

**IMPLEMENTATION REPORT ON THE NATIONAL POLICY FRAMEWORK
ALTERNATIVE FUELS INFRASTRUCTURE FOR TRANSPORT IN MALTA 2018-2030
Provided in line with article 10(1) of Directive 2014/94/EU**

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1. INTRODUCTION

This document presents the report on the implementation of a number of actions relating to the framework for the development of alternative fuels in the transport sector in Malta and the required infrastructure in application of Directive 2014/94/EU of 22 October 2014.

As already outlined in the National Policy Framework, the aim of these actions remains that of improving the environmental sustainability of transport. Through a number of actions, in line with its **National Transport Strategy 2050**, Malta continues to strive to achieve the decarbonisation of its transport sector, though this would likely be dependent on international market developments and advances in vehicle engine and battery technology. The Transport sector will play an important part in contributing to obligations of limiting the increase of GHG emissions to just 5% compared to 2005 recorded levels, in line with the Effort Sharing Decision 406/2009/EC and additional targets emanating from the Air Quality Framework Directive¹ and the Environmental Noise Directive² which will also need to be addressed.

On 22 October 2019, Malta declared a state of climate emergency, becoming the eighth country in the world to do so. Parliament unanimously adopted a resolution which among other measures included the change in the name of the *Parliamentary Environment and Development Planning Committee to the Environment, Climate Change and Development Planning Committee*.

The main challenge is to break the transport system's dependence on oil without compromising efficiency and mobility. The Maltese Government is addressing the eventual changeover by gradually phasing in the new technology, and actively supporting and incentivising this change. For this purpose, an E-Cars Commission was established. Representatives from the Environmental Resources Authority, the Authority for Transport in Malta, Malta Resources Authority, the Ministry for Environment, the Ministry for Transport, and the Ministry for Energy, form this Commission which has been tasked to establish a cut-off date for the importation and registration of conventional fuel vehicles. Pricewaterhouse Coopers have been tasked to carry out a study on financial impacts, which is being finalised, while the social impact of this eventual changeover will also be taken into consideration. The relevant stakeholders and the general public will be consulted so that the E-Cars Commission will then be able to propose a cut-off date to the Minister for the Environment, for Cabinet's approval. This is expected to take place in the course of 2020.

¹ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

² Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise - Declaration by the Commission in the Conciliation Committee on the Directive relating to the assessment and management of environmental noise

It is important to point out that since the submission of the NPF, a number of studies have been carried out and will now be contributing to the decisions to be taken. These will be discussed in the relevant sections. Related to this process of the phasing out of ICEs, government commissioned a study on alternative fuels in 2018 (the Alternative Fuels in Road Transport Study) to identify future alternative fuels, other than electricity, to determine the fuel or fuels most feasible for use by road transport in Malta and taking into consideration demand and supply, availability of technology and cost of infrastructure required, as well as environmental, regulatory, planning and safety issues.

2. LEGAL MEASURES

LEGAL FRAMEWORK

The EUROPEAN UNION ACT(CAP. 460), Alternative Fuels Order, 2017 enacted through Article 4(2) of the European Union Act, provides for the regulation in relation to the deployment of alternative fuels infrastructure in Malta, in line with *Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure* and together with the Petroleum for the Inland (Retail) Fuel Market (Amendment) Regulations, 2017, Regulator for Energy and Water Services Act (CAP. 545) and the Electricity Market (Amendment) Regulation, 2017 under the Regulator for Energy and Water Services Act(CAP. 545), provides the legal framework for the deployment of alternative fuels infrastructure for transport in Malta in line with European standards.

Providers and potential investors are provided with the requirements that need to be addressed, while consumers of alternative fuels are reassured of standards of supply, compatibility, pricing and access to the infrastructure of such fuels. This legal framework is essential to further encourage the deployment of alternative fuels infrastructure for transport.

The *Petroleum for the Inland (Retail) Fuel Market Regulations (545.22)* which regulates the inland retail fuel market of petroleum stipulates the requirements, including those relating to authorisations and to services, for overriding reasons relating to public interest and public safety, this was amended to include Art 30A. This entrusts the regulator for Energy and Water Services to ensure that, when available, the data indicating the geographic location of the refuelling points accessible to the public of alternative fuels covered by Directive 2014/94/EU are accessible on an open and non-discriminatory basis to all users³.

The *Malta Electricity Market (Amendment) Regulations, 2017* under the Regulator for Energy and Water Services Act (CAP. 545) SL 545.13 was amended in 2017 to ensure that all electric vehicles recharging points are available for all electric vehicle users to recharge on an ad hoc basis without the need to enter into contracts with operators of charging points, and also makes it unlawful for distribution system operators to cooperate in a discriminatory way with operators of publicly accessible recharging points.

Recognising the need to frequently adapt to change already when adopting the Alternative Fuels Order, Article 7 provides for periodic reviews and the publication of a report on the outcome of such with the first set to be published before 9th October, 2022 and thereafter at intervals not exceeding five years.

