- **Malta (MT)**

- ***Main messages from the Commission assessment of the NPF***

In its original assessment of the Maltese NPF, the Commission concluded:

The Maltese NPF addresses only partly the requirements of Article 3 of the Directive, focussing on electric vehicles and infrastructure for road. For determining the fuel or fuels (other than electricity) that are the most feasible for use in road transport in Malta, the Maltese government will be commissioning in 2018 the 'Alternative Fuels in Road Transport Study'. Another study aiming at providing recommendations regarding the development of LNG as a marine fuel is currently underway.

In the case of electricity for road transport, which constitutes the focus of the Maltese NPF, the requirements of the Directive were fulfilled. The NPF contains, with around 1.7% share by 2020, high estimates for the future deployment of EVs, when compared with its current EV share of less than 0.1%. Already today, the spatial distribution of recharging points appropriately covers the needs of electric vehicles in terms of distance requirements in Malta. The given publicly accessible recharging points target is in line with the requirements of the Directive for 2020 and the assessment threshold of less than 10 EVs per recharging point is fulfilled. The proposed set of measures for electro-mobility could support reaching the declared objectives since it was evaluated as being comprehensive and having a medium overall assessment score.

The NPF does not contain concrete targets to increase the availability of electricity supply at airports for stationary airplanes. In the case of shore-side supply in its maritime ports no targets are provided, but an action plan for its implementation at the TEN-T Core Network ports of Valetta and Marsaxlokk is expected to be finalised by the end of 2018.

Besides electro-mobility, the national strategy for the other alternative fuels is briefly or inadequately treated in the Maltese NPF, being dependent on the results of currently ongoing studies. For CNG and LNG fuels, the NPF contains neither future estimates for vehicles and vessels nor targets for refuelling infrastructure. The lack of ambition for natural gas can be partially explained by the small market size in Malta and the lack of current interconnections with other natural gas networks. The best option known for Malta to be supplied with natural gas is the 159 km gas pipeline connecting Malta to Sicily but the earliest commercial operation of this pipeline is targeted for 2024.

The Maltese NPF does not contain any targets for hydrogen in transport.

The Maltese NPF contains a quite large portfolio of measures and most of them are already existing or adopted. The vast majority of the measures targets electricity for road and includes substantial direct incentives for purchase and tax incentives. Longer durations for the validity of financial support measures could provide certainty for market actors and hence increase the likelihood that the national targets and objectives of the NPF can be reached. The NPF also contains several support measures to promote the use of electricity in public transport which address mainly public procurement. Bicycles and electric bikes as well as their infrastructure

also receive support. No future measures are discussed to promote the deployment of private electro-mobility infrastructure.

The Maltese NPF does not specify to which extent interests of regional and local authorities, as well as those of the stakeholders concerned have been considered in its drafting. However, it mentions plans to establish a stakeholder group (e.g. including representative of the private sector, NGOs, ministries and public entities) which will be involved in the drafting of the updated NPF.

Several European projects are mentioned in the Maltese NPF, mainly regarding cooperation with Italy. Two of them concern the promotion of electro-mobility while one is related to the connection of Malta to the European Gas Network.

- ***Overview of requirements' fulfilment from Annex I of the Directive***

Table ***Error! No text of specified style in document.****-1 Checklist Table*

Part of the Directive 2014/94/EU	**Requirement**	**Mode of transport / Alternative Fuel (provided in the NIR)**		**Yes / No**
ANNEX I: 1. Legal measures	Information on legal measures, which may consist of legislative, regulatory or administrative measures to support the build-up of alternative fuels infrastructure, such as building permits, parking lot permits, certification of the environmental performance of businesses and fuel stations concessions.	Road, combination / Electricity, LNG, LPG		Yes
ANNEX I: 2. Policy measures supporting the implementation of the national policy framework	Information on those measures shall include the following elements: • direct incentives for the purchase of means of transport using alternative fuels or for building the infrastructure, • availability of tax incentives to promote means of transport using alternative fuels and the relevant infrastructure, • use of public procurement in support of alternative fuels, including joint procurement, • demand-side non-financial incentives, for example preferential access to restricted areas, parking policy and dedicated lanes, • technical and administrative procedures and legislation with regard to the authorisation of alternative fuels supply, in order to facilitate the authorisation process.	Road, water-maritime / Electricity, LPG		Yes
	• consideration of the need for renewable jet fuel refuelling points in airports within the TEN-T Core Network	Air	Biofuels	**N**
ANNEX I: 3. Deployment and manufacturing support	• Annual public budget allocated for alternative fuels infrastructure deployment, broken down by alternative fuel and by transport mode (road, rail, water and air).	Road, water-maritime / Electricity		Yes
	• Annual public budget allocated to support manufacturing plants for alternative fuels technologies, broken down by alternative fuel and by transport mode.			No
	• Consideration of any particular needs during the initial phase of the deployment of alternative fuels infrastructures.			No
ANNEX I: 4. Research, technological development and	• Annual public budget allocated to support alternative fuels RTD&D, broken down by fuel and by transport mode.	Road, water-maritime / electricity, LNG, hydrogen		Yes
ANNEX I: 5. Targets and objectives	• Estimation of the number of alternative fuel vehicles expected by 2020, 2025 and 2030	Road / electricity, CNG, LNG, LPG		Yes
	• Level of achievement of the national objectives for the deployment of alternative fuels in the different transport modes (road, rail, water and air)	Road / electricity, CNG, LNG, LPG		Yes
	• Level of achievement of the national targets, year by year, for the deployment of alternative fuels infrastructure in the different transport modes	Road / electricity, CNG, LNG, LPG		Yes
	• Information on the methodology applied to take account of the charging efficiency of high power recharging points	All	Electricity	No
ANNEX I:6 Alternative fuels infrastructure developments	Changes in supply (additional infrastructure capacity) and demand (capacity actually used)	Road, water-maritime / All		Yes

The checklist shows the requirements of Annex I from the Directive that are covered in the MT NIR.

