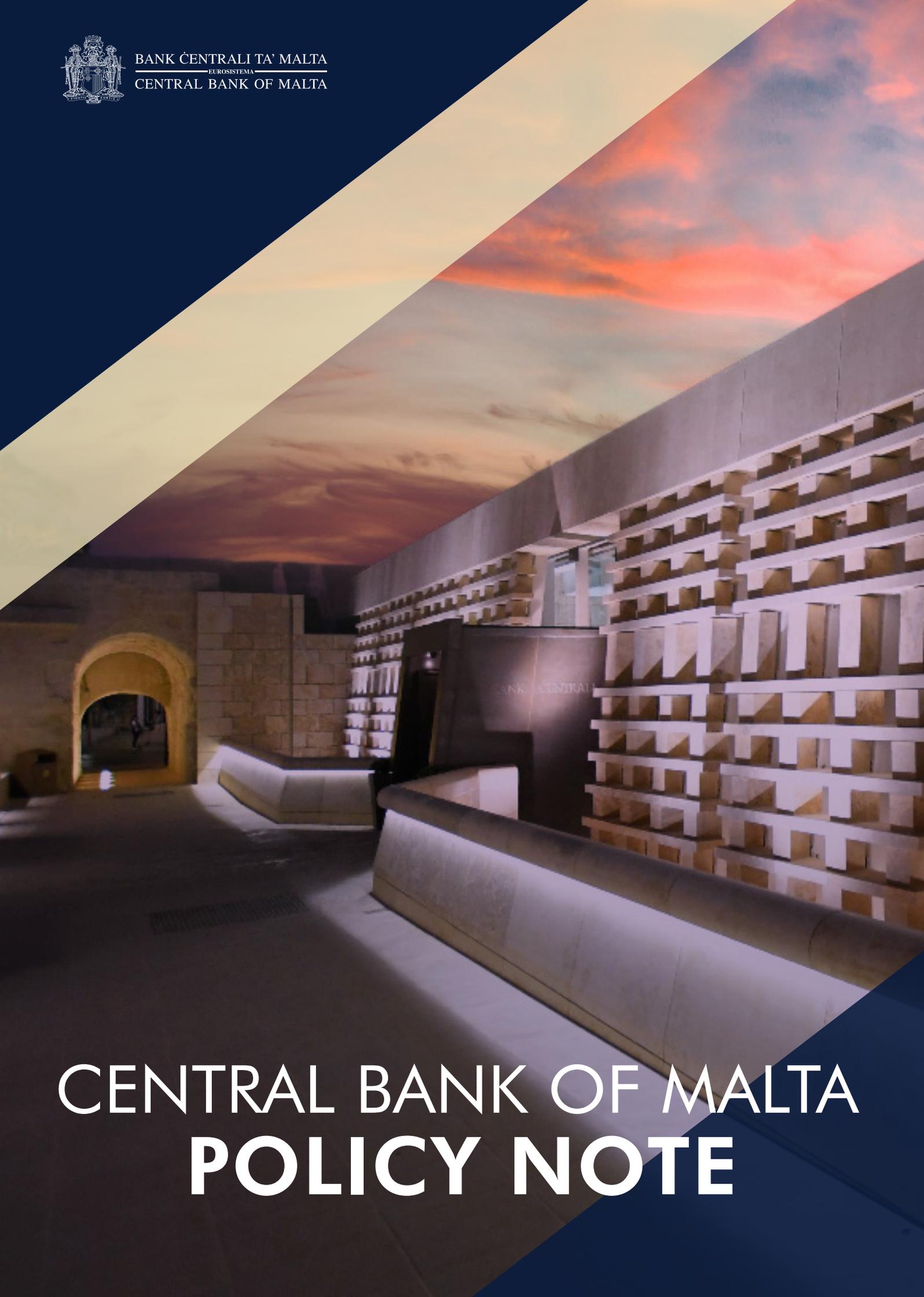




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A photograph of the interior of the Central Bank of Malta's vaults. The space is filled with rows of metal safes, illuminated by warm, golden light. In the background, there is a stone archway leading to another part of the vault. The overall atmosphere is one of security and historical significance.

CENTRAL BANK OF MALTA POLICY NOTE



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THE ROLE OF FISCAL POLICY IN CLIMATE CHANGE MITIGATION AND ADAPTATION IN MALTA

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Policy Note

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Abstract

Climate change has come to the forefront of social debate as changes in weather patterns and extreme weather events can severely threaten economic development and wellbeing. In this light, this analysis discusses the role of fiscal policy in climate change mitigation in Malta, by firstly outlining climate-relevant fiscal measures introduced over the last decade, and then assessing their respective impact on the fiscal balance. In this assessment, measures which help mitigate climate change are considered as 'green', while measures which are considered as harmful to climate change are deemed as 'brown'. Between 2009 and 2020, green initiatives, excluding government investment and capital transfers, had a deficit reducing impact. The introduction of a number of brown measures, on the other hand, had a deficit increasing influence during the same period. The analysis also discusses some recent climate-relevant measures announced in Malta's Recovery and Resilience Plan and in the 2022 Budget.

This analysis concludes with a list of recently announced policy initiatives aimed at strengthening the country's resilience to climate change. This includes initiatives to encourage the use of less polluting behaviour, afforestation programs, the renovation of neglected rural and urban areas into green parks as well as other major climate-relevant projects.

JEL classification: E62, H23, Q54

Keywords: Climate change, environmental taxes, green expenditure, fiscal policy, Malta

Executive Summary

Climate change has come to the forefront of social debate as changes in weather patterns and extreme weather events can severely threaten economic development and wellbeing, particularly in climate-sensitive sectors. Fiscal policy is one of the tools available to minimise the harmful effects of climate change and facilitate adaptation to it. Well-designed tax policies, budgetary expenditures, and non-tax instruments such as regulatory policies are some fiscal tools that can be deployed in this regard. Fiscal policy can also facilitate the transition to a greener economy by implementing targeted taxation and subsidies that encourage investment in renewable energy or other climate-smart technologies. In turn, such policies will help improve the country's climate change resilience.

This analysis outlines the main climate-relevant measures introduced in Malta over the last decade. It assesses their impact on the fiscal balance from an accounting perspective, through changes in government revenue and expenditure. In this assessment, a measure is only considered as climate-relevant if it has an impact on carbon emissions, energy efficiency or the adaptation to climate change. Measures which help mitigate climate change or facilitate adaptation are labelled as 'green', while measures which affect the composition of environmental taxes and expenditure but go against climate objectives are labelled as 'brown'. Meanwhile, fiscal measures introduced to compensate for extreme weather events are also considered as climate relevant and are classified as 'yellow' measures in this analysis. Overall, green initiatives, excluding government investment and capital transfers, had a deficit reducing impact between 2009 and 2020. On the other hand, the introduction of brown initiatives had a deficit increasing impact during this period. Compensation to cover the reimbursement of private sector costs resulting from extreme weather events has thus far had a negligible impact on public finances.

Finally, this analysis outlines recently announced fiscal initiatives aimed at encouraging less polluting behaviour and promote higher energy efficiency. Measures include initiatives that encourage the use of clean transportation methods, increase in public transport uptake, afforestation programs, the renovation of neglected rural and urban areas into green parks and the ban of single-use plastic. Other initiatives include the expected completion of major climate-relevant projects such as the EcoHive and the shore-to-ship power infrastructure. The government has also recently developed a Low Carbon Development Strategy (LCDS) that maps out the country's decarbonisation path up to 2050. The initiatives highlighted in the strategy will set the tone and encourage businesses and individuals to embark in climate change prevention and adaption initiatives. This raises questions, beyond the scope of this

Policy Note, about trade-offs between short-term growth prospects and building a more climate friendly economy.

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Where does Malta stand vis-à-vis its climate change targets?

Climate change has emerged as one of the greatest economic challenges of the twenty-first century. Changes in weather patterns and extreme weather events can have a considerable influence on economic activity and wellbeing, particularly in climate-sensitive sectors, bringing climate change to the forefront of social debate.