³<https://www.rews.org.mt/#/en/a/166-location-of-refuelling-stations-for-lpg-autogas>

ADMINISTRATIVE PROCEDURES

GO 2 reserved parking

Through a concession tender and the eventual contract signed between Transport Malta and the preferred bidder (an Israeli based company car 2GO, operating by the brand name GOTO), the Authority for Transport in Malta has enabled the development of a service provider to offer mobility as a service in the form of a National e-Car Sharing Service through the use of dedicated and exclusive public car-parking spaces around Malta and Gozo, obliging the service provider to offer e-car sharing services in no less than 45 mandatory locations where demand for transport services is high. The service is being offered by no less than 180 full electric vehicles as well as a dedicated charging network made up of 225 medium-fast charging pillars (450 charging points) which network will be offered to third party EV owners to charge their vehicle once the pillar is not being occupied by one of the e-car sharing fleet.

In late 2019, GOTO extended their mobility as a service portfolio in Malta by introducing electric motorcycle (scooter type) sharing around Malta and Gozo. Similar e-motorcycle sharing licences (under the PSG - Public Service Garage licences) were also given to another three operators to operate similar e-motorcycle sharing.

The policy objectives behind the introduction of car-sharing in Malta was to provide an alternative to personal car purchases, thus reducing the number of privately owned vehicles on the road. Hence, such a service enables a person to share an electric vehicle without needing to purchase one. The intention is to encourage the purchase of mobility rather than of vehicles, thereby maximising the use of vehicles on the road, maximising on availability of public car parking spaces which due to the overall increase in the national fleet, is proving to be a major issue, hence the idea to also share the infrastructure in the form of public car parking spaces as well as electric vehicle charging points.

Use of Priority lanes by EVs

Although the main aim of a number of priority lanes is that of improving Public Transport, increasing its efficiency and bus journey times, with the aim to increase a modal shift from personal car use to public transport, the use of these bus lanes has also been extended to electric vehicles, thereby providing an additional incentive for their take up. This measure is of course a temporary one to entice ICE car owners to switch to an electric drive. This measure is expected to continue to apply until such time that electric vehicles become mainstream.

Incentives to EVs other than grants

Following the measures introduced as early as 2014 to encourage investment in electric vehicles, additional measures in the 2018, 2019 and 2020 budgets continued to provide incentives to encourage the take up of electric vehicles and plug-in electric-hybrid

vehicles, by individuals, NGOs, Local Councils, private businesses and commercial companies.

Besides financial incentives through the provision of a number of different grant schemes which are tailor made according to specific sectors of society and the business community, for the first time, Electric Vehicles including plug-in hybrid Electric Vehicles cars and their derivatives, with a battery of not less than 80 km, were and still are completely exempted from paying a one-time registration tax which in cases can amount to well over €2,500. Over and above this measure, starting in 2018, all classes of electric vehicles have also been exempt from paying the yearly road license tax for a period of five years, from first year of registration. This measure was extended in 2019 and 2020. On the other hand, private businesses and commercial companies also benefited by up to €200,000 in financial grants in line with state aid rules to entice private businesses to lead by example and change their ICE fleet to an electric one. During 2020, in order to further incentivise the use of electric vehicles, the rate of charging for such vehicles within residences will be capped at €0.1298 per unit during off peak periods.⁴

Furthermore, EVs are also exempt from tariffs relating to the Controlled Vehicular Access (CVA) system in Valletta, thereby providing yet another advantage over fossil fuelled vehicles.

⁴<https://www.enemalta.com.mt/home-page-news/launch-pilot-project-concerning-residential-charging-electric-vehicles/>

3. POLICY MEASURES SUPPORTING THE IMPLEMENTATION OF THE NATIONAL POLICY FRAMEWORK

A number of measures detailed in Malta Transport Master Plan 2025, which are currently underway will support the implementation of the NPF. Some of these, such as financial incentives have been ongoing annually, while others such as studies have been recently completed and will now provide the information necessary for policy decisions and measures to be taken.

3.1 Measures to ensure national targets and objectives

Continue Implementing the Malta National Electromobility Action Plan

In early 2019, a study in the form of an implementation plan as well as a Cost Benefit Analysis, commissioned by Transport Malta on the extension of National Electric Vehicle Charging Network, was concluded. This study, which was funded under the Horizon 2020 programme through the *GrowSmarter* project, includes a cost benefit analysis for electric vehicle charging infrastructure in Malta. It also provides the geographic location of planned charging points (GIS), the budgeting plans for this infrastructure and an action plan for its roll out.

In early 2019, it was decided to introduce electric buses in the Island of Gozo as part of a free new park and ride service which would operate from a new P+R facility to the Cirkewwa Harbour thereby connecting commuters to the Maritime Ferry Service, in a bid to ease congestion in and around the port area. A number of Electric Charging points will also be deployed to service these electric buses.