Regarding the combination of AF/AFV/AFI with transport mode, electricity is partially covered for road and maritime transport; CNG, LNG and LPG are partially covered for road transport; LNG is also mentioned for maritime transport; other combinations are either absent or not applicable.

The Maltese NIR reports 30 measures. Under the Policy and Deployment & Manufacturing sections it was possible to identify three AF/transport mode clusters of measures, all assessable.

- ***Quantitative assessment: Vehicles and infrastructure***

*Table **Error! No text of specified style in document.**-2 National AFV estimates and AFI targets established in the NIR at the horizon 2020, 2025 and 2030 and their comparison with the NPF situation*

Alternative fuel / Transport mode		2018		2020		2025		2030	
		AFV	AFI public	AFV	AFI public	AFV	AFI public	AFV	AFI public
Electricity / road	NIR	926	102	2,161	362	12,350	NA	47,488	NA
	Change NIR vs NPF [%]				-38.64%				
	Attainment [%]			42.85%	28.18%	7.50%		1.95%	
CNG / road	NIR	0	0*	0	NA	253	NA	950	NA
	Change NIR vs NPF [%]								
	Attainment [%]								
LNG / road	NIR	0	0*	0	NA	0	NA	22	NA
	Change NIR vs NPF [%]								
	Attainment [%]								
LNG / water (maritime)	NIR	NA	NA	NA	NA	NA	NA	NA	NA
	Change NIR vs NPF [%]								
	Attainment [%]								
LPG / road	NIR	83	6	100	9	100	NA	100	NA
	Change NIR vs NPF [%]								
	Attainment [%]			83.00%	66.67%	83.00%		83.00%	

Legend:	
	not applicable
	the value could not be computed
NA	no value/information provided/available in the NIR

* Value taken from EAFO (absent in NIR)

- Road transport
    - Electricity

Vehicles

Malta recorded 926 electric vehicles (EVs) in use in 2018 (all of them being BEVs and passenger cars) (see Table Error***! No text of specified style in document.****-2*) and 491 electric powered two wheelers (L-category vehicles). Regarding the next decade, the Maltese NIR confirms the NPF estimate of around 5,000 for 2020, and provides new estimates of 26,425 for 2025 and 89,994 for 2030. All these numbers also include powered two wheelers. The estimates for electric vehicles - excluding PTWs - presented in the MT NIR are 2,161 for 2020, 12,350 for 2025 and 47,488 for 2030 (see Table Error***! No text of specified style in document.****-2*). It is worth noticing that the PTWs are expected to represent around half of the total road electric vehicles in the future in the country. From 2020, the MT NIR expects 6 BEV buses to enter into service and to run up to 2030. No BEVs or PHEVs are expected for LCVs and HCVs.

The 2018 ***attainment*** of future EV estimates is 42.85% for 2020 and 1.95% for 2030. According to the assessment methodology described in Section 2.1, the 2018 situation corresponds to an ***adequate progress*** towards reaching the envisaged EV estimates. The calculated ***average annual growth rate*** corresponding to the period 2016-2030 for EV fleet evolution planned by Malta is equal to 43%.

Infrastructure

Malta recorded 102 publicly accessible recharging points in 2018 (Table Error***! No text of specified style in document.****-2*), including 3 solar recharging points. The revised NIR target of publicly accessible recharging points for 2020 is 362, which is 38.64% lower than in the NPF. However, it is worth mentioning that the high power (>22kW) recharging points number for 2020 increases from 10 in the NPF to 44 in the NIR (the share changes consequently from 1.69% to 12.15%). In both the NPF and the NIR, Malta did not provide targets for publicly accessible recharging points for 2025 and 2030.
Regarding recharging infrastructure, Malta foresees a national e-car sharing service under which 450 dedicated medium-fast recharging points will be deployed (see also Section 5.18.4.2.1). The Maltese Government is planning to support the development of an electric public transport, by installing four normal charging stations for a planned e-Bus service (see Section 5.18.4.2.2).

The 2018 ***attainment*** of future publicly accessible recharging infrastructure targets is 28.2% for 2020. According to the assessment methodology described in Section 2.1, the 2018 situation corresponds to a ***slow progress*** towards reaching the envisaged target. The calculated ***average annual growth rate*** corresponding to the period 2016-2020 for publicly accessible recharging infrastructure evolution planned by Malta is equal to 37%.

Ratio

Based on the Maltese NIR, the following table shows the ratio between vehicles and publicly accessible recharging points (i.e. sufficiency index) for the pair electricity/road. It can be seen that the sufficiency index is below 10 and adequate until 2020.

Sufficiency Index		2016	2017	2018	2020	2025	2030
Road	Electricity	3.07	3.80	9.08	5.97		

Information on charging efficiency

Information is not available in the MT NIR.

- CNG

Vehicles

Malta did not record any CNG vehicles in use in 2018 (Table Error***! No text of specified style in document.***-*2*), but the MT NIR provides estimates for the next decade, which were not present in the NPF. Assuming that CNG will be available from 2021, CNG vehicles are expected to ramp-up from 0 in 2020, to 252 in 2025 and to 950 in 2030. Of these 950 vehicles, 80.3% will be passenger cars, 10.5% LCVs, 3.1% HCVs and 6.1% buses and coaches.