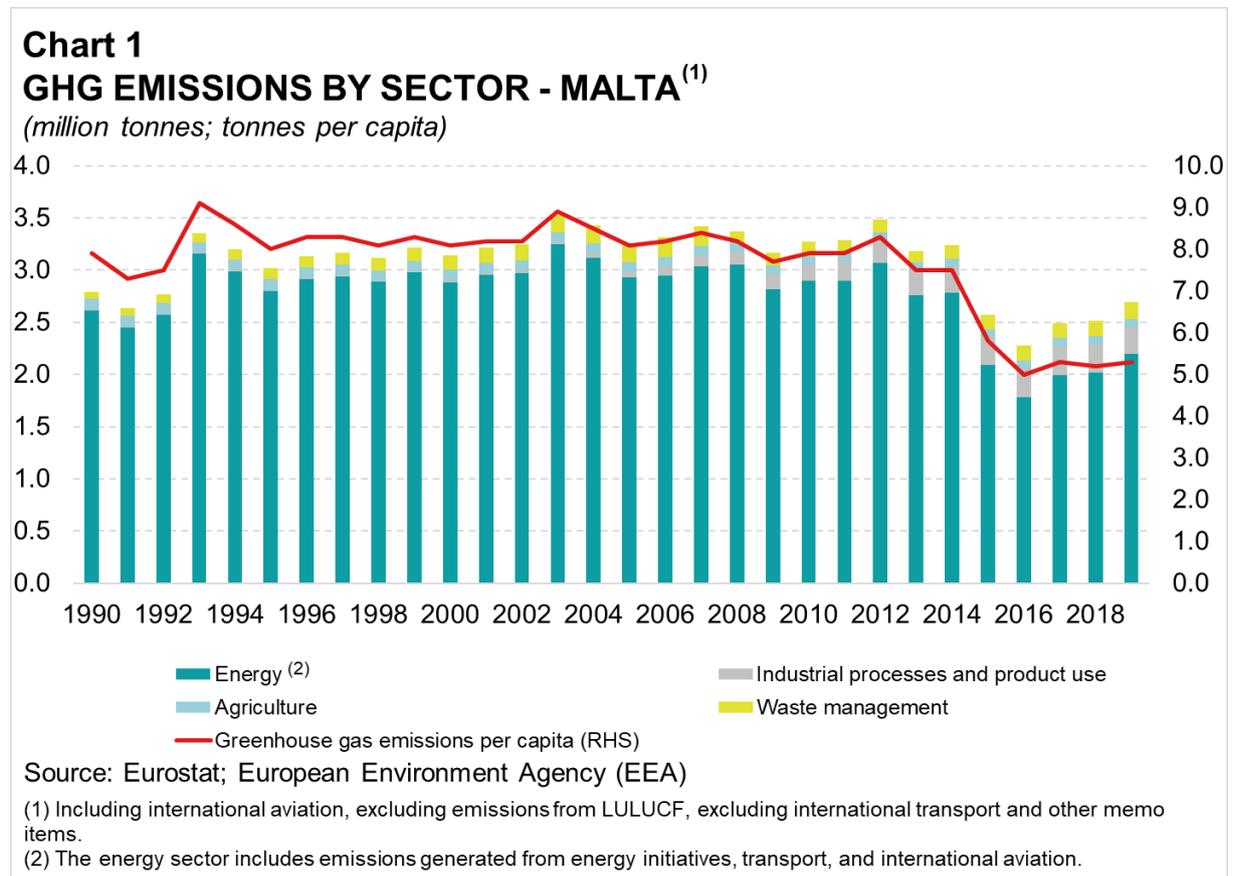
The European Union has prioritised the response towards climate change by committing itself to an ambitious climate policy. The European Union's main priority for the coming decades is to achieve carbon neutrality by 2050, a target that was set into binding legislation with the European Climate Law. To make progress towards carbon neutrality, the earlier 2030 greenhouse gas (GHG) emission reduction target of 40% was raised in December 2020, to a net domestic reduction of at least 55%.² This should promote green investments, spur more sustainable economic growth and create considerable health and environmental benefits for citizens. As a European Union Member State, Malta is also committed to fulfil its obligation of becoming carbon neutral by 2050. To smoothen the transition towards a carbon-neutral economy, Malta has set a binding emission reduction target of 19% by 2030 compared to 2005, for emissions that are not within the scope of the EU's Emissions Trading System (ETS).

In level terms, Malta's GHG emissions followed an increasing trend between 1990 and 2004, before moving onto a moderately downward path. More significant decreases can be observed from 2015 onwards, reflecting lower emissions in the energy sector (see Chart 1). The energy sector, accounting for over 70% of Malta's overall GHG emissions, contributed positively towards the decline in emissions, particularly after 2012. This reflects several developments in local electricity generation during this period, including the introduction of the Malta-Sicily interconnector in 2015, the closing of the Marsa Power Station as well as the shift of power generation to natural gas from heavy fuel oil. These developments were complemented with a rise in renewable energy, as the share of renewable energy in gross final energy consumption increased markedly over the period under consideration.

The abovementioned reduction in the energy sector's GHG was partly offset by an increase in emissions from the industrial process and product use (IPPU) sector. The latter has seen rising emissions for over the past decade, becoming the sector with the second highest share of total national GHG emissions. The increase was caused by higher emissions of hydrofluorocarbons due to more installations of refrigeration and air-conditioning systems (Environment and

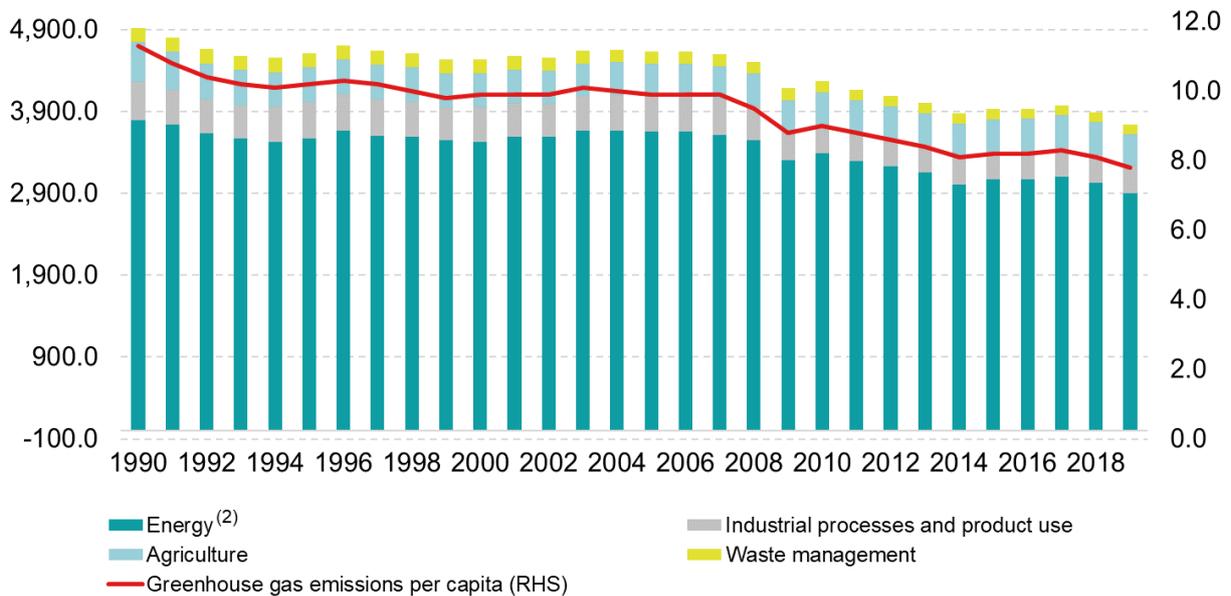
² More information on the EU's targets can be found on: https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en

Resource Authority, 2018). Moreover, the decrease in GHG emissions registered between 2012 and 2016 was partly reversed since 2017 due to a rise in energy emissions.



Between 1990 to 2008, GHG emissions in the EU remained relatively stable at around 4,300 million tonnes, after which they began to fall. From 2009 onwards, there has been a declining trend in the EU’s GHG emissions, owing to lower emissions in the energy industry. In turn, the level of GHG emissions per capita across EU Member States also followed a downward path over this period, as twenty-four countries experienced a drop in GHG emissions per capita, while only Cyprus, Latvia and Austria registered a slight rise. Malta’s drop in GHG emissions per capita was in line with the EU average, as between 1990 and 2019, GHG emissions per capita in Malta declined by 32.9%, while the average drop across Member States was 31.0%.

Chart 2
GHG EMISSIONS BY SECTOR - EU⁽¹⁾
(million tonnes; tonnes per capita)



Source: Eurostat; European Environment Agency (EEA)

(1) Including international aviation, excluding emissions from LULUCF, excluding international transport and other memo items.

(2) The energy sector includes emissions generated from energy initiatives, transport, and international aviation.

A rise in renewable energy

Malta has committed to a target share of 10.0% of renewable energy in total energy consumption by 2020, and 11.5% by 2030. Although the share of renewable energy in gross final energy consumption increased by 4.1 percentage points between 2014 and 2019, to 7.7%, Malta still falls short of its targets. Provisional data for 2020 show that Malta’s share of renewables in energy consumption stood at 9.7%, which is 0.3 percentage points below the targeted 10.0%.³ The established 2030 target may also be difficult to reach, given that Malta’s potential for renewable energy production is restricted due to spatial limitations. Additionally, the growing number of high-rise and multi-unit buildings also tends to limit solar energy’s potential (European Parliament Research Service, 2021).

However, Malta has made significant progress in diversifying its energy mix in recent years. NSO data show that in 2019, 70.4% of Malta’s electrical supply was generated by power plants, 24.1% reflected net imports via the interconnector and 7.7% was produced from

³ However, this share would be higher if one were to account for the renewable electrical energy supplied to Malta through the interconnector. Further details are available in Central Bank of Malta (2021).

renewable energy sources (see Chart 3). In 2015, these percentages stood at 47.5%, 41.6% and 4.0%, respectively.