As part of the DESTINATIONS project funded through CIVITAS, insight into the use of EVs for the last mile delivery of goods will be provided. This pilot project which is currently underway, comprises a large light goods Electric Van for delivery of goods in the capital city of Valletta as well as other touristic zones. This electric van will be shared by a number of small factories in the Ta'Qali Crafts Village, and it will be used to deliver goods produced by each factory in a shared van rather than through a van owned by each company.

As a result of collaboration with partners in the Ener Net Mob Interreg Med project, fast charging points will be installed by January 2021 at both ends of the Malta/Sicily ferry service, thereby promoting electro-mobility by specifically providing for fast charging infrastructure for commuters.

In line with the promotion of sustainable mobility, during the second half of 2019, Transport Malta published draft regulations for the introduction of electro micro-mobility in the Maltese Islands. The process was started with an internal policy document which later matured into a policy and a set of draft regulations to regulate the phenomenon of e-kick scooter sharing which use is becoming mainstream in all major cities. After a long public consultation process, in late December 2019, Transport Malta put in place a regulatory framework which governs the use of e-kick scooters in Malta, both for personal use as well as for the purpose of electric kick scooter sharing in Malta. Such framework includes provisions on speed limits, usability, as well as general safety issues, in order to make the use of such scooters as safe as possible as well as to promote such a sustainable mode of transport, especially in urban centres.

The integration of the Intelligent Transport Systems (ITS) Platform at the National Transport Control Centre, which is targeted for completion by the end of 2020, should also positively contribute to national EV charging network, facilitating the interface between vehicles and infrastructure.

On the other hand, the national e-car sharing services being operated in Malta referred to earlier in this report, will continue to increase. Apart from the A to B type of sharing, the service provider has also started a new type of car sharing service (A to A) from private car parks to private car parks. Initially, this service is being launched with a further 30 hybrid vehicles.

The privately run e-Car Sharing Project started in 2018, has introduced a national e-car sharing service on a national level which started with an initial fleet of 150 electric vehicles and an additional 30 electric vehicles during the third quarter of 2019. It is expected that the company will also include electric van sharing services in 2020 as well as further installation and operation of its 225 medium-fast charging pillars, which deployment has already started. Besides promoting the sharing economy and addressing congestion, the project will make it possible for drivers to experience the use of an electric car without having to purchase one.

Introduce further fiscal measures and incentives to favour the purchase and use of clean fuel vehicles

In the last four years, on an annual basis, government has issued incentive schemes providing grants for the purchase of electric vehicles. Recognising that the price differential between ICE and electric is still substantial, through €1.9 million, the stock of EVs increased by 373, as well as 39 motor cycles and 185 electric pedelecs.

ICE cut-off date

In 2018, Government had decreed that a cut-off date for the importation and registration of new and second-hand (newly- registered) ICE vehicles on the Maltese Territory will be

put in place and hence a ban introduced on such imports. For this reason, the Cabinet of Ministers had mandated the setting up of an inter-ministerial Committee to study the implications of such a ban and come up with alternative dates from which the cut-off date will commence.

The inter-ministerial committee is currently carrying out this task. Consultations with the main stake holders including Malta's national social partners are ongoing. It is expected that the Committee will present its findings and suggestions by the second half of 2020.

In the meantime, Transport Malta through the Malta National Electromobility Platform started its review of the 2013-2020 Malta National Electromobility Action Plan (MNEAP) and the publication of new MNEAP with a new update for 2020- 2030. The scope of this revision is to review actions already taken from the current action plan over the last seven year period, and proceed to providing an updated version to also take into account the ICE Cut-Off date. The first draft of the new plan can only be completed once the ICE Cut Off date is known later in 2020. The plan will include measures that have to be implemented and other policy recommendations in order to facilitate a smooth transition from a hydrocarbon transport economy to an electric one. The revised plan is expected towards the end of 2021.

This work is also being coupled by additional studies being carried out by the electricity provider in view and in preparation of electricity provision and consumption which will take into account a future – all electric / hydrogen based transport system.

The proposed measures will be published and made public during a consultation process which needs to take place on the revised Action Plan.

Alternative Fuels in road transport Study

As stated in Malta's NPF, the government commissioned a feasibility study for the deployment of LNG and CNG infrastructure for road transportation in order to understand the financial and economic costs and benefits of the introduction of LNG and CNG in Malta by considering local road transport and the technical aspects of these alternative fuels. Making a number of assumptions, the demand analysis of this study leads to the conclusion that CNG demand in Malta is assumed to commence in 2021 and to reach the current EU average take up of 0.0864% over a seven year period, by 2027. The reason being that EVs are prioritised over CNG vehicles while manufacturers have clearly shifted their focus onto electric vehicles, with virtually no indication of new natural gas models. *The maximum cumulative uptake in Malta is assumed at 0.30% in 2032 representing c. 1,400 CNG vehicles. The demand for CNG vehicles in Malta is assumed to gradually decline thereafter given the anticipated price convergence of electric vehicles and conventionally fuelled vehicles in 2035, with only c. 40 CNG vehicles remaining as part of the fleet by 2049.* Likewise, the report on the demand of LNG notes:

LNG demand in Malta is forecasted to begin in 2026, following deployment of an L-CNG station on the island. LNG vehicles will reach current average EU levels of 0.0530% of the Maltese N3 fleet by 2026 in Malta, which translates to 3 LNG vehicles, and is projected to increase to 0.6589% in 2034, amounting to 43 vehicles. This demand is expected to continue to rise slowly over the forecast period, reaching a maximum of 73 vehicles (0.8978% of MT fleet of N3 vehicles) in 2049.

It is to be kept in mind that due to Malta's insularity, demand for CNG and LNG from vehicles emanating from other Member States is assumed negligible.

The study also explores the technical option for the provision of CNG and LNG given the current lack of infrastructure for either of these fossil fuels. The supply of CNG via road tanker, by iso-containers and also by LNG tanker. The study estimates that the projected revenue will not cover operating expenditure and will lead to a negative net present value of €2.86m.

At this stage taking into consideration the outcome of this study, Government is internally discussing possible options on the future of CNG and LNG provision. Of course, this debate and subsequent decision will also take into consideration the effect on emissions and the targets that need to be attained.

Biofuels in Malta

Malta already has in place a substitution obligation on importers of petrol and diesel to blend an increasing share of biofuels in their mix⁵ with the aim of meeting the target of a 10% share of RES in transport in 2020 as per Article 3(4) of Directive 2009/28/EC. In line with Article 25 of Directive (EU) 2018/2001, the Government intends to extend the

⁵ Subsidiary Legislation 545.17

current substitution obligation framework until 2030, by gradually increasing the obligation of biofuel blending on importers of petrol and diesel from 10% in 2020 to 14% in 2030, by energy content, as a share of renewable energy supplied for final consumption in the road transport sector. The obligation will additionally require importers of petrol and diesel to increase the share of advanced biofuels from 0.1% in 2020 to 3.5% in 2030, with the share in 2022 and 2025 being 0.2% and 1% respectively. For the scope of meeting the requirements of Article 25 of Directive (EU) 2018/2001, Malta intends to consider biofuels from feedstocks listed in Annex IX of the Directive; these may be considered as twice their energy content for calculating the share of biofuels for transport.

Local importers and wholesalers of petrol and diesel will likely meet their post-2020 substitution obligation by blending EN 590 diesel with Fatty Acid Methyl Esters (FAME) biodiesel (EN 14214) and hydrotreated vegetable oil (HVO) (EN 15940), as is the current practice. In recent years, the latter has been prioritised by local fuel suppliers as it offers several advantages over FAME biodiesel. HVO parameters are within EN 590 specifications (except for lower density), it has a higher energy content and good solvency when blending, without any temperature issues. It can be typically blended with EN 590 up to 30% by volume, whereas FAME biodiesel can be blended with EN 590 diesel up to a maximum of 7% by volume⁶.

Bioethanol is currently not available for consumption in Malta. This is due to the Maltese hot climate which creates technical difficulties for the blending of bioethanol with petrol. The addition of bioethanol to petrol in low percentages increases the vapour pressure of the fuel blend and therefore increases the possibility of emissions of benzene and volatile organic compounds, particularly in high ambient temperatures. Therefore, unless petrol with a sufficiently low Reid vapour pressure (RVP) is readily available in relatively small volumes and competitive prices, the warm climate in Malta would drive the vapour pressure of bioethanol-petrol blends above the limit determined by EN 228.

Malta has introduced an obligation on fuel importers to blend 0.1% share of advanced biofuel in their mix in 2020. This is in spite of the fact that advanced biofuels tend to be available in relatively small volumes globally^{7,8} and their price projections demonstrate a sustained substantially higher cost over conventional biofuels and mineral fuels^{9,10}.

⁶ Neste Corporation (2016). Neste Renewable Diesel Handbook. Available at:

https://www.neste.com/sites/default/files/attachments/neste_renewable_diesel_handbook.pdf

⁷ ECOFYS (2017). Crude Tall Oil Low ILUC Risk Assessment: Comparing Global Supply and Demand.

⁸ Greenea (2018). Waste-based feedstock and biodiesel market in the EU: How new regulations may influence the market. In: PLATTS Geneva: Biofuel Conference. [online] Geneva.

⁹ DG Mobility and Transport, Sub Group on Advanced Biofuels (2018). Building up the Future: Cost of Biofuel.