Because at the end of 2018 there are no CNG vehicles in use, the 2018 ***attainment*** and ***progress*** could not be computed.

Infrastructure

As Table Error***! No text of specified style in document.***-*2* shows, similarly to the NPF, there is no information on CNG refuelling infrastructure in the Maltese NIR, neither for the past nor for the future. According to EAFO, Malta did not record any CNG refuelling points in 2018.

Because there are no CNG refuelling points targets provided in the Maltese NIR, the 2018 ***attainment*** and ***progress*** have not been computed.

Ratio

For the same reason it is not possible to compute the sufficiency index.

- LNG

Vehicles

Malta did not record any LNG vehicles in use in 2018 (Table Error***! No text of specified style in document.***-*2*). Under the assumption that LNG will be available from 2026, the Maltese NIR estimates 22 vehicles in 2030, all of which will be HCVs.

Because at the end of 2018 there are no LNG vehicles in use, the 2018 ***attainment*** and ***progress*** have not been computed.

Infrastructure

As shown in Table Error***! No text of specified style in document.***-*2*, similarly to the NPF, there is no information on road LNG refuelling infrastructure in the Maltese NIR, neither for the past nor

for the future. According to EAFO, Malta did not record any road LNG refuelling points in 2018.

Because there are no data on road LNG refuelling points in the Maltese NIR, the 2018 ***attainment*** and ***progress*** could not be computed.

Ratio

For the same reason it is not possible to compute the sufficiency index.

- Hydrogen

Vehicles

In spite of the participation of Malta in two pilot initiatives for proving hydrogen production from renewable energies and its use, no future vehicle estimates were found in the MT NIR and therefore the 2018 ***attainment*** and ***progress*** could not be computed. According to EAFO, Malta did not record any hydrogen refuelling points in 2018.

Infrastructure

Information is not available in the MT NIR.

Ratio

As the Maltese government does not provide any figures for hydrogen, neither in the NPF or in the NIR, no sufficiency index could be computed.

- Biofuels

Vehicles

No specific information was found in the Maltese NIR.

Infrastructure

As in the Maltese NPF, the NIR does not provide additional information on infrastructure requirements for biofuels, as these are expected to be distributed through existing conventional fuels infrastructure, and according to the target set by REDII.

- LPG

Vehicles

Malta recorded 83 LPG vehicles in use in 2018 (Table Error***! No text of specified style in document.***-*2*). In 2020, the Maltese NIR expects 100 vehicles on the road, without specification about the class and without further changes to that estimate for the period up to 2030.

The 2018 ***attainment*** of future LPG vehicles estimates is constant and equal to 83% for 2020, 2025 and 2030. According to the assessment methodology described in Section 2.1, the

progress obtained by Malta from 2016 until 2018 for LPG vehicles deployment is 69.1% of the overall planned deployment during the period 2016-2030.

Infrastructure

Malta reported 6 LPG refuelling points in 2018 (see Table Error***! No text of specified style in document.***-*2*). For the next decade, the Maltese NIR presents a plan that was not present in the NPF with a growth to 9 refuelling points in 2020, while for 2025 and 2030 no targets are provided. This lack of targets in the medium-long term could be explained by the decision of the Maltese government to investigate the timing for the phasing-out of Internal Combustion Engines (ICE). Nevertheless, as a limited LPG fleet is foreseen after 2020, this absence of refuelling points is not clearly justified in the Maltese NIR.

The 2018 ***attainment*** of future publicly accessible LPG refuelling infrastructure targets is 66.7% for 2020. According to the assessment methodology described in Section 2.1, the ***progress*** obtained by Malta for the deployment of publicly accessible LNG refuelling infrastructure from 2016 until 2018 versus the period 2016-2030 could not be computed because the 2030 target is not provided.

Ratio

Based on the MT NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair LPG/road (see Section 2.1.5).

Sufficiency Index		2016	2017	2018	2020	2025	2030
Road	LPG	9.00	10.33	13.83	11.11		

- Rail transport

Vehicles

Information is not available in the MT NIR.

Infrastructure

Information is not available in the MT NIR.

- Waterborne transport (maritime)
    - Electricity

Vessels

Information is not available in the MT NIR. Nevertheless, the description about infrastructure provides some information on the expected demand.

Infrastructure

According to the MT NIR, the appointed entity *Infrastructure Malta* will undertake the necessary investment to provide shore-side electricity supply on all the quays within the TEN-T Core port Grand Harbour (port of Valletta) that are utilised for Cruise Liner Ships by 2025. In spite of this initiative, the NIR does not report any figures for this kind of infrastructure.

Shore-side electricity supply for the maritime ports on the TEN-T Comprehensive Network is not foreseen in the MT NIR.

Because of the lack of numerical data, no ***attainment*** and ***progress*** could be computed.

- LNG

Vessels

The Maltese NIR reports the outcomes of a study aiming at defining the potential for LNG bunkering. The Government of Malta is expecting to adopt a national policy for the implementation of the required LNG bunkering. For the time being, the MT NIR does not report any information about LNG vessels.

Infrastructure

According to the results of the above-mentioned study, LNG bunkering demand in Malta is expected to start from 2025, and to increase up to 339,000 tonnes/year in 2056 (based on MID scenario). Before 2025, no demand is expected unless a pilot project takes place. For this reason, the MT NIR does not report any quantitative information about LNG infrastructure.

Because of the lack of numerical data, no ***attainment*** and ***progress*** could be computed.

