

Summary on national plans for alternative fuel infrastructure

Introduction

European Member States were required by the **Directive on the deployment of alternative fuels infrastructure (2014/94/EU)** (hereafter referred to as 'Directive') to notify the European Commission by November 2016 on their National Policy Frameworks (NPF). In their NPF, the Member States should outline their national targets and objectives, and any supporting actions for the development of the market as regards alternative fuels.

The Directive sets a regulatory framework for the following fuels:

Electricity: The Directive requires Member States (MS) to set targets for recharging points accessible to the public, to ensure that electric vehicles can circulate at least in urban and suburban agglomerations by 31 December 2020 as well as on the TEN-T core network by December 2025. Furthermore, MS are requested to assess the needs for shore-side electricity in ports as well as electricity supply for stationary airplanes by 31 December 2025.

Compressed Natural Gas (CNG): The Directive requires MS to ensure a sufficient number of publicly accessible refuelling points, with common standards, to be built to allow the circulation of CNG vehicles, both in urban and sub-urban areas by 31 December 2020) as well as on the TEN-T core network by 31 December 2025.

Liquefied Natural Gas (LNG): The Directive requires MS to ensure a sufficient number of publicly accessible refuelling points along the existing TEN-T Core Network by 31 December 2025. The Directive also requires an appropriate number of refuelling points for LNG are put in place at maritime ports TEN-T Core Network by 31 December 2025 and in the inland waterways TEN-T Core Network ports by 31 December 2030.

Hydrogen: The Directive aims at ensuring a sufficient number of publicly accessible refuelling points, with common standards, in the MS who opt for hydrogen infrastructure, by 31 December 2025.

This overview briefly summarises the extensive Member States fiches – for a comprehensive overview, please check the individual [Member States fiches](#) and the Commission Staff Working Document ([part 1](#) – [part 2](#) – [part 3](#)).

1 AUSTRIA

For all fuels and modes, Austria establishes targets as required by the Directive. The Austrian National Policy Framework (NPF) emphasises electric vehicles and contains high estimates for the future deployment of electric vehicles. Already today, Austria has a relatively dense network of public recharging points, a significant number of electric buses and supports infrastructure for bicycles and

electric bikes. The distribution of recharging points, and fast recharging infrastructure, seems to appropriately cover the needs of electric vehicles in terms of distance requirements in Austria. For the future, the targeted ratio of only one public recharging point per 18-37 electric vehicles, estimated for 2020, could evolve to become a barrier for the further market deployment of electric vehicles. This could also lead to market fragmentation within the EU. Austria currently has a sufficient network of CNG refuelling points but does not foresee additional investments in CNG refuelling infrastructure. 1-2 dual use LNG refuelling points for vessels and heavy-duty trucks are proposed in the NPF. The Austrian NPF considers hydrogen for transport and targets a slight increase of hydrogen refuelling points. The NPF contains a comprehensive list of support measures that can promote the deployment of alternative fuels infrastructure in public transport services. Austria is actively involved in coordinating and collaborating with other Member States as regards alternative fuels infrastructure.

2 BELGIUM

The Belgian National Policy Framework (NPF) establishes targets as required by the Directive. It contains high estimates for the future deployment of electric vehicles. Today, the spatial distribution of recharging points seems to appropriately cover the needs of electric vehicles in terms of distance requirements in Belgium. For the future, the target of less than one public recharging point per 10 electric vehicles estimated for 2020 could become a barrier for the further market deployment of electric vehicles. This could also lead to market fragmentation within the EU. Belgium has defined ambitious targets for electric buses (especially in the Brussels-Capital Region). Electric bikes, as well as their infrastructure, also receive support. The Belgian NPF contains targets for further increasing shore-side electricity in its ports but no plans to increase the electricity supply for stationary airplanes. The NPF sees a growing role for CNG cars. Belgium has today a sufficient network of public recharging and CNG refuelling points. LNG refuelling is planned for all maritime ports in the TEN-T Core Network and several inland ports. The deployment of 19 publicly accessible hydrogen refuelling points is planned, in addition to the three existing ones. The Belgian NPF contains a comprehensive list of measures, most already in place and foreseen to stay. Belgium is actively involved in coordinating and collaborating with the Benelux countries as regards alternative fuels infrastructure.

