

- **Lithuania (LT)**

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

In its original assessment of the Lithuanian NPF the Commission concluded:

*The Lithuanian NPF does not fully address the requirements of Article 3. A short discussion on the current state and future scenarios for alternative fuels in the transport sector in Lithuania is presented in the NPF. Targets as required by Article 3 of the Directive were established for CNG, LNG, and electricity for vehicles.*

*The Lithuanian NPF places attention on electric vehicles without possessing currently a dense network of publicly accessible recharging points. The spatial distribution of recharging points does not currently 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. It may be important to closely monitor this development and correct infrastructure targets in line with the market developments. Lithuania, today, has 10 hybrid buses (electricity + CNG). Bicycles as well as their infrastructure also receive support. The NPF neither contains any 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. However, as the NPF does not provide estimates for the future deployment of CNG vehicles, their CNG infrastructure sufficiency for 2020 cannot be assessed.*

*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, however, still under consideration with little details revealed in the NPF. Most of them can be considered having a low or medium impact on market actor's decisions. Their low implementation status could create uncertainty for market actors and hence decrease the likelihood that the national targets and objectives of the NPF could be reached.*

*The interests of regional and local authorities, as well as stakeholders have been considered during the drafting of the Lithuanian NPF. Further coordination is planned in order to ensure follow-up of the implementation actions, collaboration among authorities and advice from stakeholders.*

*Lithuania is actively involved in coordinating its plans on rail infrastructure with other Member States as well as collaborating with them in this field. Beyond that, the NPF does not mention any cooperation or coordination in the field of alternative fuels.*

▪ **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.	All / Electricity, CNG, LNG, H2, biofuels		Yes
ANNEX I: 2. Policy measures supporting the implementation of the national policy framework	Information on those measures shall include the following elements: <ul style="list-style-type: none"> <li>• direct incentives for the purchase of means of transport using alternative fuels or for building the infrastructure,</li> <li>• availability of tax incentives to promote means of transport using alternative fuels and the relevant infrastructure,</li> <li>• use of public procurement in support of alternative fuels, including joint procurement,</li> <li>• demand-side non-financial incentives, for example preferential access to restricted areas, parking policy and dedicated lanes,</li> <li>• technical and administrative procedures and legislation with regard to the authorisation of alternative fuels supply, in order to facilitate the authorisation process.</li> </ul>	Road, rail, waterborne / Electricity, CNG, LNG, H2, biofuels		Yes
	<ul style="list-style-type: none"> <li>• consideration of the need for renewable jet fuel refuelling points in airports within the TEN-T Core Network</li> </ul>	Air	Biofuels	No
ANNEX I: 3. Deployment and manufacturing support	<ul style="list-style-type: none"> <li>• Annual public budget allocated for alternative fuels infrastructure deployment, broken down by alternative fuel and by transport mode (road, rail, water and air).</li> </ul>	Road, waterborne, air / electricity, CNG, LNG, H2		Yes
	<ul style="list-style-type: none"> <li>• Annual public budget allocated to support manufacturing plants for alternative fuels technologies, broken down by alternative fuel and by transport mode.</li> </ul>			No
	<ul style="list-style-type: none"> <li>• Consideration of any particular needs during the initial phase of the deployment of alternative fuels infrastructures.</li> </ul>			No
ANNEX I: 4. Research, technological development and demonstration	<ul style="list-style-type: none"> <li>• Annual public budget allocated to support alternative fuels RTD&amp;D, broken down by fuel and by transport mode.</li> </ul>	Road, waterborne / electricity, LNG, CNG		Yes
ANNEX I: 5. Targets and objectives	<ul style="list-style-type: none"> <li>• Estimation of the number of alternative fuel vehicles expected by 2020, 2025 and 2030</li> </ul>	Road, waterborne / electricity, LNG, CNG		Yes
	<ul style="list-style-type: none"> <li>• Level of achievement of the national objectives for the deployment of alternative fuels in the different transport modes (road, rail, water and air)</li> </ul>	Road, waterborne / electricity, LNG, CNG, LPG		Yes
	<ul style="list-style-type: none"> <li>• Level of achievement of the national targets, year by year, for the deployment of alternative fuels infrastructure in the different transport modes</li> </ul>	Road, waterborne / electricity, LNG, CNG, LPG		Yes
	<ul style="list-style-type: none"> <li>• Information on the methodology applied to take account of the charging efficiency of high power recharging points</li> </ul>			No
ANNEX I:6 Alternative fuels infrastructure developments	Changes in supply (additional infrastructure capacity) and demand (capacity actually used)	Road / CNG, biofuels, LPG		Yes