¹⁰ Ethanol Europe (2018). Biofuels and RED II: At What Cost? Available at: <https://www.euractiv.com/wp-content/uploads/sites/2/2018/03/Advanced-biofuel-cost-projections-Ethanol-Europe-1.pdf>

Both conventional and advanced biofuels are more expensive than mineral diesel and petrol per unit of energy. Projections from DG Agriculture and Rural Development in the EU Agricultural Outlook 2017-2030¹¹ indicate that the prices of biofuels will remain largely constant in the medium-term. Given that reported prices are similar to local landed costs, it has been assumed for projection purposes that the current price difference between mineral diesel and biodiesel imported locally will remain. This also applies to advanced biofuels, which the same report notes are unlikely to experience significant changes in costs in the short- to medium-term. Furthermore, it must be noted that given the relatively small market, Malta cannot take advantage of economies of scale in procurement and shipping, therefore the CIF costs tend to be higher than for larger markets.

The energy regulator, REWS, will continue to ensure that all biofuels placed on the market fulfil the necessary sustainable criteria.

LNG Bunkering Study

Develop an LNG deployment action plan for the TEN-T Core ports

In 2019, the study on LNG Bunkering¹² in Malta was completed. The results will be used to assist the Government of Malta in the adoption of a national policy for the implementation of the required LNG bunkering facilities in Malta, thus stimulating the LNG uptake as a marine fuel and attracting potential investors in this sector. Activities covered in the study include: Detailed Option Analysis & CBA ; Risk Assessment Study; Legislative/Regulatory Analysis; Training Needs Analysis; Project Management, dissemination and public awareness - CEF Grant Agreement obligation.

The first part of the study focused on the estimation of potential bunkering market demand in Malta, considering three different scenarios (LOW, MID and HIGH) covering three phases, Phase I from 2020 to 2024, Phase II from 2025 to 2030 and Phase III from 2031 to 2056. Results of market study show that LNG bunkering demand in Malta is expected to start from 2025, reaching 31,000 tonnes/year in 2030 and increasing up to 339,000 tonnes/year in 2056 (based on MID scenario). Before 2025, no demand is expected unless a pilot project takes place, even though based on preliminary meetings with local companies as part of this study, there seems to be currently little interest from shipping companies.

¹¹ DG Agriculture and Rural Development & the Joint Research Centre. EU Agricultural Outlook: For the Agricultural Markets and Income 2017-2030.

¹² Study 60% funded under CEF-Synergy; Partners – TM Contractor: Tractebel Consortium : PWC, Strategy&, Elengy & MamotCV

The study identified the need to pursue discussions with the relevant stakeholders to explore the possibilities of applying for PCI status for the “On-shore Tanks” solution in the 5th PCI list selection process of 2020/2021; To conduct further detailed studies on the Combination 1 solution – Iso containers + On-shore Tanks (i.e. basic design, location, optimal sizing, permitting, etc.). Furthermore, LNG bunkering infrastructure (specifically the on-shore tanks) may be eligible for future CEF Synergy grants for studies and works during the next programming period (i.e. 2021-2027). Priority is being given to such actions. Iso-containers (Option 1), truck loading facility and bunker barge may also be eligible for funding under CEF Transport. The timing of implementation of the infrastructure is highly dependent on the development of the LNG bunkering market post 2025. An analysis would be required to determine whether an LNG onshore storage is necessary as back-up fuel once the gas pipeline is in operation based on the future plans for power generation capacity. In this case, the timing and the desired amount of storage capacity would also need to be defined. Security of supply and optimal use of storage space will need to be considered in the analysis, whilst taking into account the results of the LNG bunkering study, Government policy and the Gas Security of Supply Regulation.

LNG Bunkering is very much demand driven. To date, the number of shipping operators that have committed to LNG is very small. This in view that emerging technologies such as bio-fuels, hybrid and batteries are gaining more popularity and being considered as a cleaner alternative to LNG. At this stage there are no tangible prospects to make LNG bunkering and the needed investment in infrastructure viable. The situation will change if more shipping operators opt for LNG as a marine fuel. Future policy for LNG bunkering will need to consider other Government policy decisions and EU Regulations. The LNG bunkering project, Gas pipeline project, phasing out of the Floating Storage Unit, plans for additional power generation capacity and security of supply for power generation are not to be undertaken in isolation. As a result, close coordination between all interested stakeholders is necessary in this respect.

Electricity supply at shore side for ports

Infrastructure Malta will undertake the necessary investment to provide shore side supply on all the quays within the TEN-T Grand Harbour that are utilised for Cruise Liner Ships. The Grand Harbour is the only port in Malta which is accessible for cruise liners and provides necessary berthing. Malta will be seeking EU funding specifically for the provision of shore supplies on quays which are predominantly used for cruise liner vessels. This project will be referred to as Phase I for shore side supply as Malta will subsequently undertake investment on other quays within the Grand Harbour which handle other vessels such as roro etc (Phase II). The envisioned investment of Phase I is estimated at €40 million¹³.