3 BULGARIA

The Bulgarian National Policy Framework (NPF) addresses only part of the requirements of the Directive. Bulgaria expects a rather rapid deployment of electric vehicles. For electric recharging infrastructure, the current situation, with 22 publicly accessible recharging points, is sufficient. The Bulgarian targets for the recharging network might not be enough, if the estimates for electric vehicles in Bulgaria are met. The NPF does not contain concrete targets to increase the availability of the electricity supply for stationary airplanes. For shore-side electricity it focuses on plans for modernising the existing infrastructure. Already today, Bulgaria has a relatively dense network of CNG refuelling points in parts of the country and the NPF foresees that this will further grow to cover the complete Bulgarian territory and the Bulgarian part of the TEN-T Corridors. The Bulgarian NPF does not contain future estimates for the number of CNG vehicles. It has a target of 4 LNG refuelling points for heavy-duty vehicles, which is insufficient to ensure appropriate coverage of the TEN-T Core Network on Bulgarian territory.

4 CYPRUS

Cyprus' National Policy Framework (NPF) addresses only a small part of the requirements of the Directive. In the case of electricity for road transport, which constitutes the focus of the Cyprus NPF, the requirements of the Directive were fulfilled. Future estimates of electric vehicle stock are modest, but the proposed set of measures can support reaching the declared objectives. In the case of electricity supply at airports and shore-side supply in its maritime ports, the Cypriot authorities are currently examining the situation and studies are being carried out. Besides electro-mobility, the national strategy for the other alternative fuels is briefly or inadequately treated in the Cyprus NPF. For CNG and LNG fuels, the NPF contains neither future estimates for vehicles nor targets for refuelling infrastructure. A study on the future development and penetration of alternative fuels in transport has been commissioned. Regarding the cooperation with other Member States, the NPF states that Cyprus cooperates with Greece and Italy in the frame of the EU funded POSEIDON-MED II LNG project.

5 CZECH REPUBLIC

The Czech National Policy Framework (NPF) broadly addresses the requirements of the Directive. For most fuels and modes, it establishes sufficient targets.. The Czech NPF puts a comparably low emphasis on electric vehicles. Today, the spatial distribution of recharging points seems to appropriately cover the needs of electric vehicles in terms of distance requirements in the Czech Republic. For the future, the targeted ratio estimated for 2020 could evolve to become a barrier for the further market deployment of electric vehicles. This could also lead to market fragmentation within the EU. Regarding electricity supply for stationary airplanes the NPF only mentions that further installations for the Prague airport are under consideration. The NPF does not provide any targets for shore-side electricity. Already today, the Czech Republic has a relatively dense network of CNG refuelling points and the NPF foresees that this will grow further. The NPF has established targets for LNG refuelling points for heavy-duty vehicles that will likely ensure appropriate coverage of the road TEN-T Core Network on Czech territory. The Czech NPF does not contain targets for LNG refuelling at inland ports. This omission could have a negative impact on the circulation of LNG inland waterway vessels throughout the TEN-T Core Network. The NPF establishes targets for hydrogen refuelling points. The Czech NPF contains a very comprehensive list of future measures which could help to overcome deployment barriers if they will be implemented.

6 GERMANY

The German National Policy Framework (NPF) addresses most of the requirements of the Directive. A main focus of the German NPF is on electric vehicles estimating roughly 2% electric vehicles on the road in 2020. The targeted number of recharging points seems adequate to cover the needs of electric vehicles in terms of distance requirements in Germany. However, the ratio of only one public recharging point per 23 electric vehicles estimated for 2020 could evolve to become a barrier for the further market deployment of electric vehicles. This could also lead to market fragmentation within the EU. The NPF does not provide targets for further deployment of electricity supply for stationary airplanes or for shore-side electricity. Already today, Germany has a relatively dense network of CNG refuelling points. Available infrastructure could probably support more than five times the CNG vehicles on the roads in Germany today. The German NPF defines a network of nine road LNG refuelling points that could guarantee fulfilment of the maximum distance requirement for LNG refuelling points for heavy-duty