- Waterborne transport (inland)

Not applicable since Malta has no inland ports in the TEN-T Core Network.

- Air transport

  - Electricity

Airplanes

The Maltese NIR does not consider any hybrid-electric or fully-electric airplanes by 2030.

Infrastructure (for stationary airplanes)

The MT NIR reports no immediate plans to invest in infrastructure for electricity supply at its TEN-T Core airport. There is a generic statement about the intention to move ground operations to fully electric, but no quantitative information is provided.

  - Biofuels

Airplanes

Despite MT NIR mentioning the participation of Malta to the ICAO/CORSIA initiative, no quantitative information on flights/airplanes powered by biofuels is provided.

Infrastructure

Information is not available in the MT NIR.

- ***Measures assessment***

As in the NPF, a series of measures are mentioned in the MT NIR, which reflect mainly the focus on electro-mobility in the short term, as electricity "*is considered as the most promising fuel for future transport systems in Malta*". Some of the measures are vaguely defined or lack concrete information needed to perform the assessment[1].

- Legal measures

The Maltese NIR contains seven legal measures, in general with a higher level of ambition compared to those in the NPF. The majority of the reported measures are specifically concerning the electricity/road pair.

- Legislative & Regulatory

The legislative & regulatory category of the Maltese NIR contains six legal measures, all of which are exclusively reported in the NIR. Three measures relate to the electricity/road cluster and the rest to combinations of AFs.

An important legal measure, currently under evaluation by Maltese institutions, is the ICE cut-off date. In 2018, the Maltese Government had decreed that a cut-off date for the importation and registration of new and second-hand ICE vehicles on the Maltese Territory should be fixed. The Cabinet of Ministers had mandated the setting up of an inter-ministerial Committee to study the implications of such a ban. It is expected that the Committee will present its findings and suggestions by the second half of 2020 (by time of publication this sentence should be reviewed). This measure is expected to significantly impact the deployment of electro-mobility in Malta.

In Malta's Transport Master Plan 2025 there is a target of 20% of the national vehicle fleet to be composed of non-conventionally fuelled vehicles by 2025, and the gradual phasing out of 'conventionally fuelled' vehicles in urban areas by 50% in 2030. No specific details are reported, as the MT NIR declares that the Government plans to study further this issue and provide more detailed projections after 2020. The Maltese NIR mentions as well that the National Electro-mobility Action Plan is currently being updated.

Other measures concern transpositions into national legislation of articles of the AFI Directive and of the Energy Performance in Buildings Directive. The "Petroleum for the Inland (Retail) Fuel Market Regulations (545.22)" are also mentioned to ensure that the geographic location of the public alternative fuels refuelling points are accessible on an open and non-discriminatory

[1]For allowing the measure assessment methodology to be employed and for consistency with the classification provided in the Guidance Support document, some measures have been re-classified in different categories.

basis to all users. A regulatory framework governing the personal and shared use of e-scooters put in place at the end of 2019 is presented as well.

- Administrative

The only administrative measure mentioned in the MT NIR as well as in the NPF, targeted for completion by the end of 2020, relates to the integration of the Intelligent Transport Systems (ITS) Platform at the National Transport Control Centre aiming at facilitating the interface between vehicles and infrastructure.

- Policy measures

The Maltese NIR reports 15 policy measures of which 11 had already been reported in the NPF and 4 are new. All the policy measures concern the road as transport mode and focus mainly on electricity as alternative fuel. Twelve of them can be categorised as measures to ensure national targets and objectives, two as measures that can promote AFI in public transport services and one as a measure that can promote the deployment of private electro-mobility infrastructure.

- Measures to ensure national targets and objectives

Road transport

The Maltese NPF had mentioned quite a large number of measures to enhance the deployment of road electro-mobility, mainly financial measures like substantial direct incentives for purchase, taxation exemption schemes and public procurement incentives. The measures were often limited in time and budget, with annual extension foreseen. The NIR pursues many of them but in some cases (especially, the purchase subsidies and scrappage schemes) without providing enough details that are needed for their assessment according to the methodology described in Section 2.2. The continuation of these measures in the future is not clearly presented in the MT NIR.

More specifically, the MT NIR mentions that various schemes providing subsidies were launched on an annual basis with various changes over the years and their allocated budget was 1.9 million € for the period 2016-2019 (e.g. direct incentives for purchase for individuals and companies which supported the purchase of 373 EVs, 39 electric motorcycles and 185 pedelecs). EVs have been exempted since 2018 from paying the registration tax as well as the annual circulation tax (for a period of five years after registration). The EVs and the LPG vehicles are allowed to use the priority lane, while EVs are also exempt from tariffs related to the Controlled Vehicular Access system in Valletta.

To increase and stimulate the use of EVs in Malta as well as to promote the sharing economy and address congestion, a National e-Car Sharing Project started in 2018 to offer mobility as a service at no less than 45 mandatory locations. The service was launched with 150 BEVs and an additional 30 BEVs during the third quarter of 2019. In late 2019, electric motorcycle (scooter type) sharing was also introduced. In the NIR, it is reported that the company is expected to include electric van sharing services in 2020 as well as installation and operation of 450 medium-fast recharging points. According to the MT NIR, this deployment has already started. These recharging points will be offered to third party EV owners to charge their vehicle when the point is not being occupied by the EVs of the sharing fleet.

The use of EVs for the last mile delivery of goods is also under evaluation with a pilot project underway[2].

The measures detailed in the NPF on the promotion and support of electric bicycles (pedelecs) use are no longer mentioned in the NIR anymore.