Electricity generated from renewable energy mainly emanates from solar energy, which accounts for more than 90% of the renewable energy supplied. Furthermore, in 2019, renewable energy accounted for 25% of the total energy used for heating and cooling in Malta (see Chart 4). This share has increased markedly since 2004, when it was only 1%. These developments largely reflect the introduction of several government initiatives primarily through subsidizing solar and heat pump water heaters and expanding the use of air-to-air reversible heat pumps. Moreover, since 2010, the use of renewable energy sources in the transport sector have also followed an upward path, also on the back of several government initiatives.

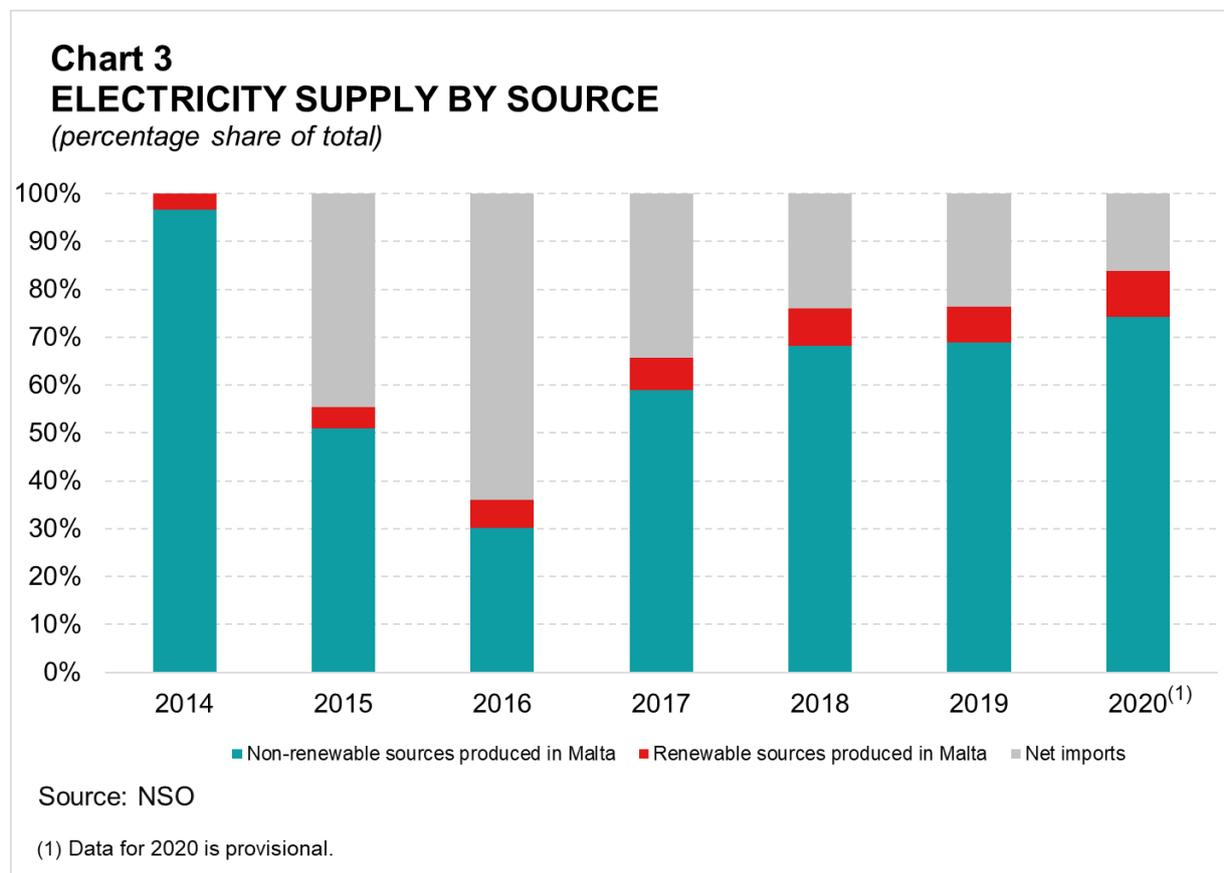
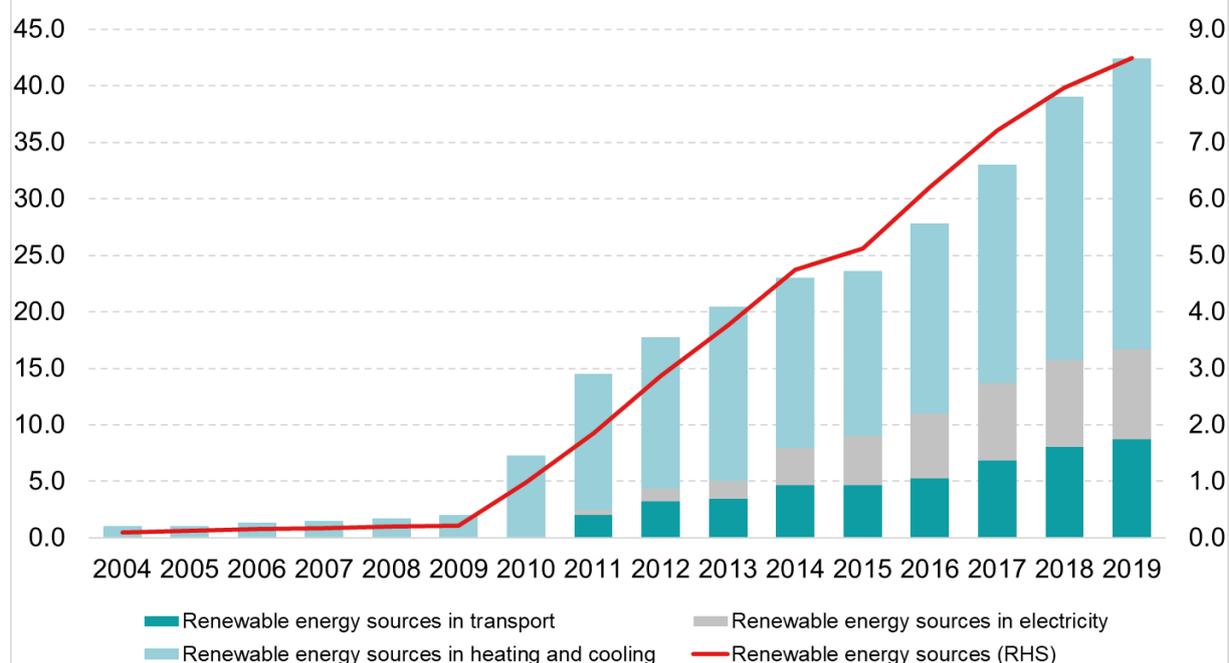


Chart 4 SHARE OF RENEWABLE ENERGY SOURCES

(per cent, share of total energy)