vehicles along the TEN-T Core Network on German territory. However, LNG propelled heavy-duty vehicles may have to deviate from the shortest route in order to refuel when travelling on the TEN-T Core Network. The German plan allows for potentially ambitious market uptake of H₂ vehicles. The NPF does not establish targets for LNG refuelling points in ports beyond the facilities already present. The German NPF contains a comprehensive list of measures, which already exist or have been adopted. Germany is actively involved in coordinating its plans on alternative fuels infrastructure with other Member States as well as collaborating with them in this field.

7 DENMARK

The Danish National Policy Framework (NPF) addresses most of the requirements of the Directive. It estimates that the share of electric vehicles will remain below 1% until 2020. The prospects of shore-side electricity supply in Danish maritime ports are not good. The only policy measure mentioned in the NPF is tax relief for electricity. At the opposite extreme lies the status of electricity supply for stationary airplanes. Denmark considers itself a leader in this matter. For other alternative fuels, the NPF is not comprehensive. Although the sufficiency index for CNG refuelling points is adequate, it seems that Aarhus, in particular, could benefit from CNG infrastructure deployment for two reasons: it is the second-largest city in the country and it is located along the TEN-T Network between Aalborg and Vejle. In terms of LNG for road transport, no infrastructure targets are given. There appears to be a lack of policy measures targeting LNG in the Danish maritime ports. At present, Denmark foresees insignificant market uptake for hydrogen vehicles before 2025. The support measures defined in the Danish NPF are unlikely to have a high impact on removing market barriers. The NPF does not provide any information on stakeholder engagement and cooperation with other Member States

8 ESTONIA

The Estonian National Policy Framework (NPF) partially addresses the requirements of the Directive. The NPF does not contain any future estimates for alternative fuels vehicles. Spatial distribution details or references to urban areas and the TEN-T network are not presented. Estonia is focusing on increasing the proportion of alternative fuels use in road transport and is seeking to increase the use of renewable energy sources in road transport to 10% of the amount of fuel consumed. The objective is to be achieved through three types of fuel – liquid biofuels, bio-methane and electricity. The Estonian NPF lacks concrete targets for electric vehicle infrastructure and information about the market development. Promoting the creation of a comprehensive network of natural gas refuelling points is considered to be the main challenge in the period leading up to 2020. Regarding LNG, the NPF mentions that an LNG terminal, including an LNG bunkering terminal and loading facilities for LNG tank vehicles, is due to be completed in 2017, at the Harbour of Muuga (part of the Tallinn port). For hydrogen, a first pilot project is pointed out. For LNG, no measures are proposed at this moment. The NPF presents two measures regarding public transport that relate to public procurement of CNG and hydrogen public buses. The NPF mentions cross-border cooperation focussing on shore-side electricity supply.

9 GREECE

Greece notified its NPF to the Commission on 2 November 2017. The relevant translation is ongoing; its assessment will be published in due course.

10 SPAIN

The Spanish National Policy Framework (NPF) addresses most of the requirements of the Directive. However, it does not contain a 2020 target for recharging points, which poses a serious risk to cross-border continuity and a functioning internal market for electric vehicles. The Spanish NPF estimates a comparably low share of roughly 0.5% electric vehicles on the road in 2020. While the spatial distribution of recharging points seems to cover the needs of electric vehicles, the absence of targets for publicly accessible recharging points for 2020 is a risk to the further market deployment of electric vehicles. This could also lead to market fragmentation within the EU. The Spanish NPF contains modest targets and measures for increasing shore-side electricity in its ports. Coverage of electricity supply for stationary airplanes at the major airports is already good. The Spanish NPF focusses on LPG and natural gas, for which substantial infrastructure is already in place. There are already 15 publicly accessible LNG refuelling points for heavy-duty vehicles present in the Spanish territory and it is foreseen to have 44 by 2020. Altogether, the planned LNG refuelling points could guarantee that the maximum distance requirement for LNG refuelling points along the road TEN-T Core Network would be fulfilled. LNG refuelling is available for all maritime ports in the TEN-T Core Network and in several ports of the comprehensive network. Additional bunkering terminals and ship-to-ship refuelling are planned. Spain is foreseeing deployment of 20 publicly accessible hydrogen refuelling points and 500 hydrogen fuel cell vehicles by 2020. The Spanish NPF contains an extensive list of measures, most already in place. Spain is actively involved in coordinating and collaborating with other Member States as regards alternative fuels infrastructure.