¹³ <https://www.independent.com.mt/articles/2020-02-04/local-news/49-9m-project-to-reduce-air-pollution-in-Grand-Harbour-by-90-6736219259>

PORT NAME	2020	2025	2030
Valletta	nil	Pinto Wharves Deep Water Quay Boiler Wharf	To be defined
Marsaxlokk	nil	To be defined	To be defined

Table 1 Shore Side Electricity installation in Sea Ports – TEN-T Core Network

Shore side electricity supply for the maritime ports on the TEN-T comprehensive network is not foreseen at this point in time.

3.2 Measures that can promote AFI in public transport services

The current scheduled public transport Concession Agreement does not contemplate the use of fleet using alternative fuels. This agreement expires in 2030. Nevertheless, the multi modal hub in Xewkija, Gozo will be operated by an on-demand shuttle service with a fleet of six electric powered buses. The aim is to promote the use of greener transport along the route from the multi modal hub to Mgarr Harbour Terminal (TEN-T comprehensive) in Gozo thus contributing towards lower emissions in the area and reduced traffic congestion within and around the Mgarr Harbour. These buses will be supported by slow charging pillars to optimise the charging of the batteries installed on the electric buses. The operation of the on-demand shuttle service shall be borne by the Ministry for Gozo. The e- buses cost of € 1,994,606.68 out of which €1,636,244.64 are eligible for EU funding. The cost of the purchase and installation of the charging pillars is estimated to cost around Euro 230,000.00. The Ministry shall procure 4 charging pillars which will be located within the multi modal hub. The charging pillars will be procured through National Funds.

Measures that can promote the deployment of private electro-mobility infrastructure

The Malta Transport Master Plan, 2025 sets an ambitious target of 20% of the national vehicle fleet be composed of non-conventionally fuelled vehicles by 2025 in order to reach the EU wide gradual phasing out of ‘conventionally fuelled’ vehicles in urban areas

by 50% in 2030¹⁴. The Government plans to study further this issue and provide more detailed projections after 2020 once the national household travel survey is completed in the course of 2020 and delivers updated data to forecast transport behaviour and modal share. Once the results of the Household Budgetary Survey are in hand, one can then proceed to discuss and determine additional appropriate fiscal and non-fiscal measures and their implementation.

3.2.1 ELECTRICITY

Electricity for road

Based on the environmental advantages and the potential to further reduce the CO₂ content of electricity in Malta (for example by extending solar energy production), e-mobility is considered as the most promising fuel for future transport systems in Malta. Nevertheless, the price differential of electric vehicles will still challenge the penetration of this new technology for the years to come. Still, Malta remains committed to put 5,000 electric vehicles (including Plug-in Hybrid Electric Vehicles and Range Extender Electric vehicles) on the road by 2020. It is to be noted that electric quadricycles, electric scooters and electric bikes are also included in the target. A road map to achieve this target is set out in the current Malta National Electro-mobility Action Plan, which as already indicated in this report, is in the process of being updated.

ALTERNATIVE FUEL VEHICLES	Forecast number of vehicles		
	2020	2025	2030
Electric Vehicles	5000	-	-
Non-conventional fuelled vehicles	-	20%	50%

Table 2 Electric vehicle target by 2020 and non-conventional fuelled vehicles goals by 2030¹⁵

According to article 4.1 of Directive 2014/94/EU, the charging infrastructure should enable electric vehicles to circulate at least in urban/suburban agglomerations and other densely populated areas by 2020. The National Electric Vehicle Charging Network

¹⁴ The term 'conventionally-fuelled' refers to vehicles using non-hybrid combustion engines (ICE), 2011 White Paper Roadmap to a Single European Transport Area-Towards a competitive and resource efficient transport system.

¹⁵ Source: Transport Master Plan, 2025

provides electric car users with the possibility to charge using publicly accessible charging points in specific and prominent public parking spaces across Malta and Gozo. The current charging infrastructure is owned by government but managed by the private sector. At the moment there is one operator who was selected through an open tender procedure.

Furthermore, EV owners who do not have access to a private garage have the possibility to charge their vehicle at 4-hour slot intervals at publicly available charging stations which can be pre-booked through a web-based interface. The charging pillars are equipped with intelligent metering system in line with Article 2 of Directive 2012/27/EU, which provide users with information on the time of use in line with Article 9 of the same directive. Moreover, there are currently three solar electric car charging points and these are available free of charge.

Currently it is planned that 318 charging points will be available by 2020, all complying with the norm Type 2 and Combo 2, including 44 high power points. Based on the projection of the number of vehicles, this would mean an average of 1 charging point per 8.5 cars – fulfilling the requirement of the Directive.

ELECTRICITY	Charging points		
	2020	2025	2030
Normal power recharging points (Public)	318	Not available	Not available
High power recharging points (Public)	44	Not available	Not available
Normal power recharging points (Private)	Not available	Not available	Not available
High power recharging points (Private)	Not available	Not available	Not available

Table 3 Goals on available charging points

The current deployment of a nationwide Intelligent Traffic Management System will also enable Electric Vehicle owners to have full real time traffic congestion updates and, in parallel with GPS based navigation systems, drivers will be able to make changes to a journey by accessing real time information on less congested road sections. This is expected to reassure EV drivers on the issue of recharging.