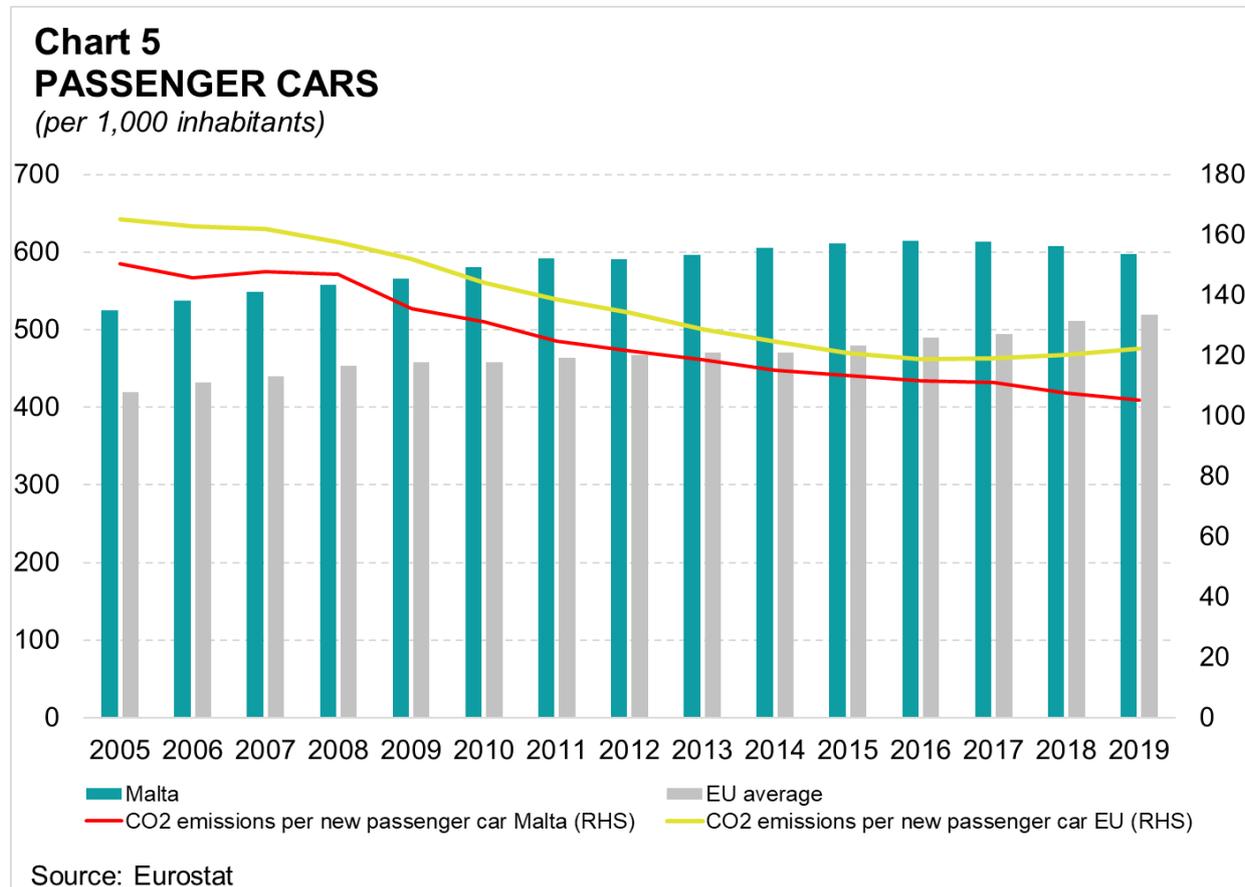
Source: Eurostat

Emissions from domestic transport remain elevated

Despite the abovementioned improvement in GHG emissions, emissions generated from transport-related activities remain an area of concern. In fact, emissions from transportation, accounting for around 45% of GHG emissions generated from the energy sector, have more than doubled between 1990 and 2019. This substantial increase is largely attributed to private transportation. The number of passenger cars in Malta per 1,000 inhabitants has increased by 20% over the 2005-2019 period and also exceeds the EU average (see Chart 5). This largely reflects Malta's heavy reliance on passenger cars as the primary mode of transportation. This result is also evident from a climate survey conducted by the European Investment Bank (EIB), which shows that among EU citizens, the Maltese are most reluctant to eliminate the use of private vehicles (European Investment Bank, 2021).

Emission performance criteria for new passenger car were introduced at the EU level in 2009 to reduce CO₂ emissions. In the EU, average CO₂ emissions from all new passenger cars were 122.3 g CO₂/km in 2019, which was lower than the 2015-2019 objective but much higher than the 2021 target of 95 g CO₂/km. CO₂ emissions from new passenger cars in Malta were below the EU average, and even decreased after 2016 while the EU saw an increasing trend.

This may reflect the relatively low share of new vehicles in use in Malta, compared with the EU average.⁴ At the same time, in recent years, there has been an increased use of electric vehicles on the back of several government initiatives in favour of electromobility.



Rise in emissions from international aviation spurred by demand for air travel

By virtue of Malta’s geographic isolation, international aviation is a prominent contributor to the country’s total emissions. This reflects Malta’s limited alternatives to travel abroad, which makes it highly reliant on air transport for travel and tourism. Moreover, the higher number of tourist arrivals and departures registered over the last decade also contributed towards higher emissions from international aviation. In fact, data from the Malta International Airport shows a 47% increase in passenger flights between 2015 and 2019, while emissions from international aviation increased by around 50% over the same period.

⁴ Source: Eurostat
https://ec.europa.eu/eurostat/databrowser/view/road_eqs_carage/default/table?lang=en

What are the fiscal policy instruments that have been used to address climate change?

This section provides an overview of the fiscal policy tools that have been used by the Maltese government to mitigate the consequences of climate change.⁵ The focus is on environmental tax policies, climate-related expenditure, and other regulatory policies. Through these tools, fiscal policy facilitates the shift to a greener economy and encourages investment in renewable energy or other climate-smart technologies.

The degree to which fiscal policy is climate-friendly can be assessed from the setup of environmental taxes and targeted climate-relevant spending. Environmental taxes are one of the most common fiscal instruments used by governments to restrict the negative environmental impact of certain forms of production and consumption.⁶ The objective of environmental taxes is to discourage the use of environmentally damaging activities such as the burning of fossil fuels, while promoting other alternative and more efficient energy sources. In other words, the aim of these taxes is not necessarily to have zero pollution, but a level of pollution that is acceptable in economic terms (Van Cauter et al., 2009). Overall, these taxes can be grouped into three categories these being energy, transportation, and pollution and resources. Energy taxes comprise carbon taxes and taxes on energy products for transportation such as diesel and petrol, taxes on energy products for stationary use (coal, oil products, electricity, natural gas), and taxes on greenhouse gases. Meanwhile, road usage taxes, taxes on the import, sale and registration of motor vehicles are all examples of transport taxes. Lastly, pollution and resource taxes comprise taxes on air and water pollution, taxes on waste management and on raw material extraction.

The revenue generated from such taxes can in turn be used on climate-related expenditure. The latter includes expenditure on climate-relevant initiatives as well as capital projects and investment grants which aim to prevent, reduce, and eliminate pollution, promote cleaner technologies and enhance climate change mitigation.

Environmental taxes

In level terms, revenue from environmental taxes followed an upward trajectory over the last two decades, reflecting growth in economic activity and the introduction of additional

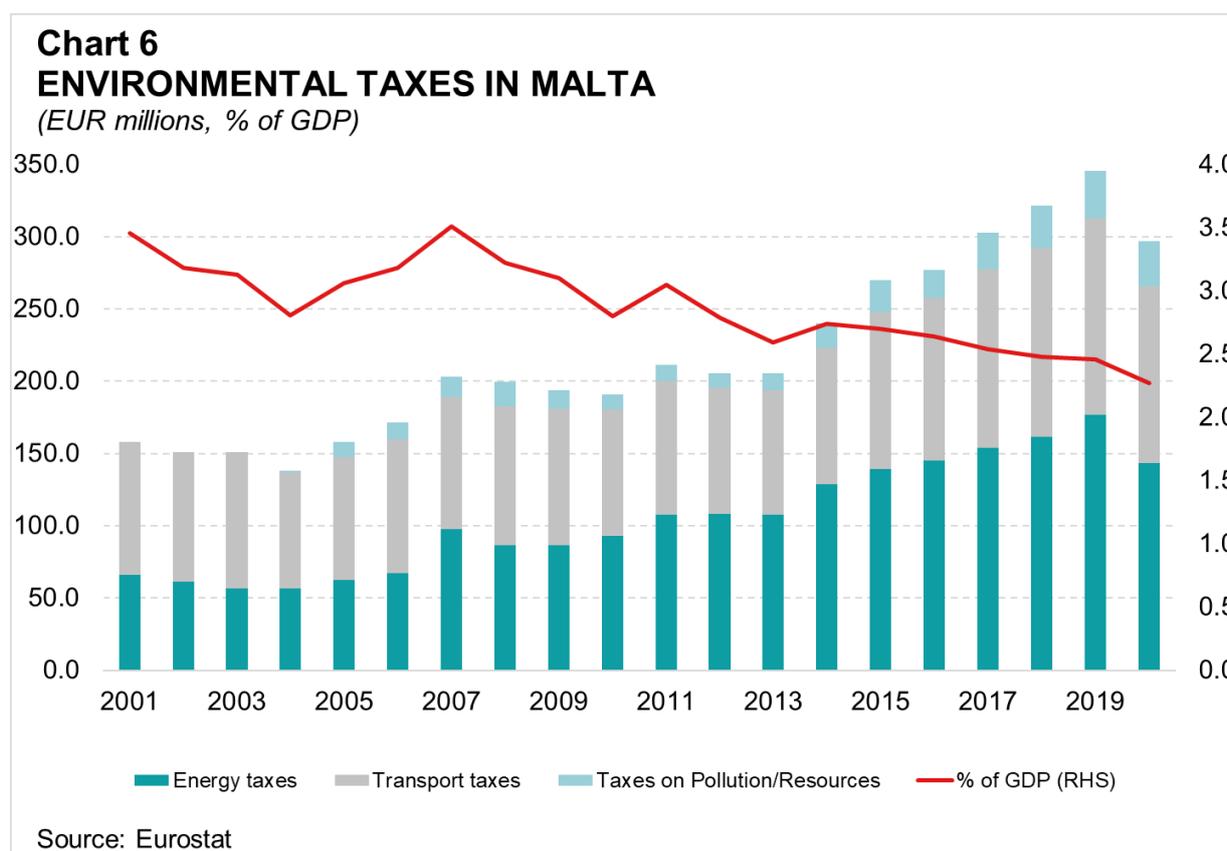
⁵ See European Central Bank (2021) for an overview of climate-relevant fiscal policy measures taken by EU Member States.

⁶ Environmental taxes are one of the most used fiscal policy instruments among EU countries to support the green transition towards lower GHG emissions. Source:

https://www.eib.org/attachments/thematic/the_eib_climate_survey_2020_2021_en.pdf

environmental taxes (see next section). Revenue from environmental taxes reached record levels in 2019, before declining by 14.2% in 2020. The significant drop in 2020 largely reflects the contraction in economic activity caused by the COVID-19 pandemic and - albeit to a lower extent - fuel price cuts as part of the COVID-19 Economic Recovery Plan.