11 FINLAND

The Finnish National Policy Framework (NPF) fully addresses the Directive's requirements. It focuses on biofuels to meet the near-zero emission transport target by 2050, and states ambitious measures to achieve them. Low and high blends are planned to be used, ensuring less fossil oil dependency and less greenhouse gas emissions. The NPF has high recharging point targets and vehicle estimates, and contains measures to deploy electricity in transport (e.g. tax reductions). The given recharging points target and its spatial distribution seem to cover the needs of electric vehicles in terms of number of publicly accessible recharging points as well as distance requirements. In Finland, 22 electric buses have been procured for public transport for demonstration projects in 4 cities. The Finnish NPF contains targets to further promote and increase shore-side electricity in ports. Ground power for stationary airplanes is already offered in the major airports. Finland currently has and will continue to have a sufficient CNG infrastructure. LNG with gradual increase of renewable share is foreseen as the main shipping and long-haul transport fuel. Six LNG refuelling points in maritime ports and one mobile inland waterway bunker are planned until 2030. Nine road LNG refuelling points on the TEN-T Core Network will ensure the minimum coverage criteria of one LNG refuelling point at least every 400 km for heavy-duty motor vehicles, already by 2020. Furthermore, the Finnish NPF displays a strong commitment towards hydrogen. The deployment of 19 publicly accessible hydrogen refuelling points in addition to the two existing ones is planned, ensuring the distance of 300 km between two points. The NPF contains a comprehensive list of support measures to promote the deployment of alternative fuels infrastructure in public transport services

12 FRANCE

The French National Policy Framework (NPF) fully addresses the requirements of the Directive. The focus of the French NPF is mainly on electric vehicles with estimates of roughly 1.6% EV on the road in 2020. Each department of metropolitan France is, already today, equipped with at least one recharging point. It seems that the distance requirement on the TEN-T Core Network of one recharging point at least every 60 km is fulfilled. The current and targeted number of CNG refuelling points can be considered sufficient. The NPF focus for CNG is on the TEN-T Core Network and nine French large urban areas. The French NPF emphasizes the role that natural gas vehicles can play for the public transport sector (e.g. cleaning vehicles, garbage trucks etc.). For heavy-duty trucks, the committed target provides the appropriate number of LNG refuelling points and the fulfilment of the distance requirement on the road TEN-T Core Network. The French NPF commits to the provision of LNG bunkering by 2025, at least, on one maritime port of each coastal area of the country: Channel - North Sea, Atlantic and Mediterranean. France targets to equip at least three ports with LNG refuelling on its inland waterways. France has taken steps to promote the deployment of a hydrogen refuelling infrastructure and funds several ongoing projects in this field. The French NPF has a big portfolio of measures, the great majority already in effect. France cooperates with neighbouring countries and other Member States to support EU-wide circulation for alternative fuels vehicles and cross-border continuity for alternative fuel infrastructure.

13 CROATIA

The Croatian National Policy Framework (NPF) addresses most of the requirements of the Directive. It does not contain vehicle estimates for the future deployment of electric vehicles. The given recharging points target, and especially fast recharging infrastructure, seems to cover the needs of electric vehicles in terms of number of publicly accessible recharging points as well as minimum coverage requirements in Croatia in 2020. Croatia currently has a sufficient network of CNG refuelling points when compared to CNG vehicles, but it does not meet the minimum coverage requirements. Regarding the 2025 minimum coverage target, the existing measure for the deployment of CNG refuelling points seems sufficient. Croatia already counts a high number of CNG buses and the future promotion of CNG vehicles for public transport is foreseen. The Croatian NPF plans two LNG refuelling points for heavy-duty vehicles in road transport until 2025 and seven until 2030. Moreover, the NPF plans one LNG refuelling point in maritime transport in 2025 and seven until 2030. Furthermore, two LNG refuelling points for inland waterways are planned until 2030. The NPF does not consider hydrogen for transport. Croatia cooperates with many Member States in projects concerning electro-mobility and LNG infrastructure deployment.