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

Regarding the combination of AF/AFV/AFI with transport mode, electricity is covered for all transport modes; CNG, LNG, hydrogen and LPG are covered for road transport (but LPG only in terms of AFI); LNG is covered also for waterborne transport (both inland and maritime); all the other combinations are either absent or not applicable.

The LT NIR reports 44 measures. Under the Policy and Deployment & Manufacturing sections it was possible to identify nine AF/transport mode clusters of measures, of which eight were assessable.

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

The Lithuanian NIR signals that *“It should be noted that the previously planned targets and measures are currently being reviewed in the light of the EU’s GHG reduction targets for the transport sector”*. National objectives and targets according to the National Energy and Climate Action Plan of the Republic of Lithuania for 2021-2030 are also mentioned: *“The transport sector is aiming at a gradual shift towards cleaner fuels and electricity, and therefore, in line with the EU’s commitments, the aim is to achieve a 10 per cent RES share by 2020 and a 15 percent RES share by 2030. However, Lithuania, like other Member States, is struggling to achieve the RES-T target for 2020 due to relatively high investment in the renewal of the vehicle fleet, which consists mainly of almost 1.5 million cars, 69% of which are diesel cars, with an average age of 15 years. For this reason, it is likely that the 2020 target will not be achieved by 2020 and the share of RES-T will be around 5 per cent.”*

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	1,556	212	3,011	298	51,535	310	248,563	15,055
	Change NIR vs NPF [%]			150.92%	198.00%		210.00%		
	Attainment [%]			51.68%	71.14%	3.02%	68.39%	0.63%	1.41%
CNG / road	NIR	405	4	565	8	1,500	13	12,300	28
	Change NIR vs NPF [%]				-20.00%		30.00%		
	Attainment [%]			71.68%	50.00%	27.00%	30.77%	3.29%	14.29%
LNG / road	NIR	207	2	NA	NA	310	3	1,075	5
	Change NIR vs NPF [%]						200.00%		
	Attainment [%]					66.77%	66.67%	19.26%	40.00%
LNG / water (maritime)	NIR	1	1	1	1	1	1	1	1
	Change NIR vs NPF [%]				0.00%		0.00%		
	Attainment [%]			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
LNG / water (inland)	NIR	0	0	0	0	1	1	6	1
	Change IR vs NPF [%]						0.00%		
	Attainment [%]								
Shore-side electricity supply / water (inland)	IR		0		0		0		3
	Change NIR vs NPF [%]								
	Attainment [%]								
Electricity supply / air (stationary airplanes)	NIR		37		44		45		45
	Change NIR vs NPF [%]								
	Attainment [%]				84.09%		82.22%		82.22%
H2 / road	NIR	0	0	1	0	65	2	1,250	10
	Change NIR vs NPF [%]								
	Attainment [%]								
LPG / road	NIR	109,575	664	NA	559	NA	555	NA	545
	Change NIR vs NPF [%]								
	Attainment [%]								

Legend:

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

- Road transport
  - Electricity

### *Vehicles*

Lithuania reported a total of 1,556 electric vehicles in use in 2018 (Table Error! *No text of specified style in document.*-2), of which 1,539 were passenger cars, 16 LCVs and one HCV. On top of that, the LT NIR reports 406 electric buses and coaches, but this number probably includes also trolleybuses, which do not fall under the scope of this assessment. The LT NIR reports also 132 PTWs in use in 2018. The Lithuanian NIR presents a new plan with increased ambition compared to the NPF and almost triples the EV estimates for 2020 (3,011 vs. 1,200 in the NPF). For the years 2025 and 2030, new estimates have been set (not given in NPF) for a total of 46,066 passenger cars and 5,469 LCVs by 2025, and a total of 230,332 passenger cars and 18,231 LCVs by 2030. The heavy-duty sector is excluded from future estimates in the LT NIR<sup>1</sup>. The report mentions that registration of ICE vehicles after 2030 will not be possible.