Environmental tax revenue in Malta mostly stems from taxes on energy and transportation taxes. Excise duties on petroleum imports account for the vast majority of energy taxes, while the rest is composed of excise duties on electricity, bunkering tax and revenue from auctions of Emission Trading Permits. Meanwhile, motor vehicle registration tax and motor vehicle licenses account for around 90% of transport tax revenue, while other transport tax revenue is derived from the sale of car license plates, driving licenses and administration charges to test motor vehicles. Another source of environmental tax revenue are taxes on pollution and resources, though the share of this component – mainly consisting of excise duties on cement - is very low. Other revenue is derived from various excise duties on plastic bags, construction components, bottled water and non-alcoholic beverages.



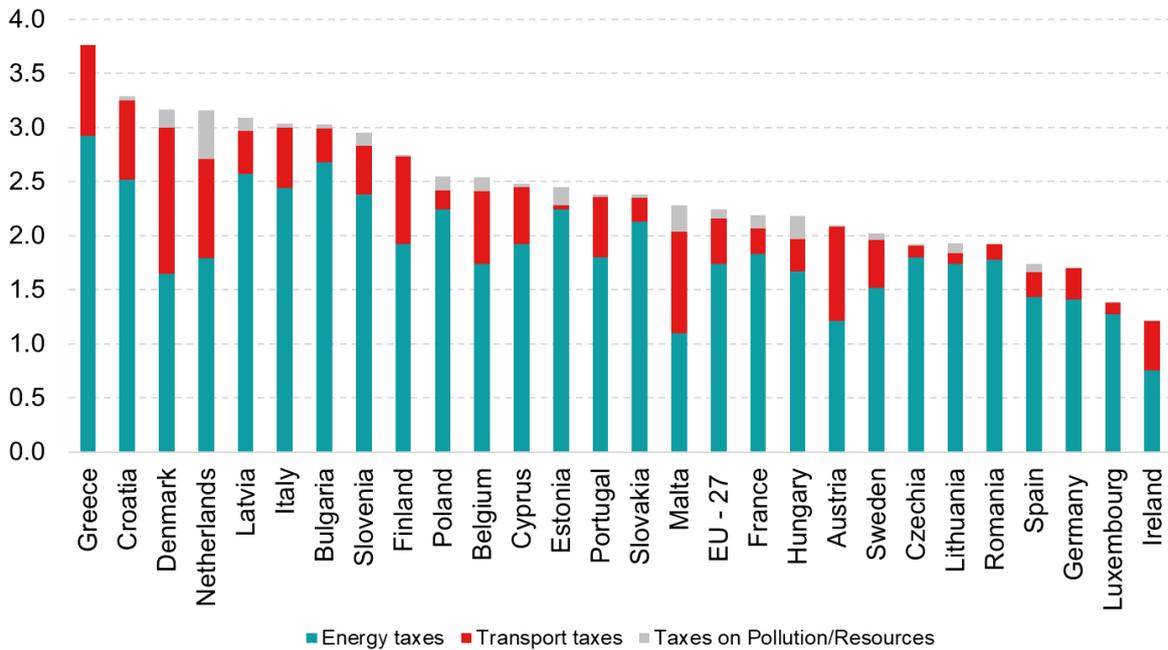
Overall, the share of environmental taxes to GDP in Malta is in line with the European Union average (see Chart 7). However, the composition of taxes differs. On average, environmental taxes in the EU amounted to 2.2% of GDP in 2020, with energy taxes accounting for 77.7% of this total (or 1.7% of GDP). Meanwhile, transport taxes account for 19.1% of overall environmental taxes, with pollution and resource taxes accounting for 3.7%. In Malta, however, energy and transportation taxes accounted for 48.5% and 41.4% of total environmental taxes, respectively, with taxes on pollution and resources accounting for 10.6%.

Compared with other EU member states, Malta has a strong dependence on transport taxes. This largely reflects the current design of environmental taxes, which largely consists of non-fuel related transport taxes. Non-fuel transport taxes encourage fuel efficiency because they are based on each vehicle's carbon dioxide emissions rating, however they do not necessarily influence the number of kilometres travelled. Due to this drawback, several EU member states employ the use of fuel taxes rather than non-fuel taxes. The benefit of the former is that they have a greater impact on lowering carbon emissions from car use, since they affect the marginal cost of driving a private vehicle. Because fuel taxes are included in energy taxes, the share of energy taxes in total environmental taxes in the EU is larger than in Malta.

Meanwhile, pollution and resource taxes across several EU member states were introduced significantly later than transport and energy taxes. As a result, by end 2020, only 0.1% of GDP of such taxes were recorded across EU countries. In Malta, inflows from pollution and resource taxes amounted to 0.2% of GDP.

Chart 7 ENVIRONMENTAL TAX REVENUE ACROSS EU COUNTRIES

(2020, % of GDP)



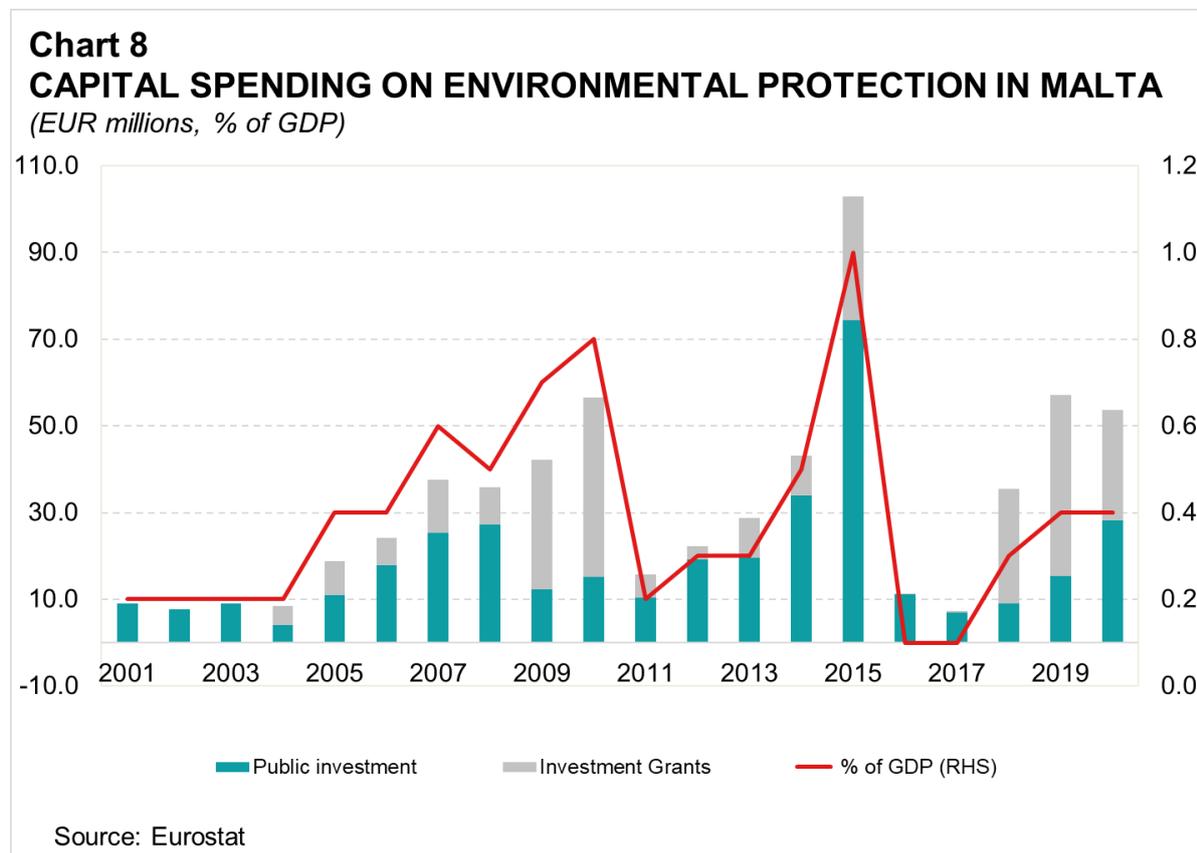
Source: Eurostat

Expenditure-based fiscal instruments

Besides the above-mentioned revenue-based instruments, the Maltese government allocates a proportion of its yearly budget spending on climate-relevant initiatives, some of which are co-financed from EU funds. These outlays, mainly in the form of transfers to households and subsidies to firms, include various schemes to promote the use of renewable sources of energy and to incentivise emission reduction. These initiatives include schemes that support the installation of photovoltaic systems and solar water heaters, favourable tariffs for electricity produced by solar photovoltaic systems and eco reduction benefits to encourage less electricity consumption. Other schemes target firms. These include initiatives that assist hoteliers to invest in energy efficiency projects, grants to facilitate investment technological solutions that provide higher energy efficiency and other schemes for large renewable energy projects. Initiatives to boost R&D in cleaner and renewable energy technology are another example of climate-relevant spending.