14 HUNGARY

The Hungarian National Policy Framework (NPF) addresses most of the requirements of the Directive. It contains a bandwidth of estimates for the future deployment of electric vehicles. The recharging points target and fast recharging infrastructure seems to cover the needs of electric vehicles. The NPF mentions that new gates at the Liszt Ferenc International Airport will feature ground power units. For shore-side electricity it targets a modest growth at its ports. Hungary currently does not meet the threshold of at least one CNG refuelling point per 600 CNG vehicles on the road. Regarding the 2020 minimum coverage target in terms of distance requirements, the existing measure for the deployment of CNG refuelling

points seems sufficient. Hungary already counts a high number of CNG trucks and buses and the NPF contains very ambitious estimates for 2020. The Hungarian NPF has firm plans for building 5 LNG road refuelling points for 2020 and more beyond. Moreover, the NPF states that Hungary should, already in 2020, appropriately cover LNG infrastructure (both on TEN-T Corridors and the Comprehensive Network) for road and inland waterways. Hungary has established targets for the deployment of a hydrogen refuelling infrastructure, accessible to the public. The NPF also contains a comprehensive list of measures that could have a medium impact on overcoming deployment barriers, especially in electro-mobility. Most of the existing or planned measures end in 2018 or earlier, with no prolongation foreseen.

15 IRELAND

The Irish National Policy Framework (NPF) partly addresses the requirements of the Directive. The distribution of recharging points meets the requirements and the actual number of public recharging points is also sufficient. However, the number of electric recharging points foreseen for 2020, 2025 and 2030 seem to be insufficient for the foreseen number of electric vehicles in Ireland. To increase the number of electric vehicles in Ireland, vehicle purchase and registration tax incentives exist since 2011. The Irish NPF does not include concrete plans for shore-side electricity supply for maritime ports and no targets for electricity supply for stationary airplanes. Regarding CNG, the current number of vehicles in Ireland is insignificant and the number of refuelling points is insufficient to cover the Irish territory, not fulfilling the distance requirement. In order to improve this situation, Ireland has established direct incentives for the installation of 5 public CNG points in 2017. The Irish NPF does not consider any LNG refuelling points. Ireland has committed to setting targets for the LNG facilities at the three TEN-T Core Network maritime ports. The Irish NPF does not include hydrogen. The Irish NPF contains a comprehensive list of financial support measures already in place for the support of electricity, CNG (biofuels included) and LPG vehicles and infrastructure. In terms of cooperation, the NPF states that the development of alternative fuels use has benefitted from close cooperation between the Republic of Ireland and Northern Ireland (UK).

16 ITALY

The Italian National Policy Framework (NPF) fully addresses the requirements of the Directive. The estimates for electric vehicles on the road are low. The Italian NPF has established sufficient 2020 targets for recharging points and ensures appropriate coverage of the TEN-T Core Network with fast recharging points. However, the NPF does not contain any estimates beyond 2020. Regarding electricity supply for stationary airplanes, no concrete targets are established. The Italian NPF puts a lot of emphasis on CNG, for which, already today, Italy has a dense network of public refuelling points, but does not meet the level of at least one CNG refuelling point per 600 CNG vehicles on the road. A number of 5 dual use LNG refuelling points for heavy-duty trucks are proposed in the NPF along the TEN-T Core Network by 2025. The Italian NPF considers the development of a LNG infrastructure for maritime applications as strategic and critical in the context of the implementation of the Directive. A plan for the deployment of hydrogen technologies has been developed, but the targets for hydrogen technologies appear too ambitious vis-à-vis the lack of financial coverage considered essential for their achievement. The Italian NPF contains a comprehensive list of measures, partially already in place in the case of CNG. Evidence of Italy's collaboration with other Member States has been found, mainly in the frame of European projects, especially of the TEN-T family.