The incentive scheme for the conversion of a conventional fuel motor vehicle to run on LPG continues since 2013 (granting €200 per vehicle).

Biofuels

Malta has introduced an obligation on fuel importers to blend 0.1% share of advanced biofuels in their mix in 2020. Local importers and wholesalers of petrol and diesel are expected to meet their post-2020 substitution obligation by blending regular diesel with FAME and HVO. High blends of bioethanol (>E5) are not distributed for consumption in Malta.

The Maltese NIR pointed out that, given the relatively small market, the country cannot take advantage of economies of scale in procurement and shipping, therefore the CIF costs[3] tend to be higher than for larger markets. This is expected to limit specific initiatives on biofuels in Malta. In spite of this remark, in the scenario proposed at page 23 of the Maltese NIR, the advanced biofuels are expected to contribute to 25% of the total consumption of biofuels by 2030.

- Measures that can promote AFI in public transport services

The Maltese NIR reports that under the current scheduled public transport Concession Agreement expiring in 2030, fleet using alternative fuels is not contemplated. However, two measures with influence on promoting alternative fuels in the public transport service are present in the MT NIR.

Buses

Six electric buses are planned to operate an on-demand shuttle service, between the multi modal hub in Xewkija and the Mgarr Harbour Terminal (TEN-T comprehensive) in Gozo Island. The aim is to promote the use of greener transport contributing towards lower emissions in the area and reduced traffic congestion within and around the Mgarr Harbour. The total cost for these e-buses is €1,994,607 out of which €1,636,245 are eligible for EU funding. These electric buses will be supported by four slow recharging stations located within the multi modal hub with a cost for purchase and installation estimated at around €230,000. The Ministry of Gozo plans to procure them through National Funds. The ambition of these two measures is slightly reduced compared to that of the NPF, where 8 electric buses and 10 recharging points were foreseen.

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

On private electro-mobility infrastructure, the Maltese NIR reports that the National Electric Vehicle Charging Network provides electric vehicles users with the possibility to charge using

[2] The pilot project comprises a large light commercial 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.
[3] Cost, Insurance, and Freight (CIF). This expense is the value paid by a seller to cover the costs, insurance, and freight of a buyer's order.

publicly accessible charging points in public parking spaces across Malta and Gozo at 4-hour slot intervals with a pre-booking system being available through a web-based interface.

During 2020, the electricity rate of recharging electric vehicles within residences is foreseen to be capped at €0.1298 per unit during off peak periods.

- Deployment and manufacturing support

  - AFI deployment

The Maltese NIR contains two measures considered to address AFI deployment support.

According to the MT NIR, an unspecified number of fast charging points are planned to be installed by January 2021 at both ends of the Malta/Sicily ferry service (funded under the EnerNETMob Interreg Med project). This project's implementation was delayed because, according to the NPF, the installation was foreseen to be accomplished in 2019.

The Maltese NIR reports that "*Infrastructure Malta will undertake all the necessary investment to provide shore side supply on all the quays within the TEN-T Core port Grand Harbour*" (port of Valletta). Phase I targeted the quays utilised for Cruise Liner Ships by 2025 and the foreseen investment is estimated at 40 million €. In phase II of the project, additional investments should allow for supplying other vessels such as cargo roll-on/roll-off (RORO), etc. Shore-side electricity supply for the maritime ports on the TEN-T Comprehensive Network is not foreseen in the MT NIR at this stage.

  - Support of manufacturing plants for AF technologies

The Maltese NIR contains no measures to explicitly support manufacturing plants for AF technologies.

  - Consideration of any particular needs during the initial phase of the deployment of alternative fuels infrastructures

Information is not available in the Maltese NIR.

- Quantitative assessment of Policy and Deployment & Manufacturing measures

Table Error***! No text of specified style in document.***-*3* presents an overview of the analysis of all the Policy and Deployment & Manufacturing measures, carried out according to the assessment methodology described in Section 2.2. No clusters of measures have emerged for CNG, LNG and hydrogen related to road transport, nor for rail and air transport modes.

The vast majority of the assessable measures are targeting the pair electricity/road, which is the main focus of the MT NIR set of measures. While it results comprehensive since it concerns both vehicles and infrastructure (with financial and non-financial measures), it obtained a medium overall score, which is also due to the lack of details that limited the possibility of a robust assessment. Its ambition is considered to have increased compared to the NPF, but greater detail on planned measures is recommended.

Another cluster identified in the MT NIR concerns LPG/road and contains two measures but only one is specifically dedicated to LPG. It has been assessed to have a low score, not to be comprehensive and with a similar ambition level as in the NPF.

Electricity/water - maritime is a cluster newly introduced in the NIR, which contains only one measure. The reported measure seems to have the potential to positively impact on the most important port of Malta. However, the lack of specific details influences the assessment (the NIR reports only an estimated budget for the first phase) (see Section 5.18.4.3.1). Thus, this cluster has been evaluated with a low/medium overall score, and it is considered not comprehensive.

In terms of expected impact of these measures to support the realisation of the AFV/AFI objectives as presented in the NPF and revised in the NIR, the measures for the pair electricity/road result to have a medium impact, while those for electricity/maritime and LNG/maritime result to have a low impact.