Apart from the abovementioned initiatives, the government also allocates additional spending for climate-relevant capital outlays. This includes public spending and investment grants for environmental projects aimed at preventing, reducing, and eliminating pollution while also enhancing the country's resilience to climate change. This spending, in the form of government

investment and investment grants, is gauged from the Classification of the Functions of Government (COFOG). This classification makes it possible to identify outlays devoted to capital expenditure on environmental protection (see Chart 8). Capital expenditure on environmental protection amounted to €53.5 million or 0.4% of GDP in 2020, with expenditure nearly equally split between public investment and investment grants. On average these outlays amounted to around 0.4% of GDP over the 2001 and 2020 period. However, year-on-year climate-relevant capital expenditure is highly volatile, as this largely depends on the timing of individual projects. As an example, capital spending on environmental protection rose sharply in 2015, reflecting higher outlays on waste management projects and higher investment grants to waste water management projects. However, once such projects were completed, capital expenditure on environmental protection declined.



On average, spending on public investment on environmental protection in the EU amounted to 0.2% of GDP in 2020, which is in line with the expenditure incurred during the same year in Malta. Meanwhile, during the same year outlays on environmental investment grants across EU countries was less pronounced than that recorded in Malta. In fact, average EU spending

on such investment grants was less than 0.1% of GDP while that in Malta reached 0.2% of GDP, the highest ratio across all EU member states.

Regulatory policies

To foster climate mitigation, governments can also implement regulatory policies. Such regulations take the form of command-and-control policies, in contrast to the abovementioned economic instruments that seek to induce changes in households' and firms' behaviour.

Over the last decade, Malta has introduced a number of regulatory climate-change policies. This was largely on the back of the implementation of EU wide initiatives into national legislation (see Table 4). These initiatives cover several areas, including standards on the energy performance of buildings, regulations on energy efficiency and the use of renewable energy sources. In addition to the aforementioned measures, other climate-relevant regulations include those on groundwater extraction and on borehole drilling.

Table 1
THE MAIN REGULATORY EU INITIATIVES TRANSPOSED INTO NATIONAL LEGISLATION

Regulation	Description	Year Introduced
Lifecycle Greenhouse Gas Emissions from Fuels Regulations	Transposes Article 7a of Directive 98/70/EC by setting, in respect of road vehicles, non-road mobile machinery, agricultural and forestry tractors, and recreational craft when not at sea, a target for the reduction of life cycle greenhouse gas emissions, and transposes Council Directive (EU) https://legislation.mt/eli/si/423.48/20150828/eng	2010
European Union Greenhouse Gas Emission Trading System for Stationary Installations Regulations	Transposes Directive 2003/87/EC into national law. This regulation provides for the implementation in Malta of the EU system for GHG emissions allowance trading. This came into force in 2013 and was lastly amended in 2019 https://legislation.mt/eli/si/423.50/eng/pdf	2013
Lifecycle Greenhouse Gas Emissions from Fuels Regulations	Transposes Council Directive (EU) 2015/652 by laying down rules on calculation methods and reporting requirements https://legislation.mt/eli/si/423.48/20150828/eng	2017

What was the impact of new climate-relevant fiscal measures on the budget balance?

Over the last decade, the Maltese government has stepped up its efforts to address climate change by introducing several measures. While most of these measures have the primary motive of achieving climate change targets, others, although lower in number, are considered as less climate friendly. However, to date, there is no fully defined statistical methodology on the classification of climate-relevant fiscal measures, which could make the identification of which measures are climate relevant more subjective. Against this background, this analysis aims to identify the main climate-relevant fiscal initiatives and present an initial assessment of their impact on the fiscal balance. Therefore, this assessment takes an accounting perspective focusing on the impact of climate initiatives on government revenue and expenditure. In this assessment, measures are only considered as climate relevant if they have a direct impact on carbon emissions, energy efficiency or the adaption to climate change. Therefore, fiscal measures with broader environmental impacts are not considered as climate relevant.

The measures which satisfy the abovementioned criteria are then either classified as 'green' or 'brown' measures. Measures which help mitigate climate change are labelled as 'green', while measures which affect the composition of environmental taxes and expenditure but go against climate targets are labelled as 'brown'. Meanwhile, fiscal measures introduced to provide compensation for the costs incurred by the private sector following extreme weather events are also considered as climate relevant. In this analysis, these measures are classified as 'yellow' measures.

Government announcements, annual reports of public institutions and own calculations are used to gauge the impact of such measures. The assessment does not, however, include measures introduced by public sector entities which are not classified within general government. The cost of the conversion of power plants and the energy interconnector, for example, are not accounted for. Moreover, this assessment excludes the impact of EU-funded initiatives, as they have a budgetary neutral effect. Government investment in green capital projects and capital transfers are also excluded from this assessment. This is due to the difficulty of distinguishing between domestically funded and EU-funded components of such projects, as well as determining actual spending in specific years.

Green measures

On the revenue side, green measures had a budgetary impact of 1.0% of GDP between 2009 and 2020 (see Table 2). These mainly reflect the revision to vehicle circulation taxes in 2009, the introduction of duties on cement in 2011 and plastics in 2016, and the introduction of

environmental contributions levied on tourist accommodation in 2016. Duties on petroleum have been increased successively each year up until 2016.

Meanwhile new climate-relevant expenditure measures, excluding government investment and capital transfers, had a negative impact on the budget balance of 0.4% of GDP over the 2009 to 2020 period. However, due their budgetary neutral effect, this estimate does not include the impact of EU-funded initiatives.⁷

New green expenditure measures introduced during the period under consideration include the Eco reduction scheme, which was implemented in 2012. This scheme offers a direct benefit to households to incentivise lower electricity consumption. In the same year, the feed in tariff scheme was introduced to offer subsidised rates on electricity generated from renewable sources of energy. Other green initiatives include the frequent issue of schemes to help households and firms replace old energy inefficient electricity and hot water heating systems with newer energy efficient ones, and schemes which promote energy-efficient renovations of private buildings. In 2014 the car scrappage scheme was introduced with the aim of promoting the scrappage of older vehicles and replacing them with cleaner or electric vehicles. Moreover, the gradual provision of free public transport - which started in 2017 - and the extension of free school transport introduced in 2018, are also classified as green measures.

Table 2
GREEN MEASURES AFFECTING THE BUDGET BALANCE

2009-2020, % of GDP

Classification	Measures impacting budget balance	ESA Classification	Impact on budget balance ⁽¹⁾ (% of GDP)
Revenue Measures	Increase in energy and transport taxes, introduction of duty on cement	Energy Taxes, Direct taxes paid by Households, Other Indirect Taxes	1.0
Current Expenditure Measures	Incentives for alternative energy use by firms and households, incentives to households to install energy saving equipment, gradual extension of free Tal-Linja card, car scrappage scheme, grant for electric bicycles and motorcycles	Subsidies, Social Benefits Other than in Kind, Other Current Transfers	-0.4

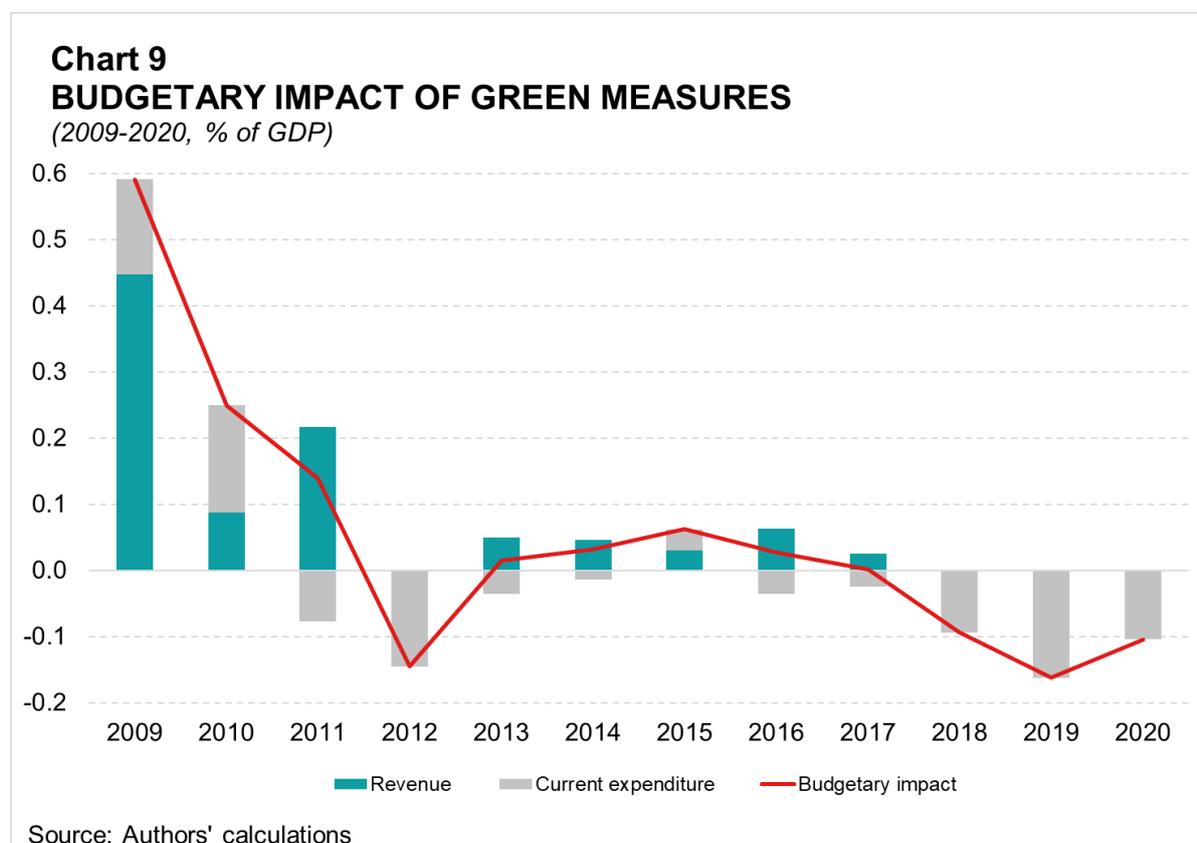
⁽¹⁾ Impact is estimated as the sum of incremental changes to revenue and expenditure items over time. Positive (negative) values indicate a positive (deteriorating) impact on the budget balance.