17 LITHUANIA

The Lithuanian National Policy Framework (NPF) does not fully address the requirements of the Directive. It puts attention on electric vehicles without currently possessing a dense network of publicly accessible recharging points. The spatial distribution of recharging points does currently not cover the needs of vehicles in terms of distance requirements. The ratio of only one public recharging point per 12 electric vehicles estimated for 2020 may be seen as a risk to the further market deployment of electric vehicles. Lithuania, today, has 10 hybrid buses. Bicycles, as well as their infrastructure, also receive support. The NPF contains neither targets for increasing the availability of electricity supply for stationary airplanes nor for shore-side electricity. Lithuania currently has a sufficient network of CNG refuelling points. Targets for an increase of the number of CNG refuelling points by 2020 and 2025 are foreseen. Despite an existing fleet of 161 public transport buses with engines fuelled by LNG, no publicly accessible road LNG refuelling points are mentioned in the Lithuanian NPF. One LNG refuelling point for heavy-duty vehicles is targeted for 2025. According to the Lithuanian NPF, there are no further plans for an extension of LNG refuelling points in ports, besides the already existing LNG refuelling point in Klaipėda, Lithuania's only maritime port in the TEN-T Core Network. The NPF does not cover hydrogen for transport. The Lithuanian NPF contains a list of measures, most of them still under consideration and with little details revealed in the NPF. Lithuania is actively involved in coordinating and collaborating with other Member States on rail infrastructure.

18 LUXEMBOURG

The Luxembourg National Policy Framework (NPF) broadly addresses the requirements of the Directive. The NPF has ambitious plans in terms of recharging infrastructure and share of electric vehicles on the road in 2020. Bicycles and electric bikes also receive support. Luxembourg has a detailed action plan for the implementation of the public recharging infrastructure for electric vehicles (including the exact number of recharging points). The NPF foresees a small increase of available ground power units for stationary airplanes. The Merttert inland port does not have shore-side electricity and no targets are foreseen in the NPF. While the spatial distribution of recharging points seems to appropriately cover the needs of electric vehicles, the ratio of more than 22 electric vehicles per one recharging point for 2020 could evolve to become a barrier for the further market deployment of electric vehicles. This could also lead to market fragmentation within the EU. In the case of CNG, Luxembourg is pessimistic regarding its economic viability. Therefore, it plans the decrease of the number of refuelling points to two CNG refuelling points. The installation of a LNG refuelling infrastructure for road transport is envisaged for 2020. For the moment, the Luxembourg government decided not to include, in the current stage, refuelling points for hydrogen accessible to the public in its NPF. The Luxembourg NPF contains a comprehensive list of measures, most already in place. Luxembourg is actively involved in coordinating its plans on alternative fuels infrastructure with the Benelux countries and has signed a collaboration agreement with them.

19 LATVIA

The Latvian National Policy Framework (NPF) addresses only part of the requirements of the Directive. The Latvian NPF considers that the deployment of appropriate recharging infrastructure has a high priority for fostering electro-mobility. The NPF lacks sufficient information on electricity supply for

stationary airplanes. For vessels, two studies were carried out, concluding that the costs for the deployment of shore-side electricity supply for the ports of Riga and Ventspils outweigh the benefits. The Latvian NPF admits that the absence of a national policy plan has jeopardised the use of natural gas and hydrogen in transport. It has established targets for the deployment of CNG refuelling points accessible to the public. The targeted number of CNG refuelling points could support a significant increase of CNG vehicles. As indicated in the NPF, Latvia has no plans for the deployment of LNG refuelling points in its ports. The NPF does not consider hydrogen for transport.

20 MALTA

By 1st October 2017 (cut-off date for this Commission NPF assessment), Malta had not notified a National Policy Framework (NPF) to the Commission.