It must be mentioned that although the capacity of the network is considered as sufficient to handle the number of electric vehicles expected in the next years, this is monitored by the Ministry responsible for Transport.

3.2.2 Electricity supply at airports

As noted in the NPF, the opportunities for stable aircraft parking configuration on the aerodrome at the Malta International Airport are limited and there are no immediate plans to invest in infrastructure for electricity supply at the airport. As the airport has exceeded 50,000 aircraft movements in 2019 the EU regulation 598/2014¹⁶ on noise may result in auxiliary power units (APU) use by aircraft being limited or otherwise restricted in the future. Should this occur, ground supply for aircraft may become economically viable as a result of aircraft being obliged to use it^[8]. Currently, fossil fuel ground power units (GPU) are available for use, providing airlines that select to use them with an alternative to using their onboard APU.

As already pointed out in the NPF, although there is no current demand for drop-in alternative fuels, Malta will be taking part in the pilot part of ICAO's CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation), there is potential for the initial demand for drop-in alternative fuels such as biofuels. It is expected that by the time of the implementation of the second phase of CORSIA (full-scope) starting in 2027, sufficiently reliable data will start being available in order to assess the demand and carry out relevant cost/benefit analysis.

As the technology using and supplying alternative fuels becomes more cost-effective in the future, an economic analysis will need to be carried out in order to determine the potential for such airside operations. In the meantime, airlines continue to focus on fleet replacement which in itself is more fuel efficient. In the case of ground operations, Baggage tow trucks are electric and there are plans for all ground vehicles to be electric in future.

Other operations on the airport, such as air traffic control, already primarily use grid electricity as a source of power and therefore will benefit from any improvement in the power generation mix across the island.

¹⁶ Regulation (EU) No 598/2014 of the European Parliament and of the Council of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC

^[8] Information provided by Head Airport Operations, Malta International Airport plc.

4 DEPLOYMENT AND MANUFACTURING SUPPORT

Electric Charging Points for EVs

By 2020 Malta will have a total of 318 normal public accessible charging points and 44 high power charging points. As already identified in the NPF, the focus in the short term is on e-mobility for road as no other alternative fuel is currently available in Malta.

Currently regulations for the energy efficiency in buildings are being drawn up and these are expected to make mandatory the installation of recharging points in car parks of a certain size in line with the provisions of Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

Other Alternative Fuels

Further to the completion of *The Alternative Fuels in Road Transport Study* and the *LNG Bunkering Study* as well as the *Shoreside Electricity in Ports Study*, decisions will be taken on the future provision of these fuels.

Air Transport

At present traditional Jet A1 fuel is used and although at EU and international level Sustainable Alternative Fuels are being encouraged, this is not yet available in commercial quantities and pricing. As a result, the immediate improvements in reducing the environmental impact of aviation fuels is obtained by fleet replacement such as the replacement of Airbus 320s by Airbus 320neos which have engines that are 25% more fuel efficient.

As Malta is not a (bio) fuel manufacturing country, it has little ability to influence supply side technological developments and looks forward to the European Commission proposals on Sustainable Aviation Fuels expected later in 2020 to encourage alternative fuel uptake in this sector¹⁷.

In the case of Ground operations, Malta International Airport is making efforts to replace on-apron vehicles with hybrid-electric vehicles.

All baggage trucks are electric (due to their underground operation) and efforts to replace all ground vehicles with electric drive will continue.

¹⁷ European Commission legislative proposal on Sustainable Aviation Fuels expected Q4 2020 https://ec.europa.eu/info/sites/info/files/cwp-2020-publication_en.pdf Annex I No. 8

5 RESEARCH, TECHNOLOGICAL DEVELOPMENT AND DEMONSTRATION

Malta, through the Ministry for Transport, Infrastructure and Capital Projects, is the main Follower Territory for the *Building Innovative Green Hydrogen systems in an Isolated Territory: a pilot for Europe Malta* - BIG HIT project, a partially EU funded project by the FUEL Cell & Hydrogen Joint Undertaking (FCH JU). The project aims to promote and develop an integrated energy system in the Orkney Islands based on hydrogen produced through renewable energy sources. This project will demonstrate the use of green hydrogen across the entire value chain from supply towards distribution and local end-use, maximising the value of locally generated renewable energy, reducing imports of fossil fuel and the associated carbon dioxide emissions. Malta will carry out a study to see how this technology and energy system can be replicated in Malta.