*Table **Error! No text of specified style in document.**-3 Quantitative assessment of Policy and Deployment & Manufacturing support measures*

AF	Transport mode	Score	Comprehensiveness		Impact		Ambition (NIR vs NPF)
Electricity	Road	M	C		**M**		+
CNG	Road						
LNG	Road						
	Water - maritime						
LPG	Road	L	N		**L**		=
Electricity	Water - maritime	L/M	N		**L**		+

Legend: Score and Impact: H = high; M = medium; L = low; X = not assessable. Comprehensiveness: C = comprehensive; N = Not comprehensive. Ambition level: '+' means 'higher'; '=' means 'comparable'; '-' means 'lower'.

- Research, Technological Development & Demonstration

The Maltese NIR contains six items than can be considered as RTD&D related actions.

Two projects of relevance are presented, both focusing on Hydrogen: BIG HIT (FCH JU) and SMARTHY-AWARE INTERREG Project. The total budget for Malta is lower than €200,000. It is worth noticing that, neither in the NPF nor in the NIR, Malta has foreseen any relevant development of hydrogen for transport. Specific details about each of these projects are not provided in the NIR.

Four measures regard national studies that have been conducted in order to prepare decisions on the future provision of the respective alternative fuels ("*Alternative Fuels in Road Transport Study*", "*LNG Bunkering Study*", "*Shore side Electricity in Ports Study*", and a study in the form of an implementation plan as well as a Cost Benefit Analysis on the extension of the National Electric Vehicle Charging Network).

The Maltese NIR reports in details the outcomes of the study on LNG Bunkering. The market study shows 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. To date, the number of shipping operators that have committed to LNG is very small because emerging technologies such as biofuels, hybridisation and batteries are gaining more popularity and are considered as a cleaner alternative to LNG.

In the NPF, several European projects were reported (e.g. GrowSmarter, DESTINATIONS, EnerNETMob, DEMO EV and PORT-PVEV). The outcomes of these projects are mentioned in NIR, as base for the plans about the various alternative fuels.

- ***Additional information on alternative fuels infrastructure developments***

The Maltese NIR provides information on the changes in fuels use (see Table Error***! No text of specified style in document.****-4*).

Table ***Error! No text of specified style in document.****-4 Changes in fuel use in transport sector (2016-2030)*

MODE OF TRANSPORT	FUEL	Fuels use [%]			Estimated fuels use [%]		
		2016	2017	2018	2020	2025	2030
Road	Gasoline/Petrol	39.36%	38.29%	35.00%	37.00%	35.40%	36.00%
	Diesel	51.80%	52.18%	56.00%	52.10%	52.00%	52.00%
	Gasoil	5.04%	5.42%	4.00%	6.20%	6.60%	4.00%
	Electricity	negligible	negligible	negligible	negligible	1.00%	2.00%
	LPG	negligible	negligible	negligible	negligible	negligible	negligible
	Biofuels	3.49%	3.79%	5.00%	4.60%	5.50%	7.00%
	Other AF	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Total Road	**99.69%**	**99.68%**	**100.00%**	**99.90%**	**100.50%**	**101.00%**
Maritime	Marine gas oil	84.24%	84.00%	80.95%	86.00%	85.00%	75.00%
	Petrol	3.48%	2.47%	2.90%	2.00%	2.00%	4.00%
	Biodiesel	0.41%	0.38%	0.47%	0.00%	0.00%	0.00%
	Marine diesel oil	11.87%	13.15%	16.67%	12.00%	13.00%	21.00%
	Total Maritime	**100.00%**	**100.00%**	**100.99%**	**100.00%**	**100.00%**	**100.00%**

As it can be noticed, biofuels are expected to remain the dominating alternative fuel in road transport throughout the period, followed by electricity that increases from 2025 onwards.

Additionally, the Maltese NIR provides a detailed overview of biofuels use in transport (see **Error! Reference source not found.**). As it can be seen, biofuels in road transport are projected to grow between 2021-2030. Biofuels are expected to continue increasing mainly as blends with regular road diesel and HVO, FAME (to a lesser extent), and advanced biofuels in line with the Renewable Energy Directive. Advanced biofuels are expected to contribute to 25% of the total consumption of biofuels by 2030. This scenario does not require any further investment in terms of infrastructure.

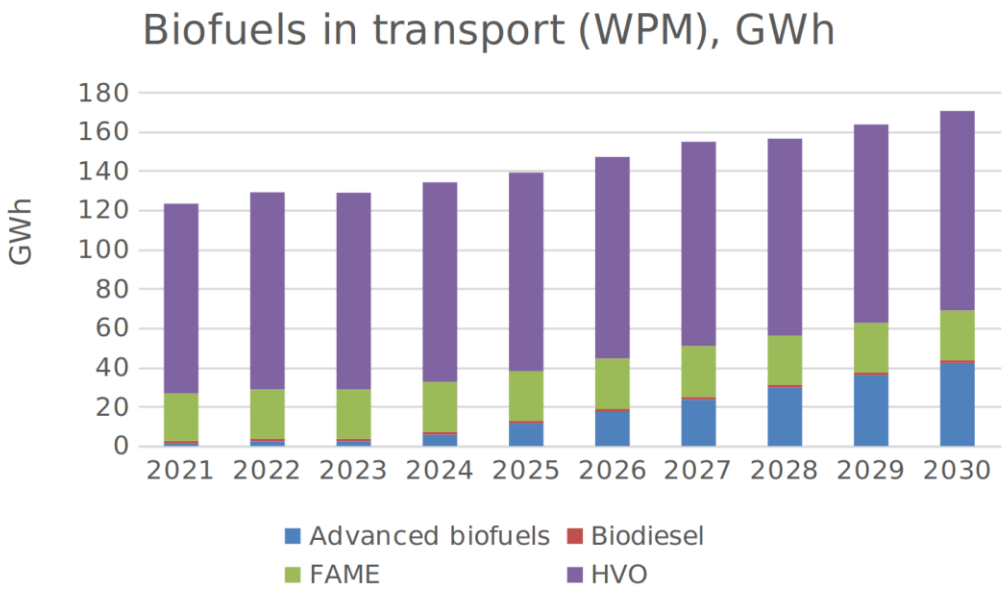

Figure **Error! No text of specified style in document.**-1 Projections of biofuels under WPM scenario, 2021-2030, GWh (source MT NIR page 23).