21 NETHERLANDS

The Dutch National Policy Framework (NPF) fully addresses the requirements of the Directive, except for the definition of future targets for CNG refuelling points. The Dutch NPF puts a lot of emphasis on electric vehicles, although the future estimated share of 1.5% EV seems low in comparison to the current share of EVs on the road (already above 1%). The Netherlands already has a considerable number of recharging points. Their spatial distribution seems to cover appropriately the needs of electric vehicles. The Netherlands has defined appropriate targets for recharging infrastructure in line with the requirements of the Directive. The Dutch NPF contains targets for further increasing shore-side electricity in its ports, but no targets for increasing the availability of electricity supply for stationary airplanes. Targets for LNG refuelling for vessels and heavy-duty trucks are defined in the NPF. The Dutch NPF displays a strong commitment towards hydrogen. The deployment of 20 publicly accessible hydrogen refuelling points is planned by 2020. The Dutch NPF contains a well-balanced portfolio of measures, mostly based on Administrative Agreements and public private cooperation. The Netherlands is coordinating and collaborating with other Member States as regards alternative fuels infrastructure.

22 POLAND

The Polish National Policy Framework (NPF) addresses most of the requirements of the Directive. The Polish NPF puts emphasis on the development of the market for electric and CNG cars; but still finds itself at an early stage of its development. In view of the low numbers of electric vehicles and CNG cars at the moment, Poland has a sufficient network of public recharging and CNG refuelling points. Beyond 2020, Poland, defined a very ambitious target of reaching more than one million of electric vehicles on the road by 2025. The support measures defined in the NPF may not be sufficient to ensure target achievement, considering that the EV share in Poland is very low today. The spatial distribution of recharging points seems to cover appropriately the needs of electric vehicles in terms of distance requirements. No targets are foreseen for increasing the availability of electricity supply for stationary airplanes. Also for shore-side electricity, the Polish NPF does not contain concrete targets. The planned LNG refuelling points for heavy-duty vehicles could guarantee that the maximum distance requirement for LNG refuelling points along the road TEN-T Core Network would be fulfilled on Polish territory. LNG refuelling is planned for all maritime and inland ports in the TEN-T Core Network. The Polish NPF displays no commitment towards hydrogen in the foreseeable future. The Polish NPF contains a

comprehensive list of measures; however, most of them are still only under consideration or in an early stage of the adoption process.

23 PORTUGAL

The Portuguese National Policy Framework (NPF) addresses most of the requirements of the Directive. Portugal started early to develop electric recharging infrastructure, however, the stock of electric vehicles has grown slowly. The future estimate of electric vehicles in Portugal is modest with a share of about 0.23% in 2020. The Portuguese NPF does not discuss electricity supply for stationary airplanes. Furthermore, the provision of shore-side electricity supply for vessels and seagoing ships is minimally addressed, but not articulated. There appears to be a need to fulfil the distance requirements for CNG along several routes of the TEN-T Core Network. In terms of LNG, the NPF defines 2025 targets, both for road and maritime transport. However, appropriate coverage of LNG refuelling seems not to be ensured for the complete road TEN-T Core Network. Given the weight of LPG in the Portuguese alternative fuels vehicle stock, the NPF offers a target for LPG refuelling points in 2020. The Portuguese NPF, at the moment, does not foresee any targets for hydrogen for transport. The NPF contains a relatively abundant list of policy measures, structured by type of alternative fuel but lacking a detailed description. The Portuguese NPF highlights at several instances the importance of MS cooperation, particularly with Spain.

24 ROMANIA

By 1st October 2017 (cut-off date for this Commission NPF assessment), Romania had not notified a National Policy Framework (NPF) to the Commission.

