for the future? How can the social acceptability of renewable energies be improved? Some quote the lack of awareness as a main reason for social resistance towards new RES projects. What type of investments towards increasing local and regional awareness have been taken in the past and/or are foreseen for the immediate future?
- How can Greece develop a more sustainable circular economy? What are the environmental and economic benefits of better performance on waste, water and biodiversity?
- What can Greece gain from being an early adopter of electric mobility? How can transport and energy infrastructure be best planned together to accelerate the electric vehicle transition?

3. References

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