- ***Summary of the assessment***

Tabular overview

*Table **Error! No text of specified style in document.**-5 Overview of the NIR assessment*

		Indicators	Alternative fuel / transport mode					
			Electricity / road	CNG / road	LNG / road	LNG / water (maritime)		LPG / road
AF Vehicles / Vessels		Past situation (2016)	313	0	0	NA		45
		Situation (2018)	926	0	0	NA		83
		Estimate (2030)	47,488	950	22	NA		100
		Future share (2030) [%]	14.56%	0.29%	0.12%			0.03%
		Estimate attainment (2018 vs 2030) [%]	1.95%					83.00%
		Progress (2018)	adequate					69.10%
Publicly accessible AF Infrastructure		Past situation (2016)	102	NA	NA	NA		5
		Situation (2018)	102	0*	0*	NA		6
		Target (2030)	NA	NA	NA	NA		NA
		Target attainment (2018 vs 2030) [%]						
		Progress (2018)	slow					
Sufficiency Index		2016	3.07					9.00
		2018	9.08					13.83
		2020	5.97					11.11
		2025						
		2030						
Measures	Legal measures	Ambition (NIR vs NPF)	+					=
	Policy measures + Deployment & manufacturing support	Score	M					L
		Comprehensiveness	C					N
		Impact	M					L
		Ambition (NIR vs NPF)	+					=
	RTD&D	Ambition (NIR vs NPF)	+	=	=	=		

Legend:		
		not applicable
		the value could not be computed
	NA	no value/information provided/available in the NIR

* Value taken from EAFO (absent in NIR).

The requirements of Annex I from the Directive are only partly covered in the Maltese NIR. The NIR does not contain a complete description of the policy direction towards the introduction of alternative fuels in Malta. Also, it does not establish clear AFI targets for the different kinds of alternative fuels. However, the Maltese NIR mentions several studies and evaluations to be completed in 2020 (e.g. ICE cut-off date, update of the Malta Transport Master Plan 2025, and evaluation of the outcomes of studies for LNG). This planning is expected to complement and integrate the current set of national targets for the deployment of alternative fuels and their infrastructure.

The main outcomes of the technical assessment of the Maltese NIR on vehicles/vessels estimates and infrastructure targets can be summarised as follows:

Road transport

- **Electricity** – In 2018, Malta reported 962 electric vehicles (all passenger cars). The 5,000 total road electric vehicles (including PTWs) planned in NPF for 2020 are still a valid commitment in the NIR. Additionally, the MT NIR provides estimates by category of vehicles, foreseeing 2,160 EVs (excluding PTWs) in 2020, and new estimates of 12,350 in 2025 and 47,488 EVs in 2030 (all passenger cars, except 6 buses and coaches). Malta recorded 102 recharging points in 2018; the NIR presents a revised target for 2020 (362 points), which is 38.64% lower than that in the NPF but does not provide targets for 2025 and 2030, similarly to the NPF. According to our methodology, the progress between 2016 and 2018 to achieve their objectives in 2030 is considered to be adequate for the vehicles and slow for infrastructure, while the sufficiency index is adequate until 2020.
- **CNG** – Malta did not record any CNG vehicles in use in 2018, but the MT NIR provides an estimate of 950 CNG vehicles in 2030 (of which 100 LCVs, 29 HCVs and 58 buses and coaches). This plan for the CNG vehicles is not accompanied by any information about the development of a specific infrastructure for refuelling.
- **LNG** – Similarly to CNG, no LNG vehicle was recorded in Malta in 2018. For 2030, there are 22 HDVs planned in the NIR. Again, no information is available for the LNG refuelling infrastructure.
- **Hydrogen** – The Maltese NIR mentions no concrete objectives or actions for hydrogen.
- **Biofuels** –Malta considers to increase the uptake of biofuels in the regular distribution system, in order to comply with the target set by the current European legislation (e.g. REDII commitments).
- **LPG** –Malta recorded 83 LPG vehicles on the road and 6 LPG refuelling points in 2018. In the MT NIR there is an estimate of 100 vehicles from 2020 until 2030, while the infrastructure is planned to grow up to 9 refuelling points in 2020, while after that year targets are missing.

Rail transport

- **Electricity** – No specific information was found in the Maltese NIR.

Waterborne transport (maritime)

- **Electricity** – The Maltese NIR states that *Infrastructure Malta* is expected to provide shore-side electricity supply on all the quays within the TEN-T Core port Grand Harbour (port of Valletta). In phase I, quays for Cruise Liner Ships are targeted by 2025 and the foreseen investment is estimated at 40 million €. In phase II of the project, additional investments should allow electricity supply to other vessels such as RO-RO, etc.
- **LNG** – The Maltese NIR reports outcomes of the study on LNG Bunkering. The market study shows an LNG bunkering potential demand in Malta, which is expected to start from 2025. Before 2025, no demand is expected unless a pilot project takes place. To date, the number of shipping operators that have committed to LNG is very small because emerging technologies such as biofuels, hybrid and batteries are gaining more popularity and are considered as a cleaner alternative to LNG.