Source: Authors' calculations

⁷ These mainly include EU-funded schemes to promote the use of renewable energy.

Overall, the net impact of green measures on the overall budget balance was positive in the period under consideration. In particular, the impact was overall positive over the 2009-2011 period. This was largely on the back of higher government revenues generated through the introduction of additional climate-relevant taxes, and to a lower extent, a decline in subsidies on water and electricity production (see Chart 9). Subsequently, the impact on the budget balance turned negative in 2012 due to higher expenditure, mainly because of the introduction of the Eco reduction scheme.

Meanwhile, the positive impact on the budget balance registered over the 2013 and 2017 period largely reflects higher tax revenue which entailed an increase in excise duties on fuels. However, this was partly offset by higher expenditure, particularly in 2013 as the feed in tariff scheme was introduced. From then onwards the year-on-year impact on the budget balance turned negative. This was largely on the back of an expenditure-driven policy. During this period, the government extended and introduced several climate-related schemes which mainly focused on the use of alternative use of energy and the shift to greener transport.



Apart from the abovementioned government expenditure, there were a number of capital projects, partly financed from EU funds, which also had a positive impact on the prevention or adaptation to climate change. Thus, these are also considered as green measures. However, as explained earlier in this section, government outlays on investment in green capital projects and other capital transfers were excluded in the above assessment. The green projects introduced throughout the period under analysis include capital projects carried out by Wasteserv, capital projects related to water treatment, the Zero Impact Utility Project, flood-prevention infrastructure, as well as other smaller projects carried out by ERA, ECO-GOZO and Ambjent Malta. Moreover, in 2020, the government unveiled two green projects these being the Multi Material Recovery Facility project and the Grand Harbour Clean Air Project.

Brown measures

Besides the abovementioned green initiatives, a number of measures introduced in the period under consideration had a negative effect on the prevention or adoption of climate change. These measures, which in this analysis are referred to as brown, mainly comprise tax abatements and transfers to households. These measures were originally designed for other purposes, such as competitiveness, and thus the potential climate impact was not factored in.

On the revenue side, the introduction of lower vehicle registration tax and the elimination of VAT on motor registration in 2009 are classified as brown measures (see Table 3). Similarly, the fuel price cuts introduced in June 2020 as part of the COVID-19 recovery plan is also classified as a brown measure. Overall, brown-revenue measures had a negative impact of 0.5% of GDP on the budget balance. Meanwhile, on the expenditure side, brown measures consist of additional payments to cover rising utility bills which were introduced in 2010. This also had a negative impact on the budget balance estimated at around 0.3% of GDP. Thus, overall brown measures had a negative impact of 0.8% of GDP on the budget balance.

Table 3
BROWN MEASURES AFFECTING THE BUDGET BALANCE

2009-2020, % of GDP

Classification	Measures impacting budget balance	ESA Classification	Impact on budget balance ⁽¹⁾ (% of GDP)
Revenue Measures	Lower vehicle registration tax, the removal of VAT on motor registration, air departure tax and eco-contribution tax, lower duties on petroleum products	VAT, Energy Taxes, Other Indirect Taxes	-0.5
Expenditure Measures	Payments to cover for higher utility bills	Subsidies, Other Current Transfers	-0.3

Note: Capital transfers and Government investment in green projects is not captured in this estimate

⁽¹⁾ Impact is estimated as the sum of incremental changes to revenue and expenditure items over time. Positive (negative) values indicate a positive (deteriorating) impact on the budget balance.

Source: Authors' calculations

Yellow measures

Another form of government climate-related expenditure relates to the compensation given by governments to sectors of the economy hit by extreme weather events. In Malta, such government intervention was thus far only required after the 2019 February storm. Maltese farmers and fishermen faced significant damages as a result of the strong gusts of wind and torrential rain. To partly compensate for the impact of this extreme weather event, the government introduced three separate schemes, which overall cost less than 0.1% of GDP. Two of these schemes, launched in 2019 and 2020 respectively, targeted farmers that were severely impacted by this storm. Overall, around 460 farmers benefited from these schemes which cost €5.0 million.^{8,9} Additionally, a fishermen scheme was launched in July 2020 with a budget allocation of around €1.0 million.¹⁰

⁸ <https://www.gov.mt/en/Government/DOI/Press%20Releases/Pages/2019/June/19/pr191359.aspx>

⁹ <https://www.gov.mt/en/Government/DOI/Press%20Releases/Pages/2020/September/30/pr201873.aspx>

¹⁰ <https://www.gov.mt/en/Government/DOI/Press%20Releases/Pages/2020/July/13/pr201338.aspx>

What are the new fiscal policy initiatives to address climate change?

As outlined in previous sections, there have been significant steps to improve Malta's climate change mitigation performance. This includes the introduction of the abovementioned green measures, as well as other major initiatives such as the introduction of the Malta-Sicily interconnector, the shift of the Delimara power station to liquified natural gas, and the public transport reform. Although these initiatives were commendable, Malta still lacks behind other European Union member states when it comes to climate mitigation measures. In fact, a study carried out by Climate Action Europe (CAN) in 2018 reveals that Malta ranks amongst the Member States with the lowest climate change mitigation effort (Climate Action Network Europe, 2018). The study however does not specify Malta's shortcomings in terms of climate change efforts.

Therefore, although Malta has seen reductions in emissions over the past years, further efforts are required to enhance the country's resilience to climate change. In light of this, the government's response to climate change is expected to ramp up over the coming years. Using the methodology established in the previous section, we identify green initiatives as announced in the 2022 Budget and under the Recovery and Resilience Facility (RRF). Moreover, other major public projects are set to be completed in the coming years, and new climate-friendly regulations are set to be introduced. Hereunder is a brief account of these measures and regulations.

2022 Budget measures

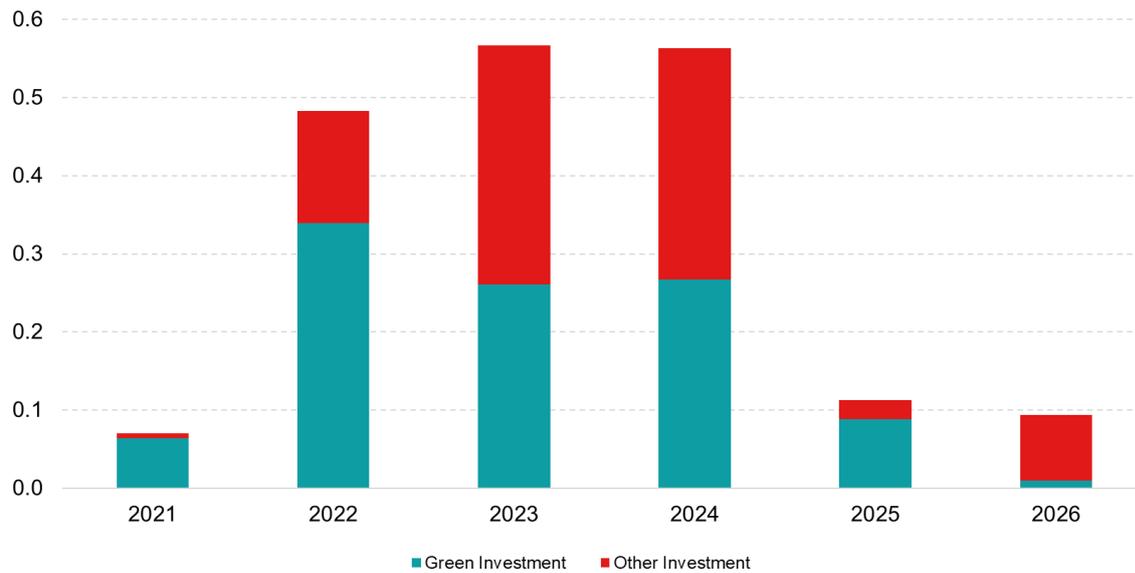
The 2022 budget includes several measures intended to reduce carbon emissions and to enhance the transition towards a green economy. The budget lists several projects which are set to take place over the medium term. This includes an afforestation project in Inwadar Park, which is expected to cost €20.0 million (0.1% of GDP) over a period of 5 years, and the regeneration of green parks including the transformation of Schreiber's ground. The government also announced the gradual introduction of free public transport for all, which is expected to cost €21.0 million (0.1% of GDP) over the next three years. The extension of electric car charging points, increased grants on electric-powered cars or Plug-In Hybrids, a new scheme for the installation of photovoltaic panels on vehicles, valley rehabilitation, the launch of a carbon farming initiative, the extension of full VAT refund on the purchase of bicycles and electronic bicycles, and the introduction of smart bins are examples of other initiatives outlined in the budget. The budget also lists a number of urban green initiatives including green roofing, vertical green walls and the setting up of a Local Council Urban Greening scheme.