As part of the SMARTHY-AWARE INTERREG Project, a pilot study for Hydrogen Fuel Cell Vehicles can be implemented in Malta. The project aims to promote hydrogen-electric mobility by tackling main infrastructural, technological poor refuelling infrastructure as well as market uptake barriers related to hydrogen for electro-mobility through the improvement of policy instruments linked to local and hydrogen strategies, Structural Funds and transnational funding in Europe, addressing the transition to a low carbon economy, in line with the objectives of the INTERREG EUROPE Programme. The Authority for Transport in Malta is participating in this project which is expected to lead to a number of deliverables including: Import and learn from Best Practices to be demonstrated throughout the project, including through field visits; Use the knowledge to update and detail Malta's policy on Hydrogen; Compile an Action Plan to be followed in order to deploy hydrogen transport in Malta, including feasibility assessment and costing of the actions to be proposed as part of the final action plan. It will also assist in methodologies of Stakeholder consultation and dissemination of information on Hydrogen fuelled transport.

Following the conclusion of these two initiatives, the Ministry will be better placed to make policy recommendations concerning the use of hydrogen in transport in Malta.

In January 2020 the Public Transport service provider, Malta Public Transport announced the commencement of test drives of a new 100% electric Bus on existing routes.

6 TARGETS AND OBJECTIVES

Bioenergy is projected to grow between 2021-2030, largely due to an increasing percentage of biofuels in road transport fuels. Production of bioenergy from waste treatment facilities, both electricity and heat, and the use of biomass for space heating in the residential sector are expected to remain largely stable in the projected period. The projected consumption of biofuels, split by type, is shown in Figure 1. Biofuels are expected to continue increasing throughout the projected period mainly due to the continued blending of road diesel with HVO, FAME (to a lesser extent), and advanced biofuels in line with the Renewables Directive. Advanced biofuels are expected to contribute to 25% of the total consumption of biofuels by 2030.

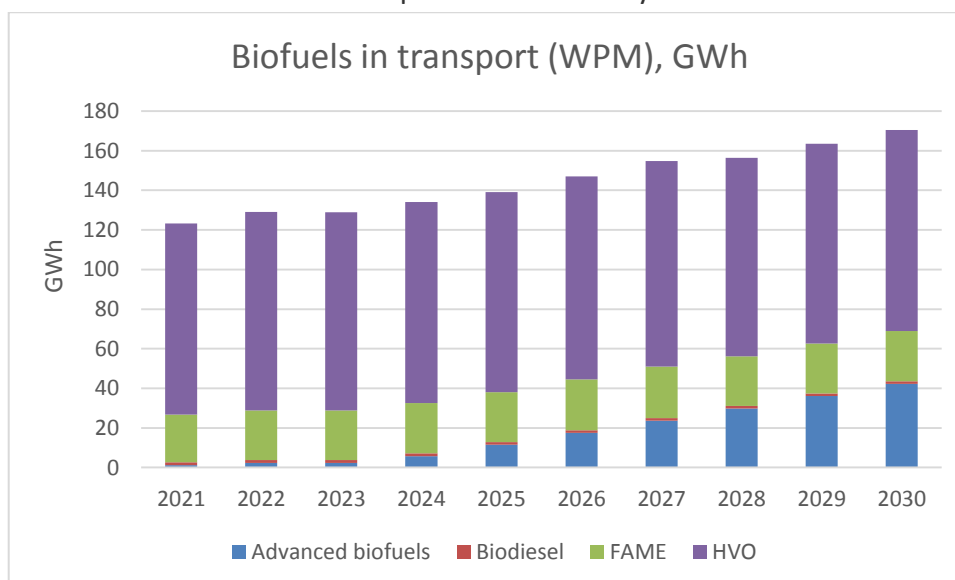


Figure 1 - Projections of biofuels under WPM scenario, 2021-2030, GWh

As can be seen from the information in Annex I/5, while we can estimate the changes in vehicle fleet, it is much harder to estimate vessels and aircraft switch to alternative fuels. The life span of both vessels and aircraft which often exceed 30 years as well as the large investment to procure such vessels and aircraft play an important part.

Both are beyond the ability for government incentives to influence decisions by the private sector, however, ensuring that the infrastructure to enable supply of alternative fuels is in place is critical. Furthermore, policy developments in the fuel supply sector are required to allow and encourage the use of such fuels.

While in the case of maritime fuels, the use of LNG and shore-supply¹⁸, have already been studied, and decisions are either already taken or about to be taken with respect

¹⁸ Study by Transport Malta under the PortPVEV Project archived here: <https://electromobility.gov.mt/en/Documents/PORT-PVEV%20Feasibility%20Study.pdf>

to implementation, in the case of aviation this process will depend on developments in the EU legislative framework expected to be developed in 2020-2021.

7 ALTERNATIVE FUELS INFRASTRUCTURE DEVELOPMENTS

At this point in time the targets in Annex I/5 focus on road charging points, for the same reasons outlined in section 6 above. This estimate, however, may need to be revised upward once the legislation transposing Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, comes into force in 2020. This is bound to lead to a number of public car parks and other large car parks falling within the scope of the legislation to comply, thereby contributing to an increase in charging points for electric vehicles in buildings and car parks.

ANNEX A