Air transport

- **Biofuels and electricity** – Despite MT NIR mentions the participation of Malta to the ICAO/CORSIA initiative, it does not provide any quantitative information on flights/airplanes powered by biofuels. The Maltese NIR does not consider any hybrid-electric or fully-electric airplanes by 2030. The MT NIR reports no immediate plans to invest in infrastructure for electricity supply at its TEN-T Core airport.

As regards the **measures**, the MT NIR shows focus on the development of electro-mobility as electricity is considered as the most promising alternative fuel in short term. Some of the presented measures lack concrete information allowing for a proper assessment. Malta should improve the reporting on this matter.

The Legal measures are mainly dedicated to allowing the development of electro-mobility and are almost all exclusively presented in the NIR. Overall, they appear, if fully implemented, to be fit to support the realisation of the AFV/AFI objectives as presented in the NPF and revised in the NIR. The level of ambition is considered higher in the NIR compared with the NPF.

Concerning the policy measures, the MT NIR contains measures targeting only road as transport mode and focusing mainly on electricity as alternative fuel. The majority of them are a continuation of measures already presented and in place in the NPF. They cover financial aspects (e.g. purchase / conversion /scrappage subsidies, tax incentives) but also non-financial ones (e.g. car-sharing services, access to restricted lanes).

The AFI deployment measures address the electricity/road and electricity/water-maritime pairs.

As for the Policy and Deployment & Manufacturing support measures, in the NIR compared with the NPF, the level of ambition has increased for two identified clusters (i.e. electricity/road, electricity/water-maritime) and remained the same for the third one (i.e. LPG/road). The most complete and numerous cluster of measures is for the pair electricity/road. The assessment was influenced by the lack of concrete information in the description of some measures.

The expected impact of the measures to support the realisation of the AFV/AFI objectives as presented in the NPF and revised in the NIR is medium for the electricity/road pair, while for the pairs electricity/water-maritime and LPG/road it results to be low.

The Maltese NIR provides information about two main ongoing RTD&D initiatives (participation to international projects) ongoing to support the implementation of hydrogen in

transport. It also presents four national studies related to electricity, CNG and LNG, which were conducted to facilitate decisions on the future provision of these respective alternative fuels.

- ***Final remarks***

The Maltese NIR provides a relatively comprehensive report on the efforts to implement the Directive, but does not provide information on the target for electric vehicles' recharging points in 2025 and 2030, nor for CNG refuelling points for vehicles and LNG refuelling points for vehicles and vessels in 2020, 2025 and 2030. A significant number of the measures included in the Maltese's NIR aim at promoting electro-mobility in road transport, in public transport and, to a lower extent, in maritime transport.

With regard to electricity, the NIR estimates that 47,488 electric vehicles could be on the road by 2030, representing about 15% of the fleet by that time. Taking into account the current situation and expected trends, this level of ambition appears to be broadly consistent with the pace of deployment of electric vehicles considered necessary for a full transition to carbon neutrality by 2050. Nevertheless, the NIR does not indicate estimates for electric recharging infrastructure by 2025 and 2030. Malta should update its planning and reporting on this matter. No information on charging efficiency is provided. Further, no specific information is given on the electrification of waterborne and air transport. However, the NIR indicates that Malta will undertake the necessary investment to provide shore-side electricity supply on all quays within the TEN-T Core Network used for cruise liner ships.

The Maltese NIR does not report any information on existing or future HFCV and the relevant infrastructure.

Regarding natural gas for transport, the NIR does not report information on the development of CNG and LNG infrastructures for road and maritime transport. Only small fleets of 950 CNG vehicles and 22 LNG vehicles are estimated by 2030. There are no plans to use LNG in the maritime sector before 2025, as the current interest in LNG among shipping operators is noted to be limited.

Concerning LPG, the NIR shows that Malta had a small fleet of 83 LPG vehicles and six LPG refuelling stations by 2018. It estimates around 100 LPG vehicles by 2020, 2025 and 2030 as well as nine LPG refuelling stations at the end of 2020.

Malta should provide more information in future reporting on efforts to promote the use of renewable fuels in transport, and particularly in aviation.

- ***ANNEX - Description of the Member State***

On a surface area of 300 km², Malta has a population of 476,000 people in 2018, which makes up for a population density of 1,587 inhabitants/km².

Number of main urban agglomerations

- 1 urban agglomeration > 50,000 inhabitants

In 2018, Malta achieves a per capita gross domestic product at market prices of €25,490, which represents a per capita gross domestic product in purchasing power standards of 98 if expressed in relation to the EU-28 average set to equal 100.

Length of the road networks

The length of the road TEN-T Core Network in Malta is 20 km. The total road network length is 2,855.

The following lengths of the TEN-T Road Corridors are present in Malta: 0.3% (20 km) of the Scandinavian - Mediterranean Corridor.

Number of registered road vehicles

At the end of 2018, Malta accounts for 375,634 registered road vehicles of which 300,140 are categorized as passenger cars, 36,571 as light goods vehicles, 12,223 as heavy goods vehicles and 2,100 as buses and coaches. The motorisation rate is 631 passenger cars per 1,000 inhabitants.

Number of ports in the TEN-T Core Network

- 2 maritime ports in the TEN-T Core Network (Marsaxlokk, Valletta)
- 2 maritime ports in the TEN-T Comprehensive Network
- No inland ports

Number of airports in the TEN-T Core Network

- 1 airport in the TEN-T Core Network (Valletta-Malta Luqa)
- No airports in the TEN-T Comprehensive Network