In addition, the 2022 Budget Speech makes an allowance for additional outlays in 2022 to combat rising energy prices. Subsequently, on 10 November, the Minister for Finance and Employment announced a reduction in duties on petrol and diesel, so that prices at the pump remain unchanged. Contrary to the measures mentioned above, this initiative will have a negative effect on climate targets. Thus, this measure, which is estimated to cost around 0.2% of GDP, is regarded as a brown measure according to the methodology used in this analysis.

Green initiatives funded by RRF

The Recovery and Resilience Plan (RRP), endorsed by the European Commission in September 2021, is the key recovery instrument for mitigating the impacts brought about by the COVID-19 pandemic and for making EU economies more sustainable and resilient. Under this facility, the Maltese government will allocate around €170.0 million on climate change initiatives over the 2021-2026 period (Government of Malta, 2021). This represents 54% of the allocated funds, exceeding the minimum requirement of 37% set out by the European Commission. Malta intends to use such funds on several green transition reforms and investments, including projects related to energy-efficient renovations of private and public buildings, the decarbonization of transport, the renovation and greening of public hospitals and schools, the construction of a carbon-neutral school, enhanced investment in renewable energy in roads and public places, the construction of a new ferry landing to promote alternative modes of transport as well as other initiatives to enhance the uptake of electric vehicles. According to own estimates, outlays on these initiatives are set to peak in 2022 (see Chart 10). Subsequently, outlays are expected to remain elevated in 2023 and 2024 and to gradually decline thereafter.

Chart 10
PUBLIC INVESTMENT FUNDED BY RRF
 (% of GDP)



Source: RRP and Authors' own calculations

Other major green projects

Apart from the above-mentioned climate-relevant investment under the RRF, the Maltese government is expected to complete other two major green projects, these being the EcoHive and the shore-to-ship power infrastructure project. The former is a waste management facility, composed of a waste-to-energy plant, a new plant for the management of dry recyclables, and a plant to treat organic waste to extract energy and produce compost for agriculture. Overall, this project is expected to cost around €390.0 million, and the plants are expected to start operating by end 2023. The shore-to-ship power infrastructure will cost around €50.0 million and is expected to be completed by 2023. This project will drastically reduce pollution over the Grand Harbour. Additionally, the Maltese Government is also undertaking a project to construct a gas pipeline that will connect the island with the European Gas network, for which studies for the eventual issue of permits are currently underway. Construction of the pipeline will ultimately contribute towards the reduction of GHG emissions by delivering natural gas more efficiently.

New regulations

As part of its efforts to shift the Maltese economy towards more sustainable practises, the government has recently announced new, climate-friendly regulations. Primarily, as of January 2022, the sale and distribution of several single-use plastic products has been entirely banned.

This regulation affects items such as plastic cutlery and straws which are used for immediate consumption; and will contribute towards reducing the environmental damage caused by such products. Furthermore, another recently announced regulation is the eventual ban on the importation of petrol and diesel-fuelled cars. The exact cut-off date for this policy is yet to be determined, however it is expected to come into effect between the years 2030 and 2034.¹¹

The way ahead

Limiting global warming to desirable levels requires a substantial drop in global GHG emissions. To reach the established targets, further government climate-relevant measures will be required as the present fiscal policies are insufficient (Cornille et al., 2021). Future fiscal policy should be geared towards the introduction of additional measures to reduce the level of GHG emissions and to enhance the country's resilience to climate change. These initiatives could include further outlays on green measures, an increase in the effectiveness of environmental taxes and the introduction of additional regulations.¹²

Progress towards a carbon-neutral economy requires a shift in the behaviour of firms and households such that economic activity becomes more environmentally friendly. The Maltese Government's recognition of this need is showcased in the Low Carbon Development Strategy (LCDS), which maps out the country's decarbonisation path until 2050. This strategy outlines a number of priorities that the government will embark on during the course of the strategy. In particular, the strategy highlights the importance of further encouraging the use of clean transportation methods, the increase in public transportation uptake and the shift towards remote working activities.

Over the past decade, government efforts have been directed towards improving public transport uptake. This includes the public transport reform and the gradual introduction of free public transport for all. However, the LCDS acknowledges that further efforts should be directed towards improving the efficacy of the present transportation system. This includes the introduction of more bus services, dedicated bus lanes and the introduction of traffic priority, coupled with other initiatives that discourage the use of privately owned vehicles. Over the longer-term other forms of public transport could also be considered, notably a new

¹¹ On the 15th of June 2021 the Maltese government has initiated a public consultation process on the use of cleaner vehicles on our roads. For more information, see: https://meae.gov.mt/en/Public_Consultations/MECP/PublishingImages/Pages/Consultations/GreenPaperTowardsCleanerVehiclesonourRoads/Towards%20Cleaner%20Vehicles%20on%20our%20Roads.pdf

¹² According to European Commission (2021), the current design of environmental taxes across EU member states could be ameliorated. In turn, this would lead to lower GHG emissions.

underground transportation system, which was already proposed by the government earlier in 2021.

Aside from shifting towards less carbon intensive means of transport, the government is considering projects that would reduce the need to commute altogether. Prior to the pandemic, the use of telework and remote working activities were rather constrained. However, due to the new realities brought about by the pandemic, this scenario has changed as more business shifted towards teleworking or remote working activities. This was initially spurred by a new government measure launched at the onset of the pandemic which enabled businesses to shift towards teleworking activities. Another smaller initiative was the Gozo Teleworking Scheme, which targeted Gozitan residents who work in Malta. It is estimated that during the initial stage of the pandemic, around 33% of the local workforce worked remotely (National Statistics Office, 2020). Going forward, and as outlined in the LCDS, the government will aim to incentivise remote working by launching remote workspaces and improving the provision of Government online services. In turn, this will reduce the need for commuting especially through 'traffic hotspots' during rush hours.

The strategy also points towards a targeted increase in the use of other alternative modes of transport such as cycling and walking.¹³ Throughout the term of the strategy, the government aims to increase the use of cycling and walking as modes of transport through active travel infrastructure. This includes bike paths and lanes, footpaths, pedestrian areas, widened sidewalks and investment in traffic management systems. Such investments will be complemented with a series of other incentives or schemes to enable a cultural shift from private car use to other greener forms of transport.

The LCDS also lists a number of initiatives to enhance the sustainability of Malta's energy supply and to encourage more efficient energy generation. The main initiatives listed in the strategy include the continued uptake of solar PVs and solar water heaters together with initiatives concerning offshore PVs. Other measures include residential and non-residential initiatives for the installation of roof insulation and energy-efficient appliances, the use of LED lighting, measures for window double glazing, measures aimed at achieving Nearly Zero Energy Building levels as well as broad policies aimed at enhancing education and awareness on energy usage. The strategy also takes into account proposals for the construction of a new interconnector. However, the extent to which this initiative can be deemed climate-friendly reflects the ability of Malta to secure energy from renewables, rather than fossil fuels from abroad.

¹³ The use of cycling as a daily mode of transport is rather limited in Malta. In fact, according to the EIB climate survey only 3.0% cycle to work every day (European Investment Bank, 2021).

The shift towards a carbon-neutral economy raises questions about the trade-offs between short-term growth prospects and building a more climate friendly economy. This issue particularly affects the tourism and construction industries, which contribute significantly to economic growth but require substantial resources and generate high levels of emissions and waste. While the above-mentioned measures should help improve energy efficiency, they are not enough to offset the environmental costs brought about by current level of activity. Therefore, in the longer-term, other regulatory and technological developments are needed to make high polluting sectors greener. This should be complemented by conscious efforts to limit growth in polluting sectors while promoting other less resource hungry industries in the absence of environmentally friendly technological developments. To achieve this goal without unduly penalising vulnerable firms and households, a broad range of government measures may be required, such as tax initiatives and targeted support schemes that help to shift consumer behaviour, while promoting greener industries. In the longer-term this will help in improving the long-term sustainability of public finances as the economy will be less exposed to climate-related shocks.

Going forward, further work is required to evaluate the economic and social costs of climate change. The implications on government finances – which range from the optimal level of tax and spending levels to long-run sustainability issues – also need to be assessed in more detail.

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