25 SWEDEN

The Swedish National Policy Framework (NPF) addresses only very few of the requirements of the Directive. It contains neither future estimates for alternative fuels vehicles nor any targets for alternative fuels recharging or refuelling infrastructure. This violates a basic requirement of the Directive. It can pose a serious risk to cross-border continuity and a functioning internal market for alternative fuels vehicles. The lack of clear targets for future electric vehicle market deployment jeopardises the assessment and may represent an obstacle to policy efforts towards electro-mobility. The Swedish NPF indicates regional discrepancies with regards to the share of natural gas use. No natural gas refuelling points can be found in large inland areas in Northern Sweden. The Swedish NPF highlights the role of biofuels in the country's transport sector and the fact that Sweden has already met the sectoral 2020 target set by the Renewable Energy Directive. The Swedish NPF stresses that no special infrastructure is required for biofuels and regards this as a cost-effective solution for road vehicles. At the same time, the NPF indicates that new flex-fuel car registrations have decreased dramatically in recent years (0.4% share in 2015). The Swedish NPF contains a relatively comprehensive portfolio of measures, implementing a solid policy package beneficial to the deployment of alternative fuels vehicles. Information on targets for alternative fuel infrastructure related to inland waterways, airports and private electro-mobility is inadequate.

26 SLOVENIA

By 1st October 2017 (cut-off date for this Commission NPF assessment), Slovenia had not notified a National Policy Framework (NPF) to the Commission.

27 SLOVAK REPUBLIC

The Slovak National Policy Framework (NPF) partly addresses the requirements of the Directive. The Slovak NPF puts a comparably low emphasis on electric vehicles and estimates only 0.5% electric vehicles on the road in 2020. The number of electric recharging points foreseen for 2020 and 2025 seems not sufficient to cover the needs of Slovakia in terms of number of the estimated number of vehicles and distance requirements. This could evolve to become a barrier for the further deployment of electric vehicles in Slovakia and could also lead to market fragmentation within the EU. Purchase incentives have been defined to increase the number of electric vehicles in Slovakia. The Slovak NPF discusses electricity for stationary airplanes at the Bratislava TEN-T Core Network airport but does not specify targets. The available number of CNG refuelling points, and the ones planned for 2020 and 2025, are sufficient to pass the threshold value of one CNG refuelling point per 600 vehicles today and in the future. The Slovak NPF considers that at least two LNG refuelling points for heavy-duty vehicles will be required. The construction of LNG bunkering facilities in the two TEN-T Core Network inland ports (Bratislava and Komárno) are planned and measures are proposed to support the construction of these LNG facilities on the Slovak section of the River Danube. The Slovak NPF does not include hydrogen. LPG is covered by a relatively large nationwide network of refuelling points and the infrastructure is constantly expanding. The Slovak NPF contains a comprehensive list of support measures for electricity for vehicles. Slovakia has cooperated with the Czech Republic within the Connecting Europe Facility programme and, since 2013, also assisted in the implementation of the TEN-T project LNG Masterplan for the Rhine - Main - Danube Corridor.

28 UNITED KINGDOM

The UK National Policy Framework (NPF) addresses all of the requirements of the Directive. It contains relatively high estimates for the future deployment of electric vehicles with an estimated roughly 1.1% electric vehicles on the road in 2020. Today, the spatial distribution of recharging points seems to appropriately cover the needs of electric vehicles in terms of distance requirements. For the future, the targeted ratio of less than one public recharging point per 30 electric vehicles estimated for 2020 could evolve to become a barrier for the further market deployment of electric vehicles. Shore-side electricity is not considered to be currently a commercially attractive proposition. In view of the lack of distinction in the NPF between LPG, CNG and LNG vehicles, it is difficult to understand the current market status for those fuels. Future CNG or LNG vehicle estimates are missing in the NPF. This makes an assessment of the future situation impossible. Even though targets are provided there is a lack of information on their future spatial distribution for recharging points and CNG and LNG refuelling points in the UK. The UK currently offers LNG refuelling in 2 (out of 15) maritime ports in the TEN-T Core Network and 2-3 additional facilities are considered before 2025, allowing for the circulation of LNG vessels as required in the Directive. The UK NPF displays a commitment towards developing an early market for hydrogen in 2025 timeframe, targeting the availability of 65 publicly accessible refuelling points. The UK NPF contains a quite comprehensive list of measures, the great majority of them are in force and foreseen to

stay. The UK did not present any evidence of coordinating its plans on alternative fuels infrastructure with other countries.