Therefore the level of ambition in the Lithuanian NIR has increased in comparison to the NPF.

The 2018 *attainment* of future electric light-duty vehicles estimates is 51.68% for 2020 and 0.63% for 2030. According to the assessment methodology described in Section 2.1, the 2018 situation corresponds to an *adequate progress* towards reaching the envisaged estimates. The calculated *average annual growth rate* corresponding to the period 2016-2030 for electric light-duty vehicles fleet evolution planned by Lithuania is equal to 61%.

### *Infrastructure*

Lithuania reported 212 publicly accessible recharging points, of which 192 were high power (>22kW) recharging points and 20 normal power (≤22kW) recharging points. The Lithuanian NIR significantly increased the targets and ambition for public infrastructure in 2020 and 2025 compared to the NPF, as well as provided a new target for 2030. The revised targets of publicly accessible recharging points for 2020 and 2025 are 198% and 210% higher than those presented in NPF, however the revised target for 2025 does not seem sufficient to cope with the vehicle estimate for the same year. For 2030, Lithuania plans to have 15,055 public recharging points. The LT NIR also highlights the plan to have 60,000 private recharging points in 2030.

The 2018 *attainment* of future public recharging infrastructure targets is 71.14% for 2020 and 1.41% for 2030. According to the assessment methodology described in Section 2.1, the 2018 situation corresponds to an *adequate progress* towards reaching these envisaged targets. The calculated *average annual growth rate* corresponding to the period 2016-2020 for publicly accessible recharging infrastructure evolution planned by Lithuania is equal to 66%.

### *Ratio*

Based on the LT NIR, the following table shows the ratio between vehicles and publicly accessible recharging points (i.e. sufficiency index) for the pair electricity/road. As it can be seen, the sufficiency index was very high (and inadequate) in 2016, but has adjusted in 2018.

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<sup>1</sup> Since the estimates indicated for the next decade in the LT NIR address only the M1 and N1 categories of electric vehicles, the progress and attainment calculations only refer to light-duty vehicles. This implies also that the uncertainty about inclusion of trolleybuses in the number given for electric buses in 2018 by the LT NIR does not influence the progress and attainment results since the heavy-duty vehicles were not considered.

Also for 2020 the sufficiency index is close to the value of 10 and adequate. A big unbalance between EVs and public recharging points is foreseen in 2025, which, according to LT NIR data, should be mostly solved until 2030.

Sufficiency Index		2016	2017	2018	2020	2025	2030
Electricity	road	72.60	21.79	7.33	10.10	166.24	16.51

#### *Information on charging efficiency*

Lithuanian NIR did not provide direct information on charging efficiency of high power (>22kW) recharging points, but it reported the following: “There are currently 25 combined charging stations along national roads (three types: AC, DC CHAdEMO and DC Combo). Two electric vehicles can be charged at the same time at one station (AC and DC connectors). The number of connections to individual stations ranges between 195 and 40,533 per month (as observed in the period from May 2019 to October 2019); for October, for instance, the average number of connections was 5,095 and the average electricity consumption was 2,217 Kwh.”

- CNG

#### *Vehicles*

Lithuania reported that 405 CNG vehicles were in use in 2018, of which 100 were passenger cars, 3 LCVs, 2 HCVs and 300 buses and coaches.

As regards to the years 2020, 2025 and 2030, the LT NIR provides new estimates (respectively 565, 1,500 and 12,300 vehicles). These were absent in the NPF. The new estimates specify also that the biggest growth is expected in numbers of CNG passenger cars (10,000 in 2030), but 500 LCVs, 1,000 HCVs and 800 buses and coaches are also foreseen.

The 2018 **attainment** of future CNG vehicles estimates is 71.68% for 2020 and 3.29% for 2030. According to the assessment methodology described in Section 2.1, the 2018 situation corresponds to a **slow progress** towards reaching the envisaged CNG vehicles estimates. The calculated **average annual growth rate** corresponding to the period 2016-2030 for the CNG vehicle fleet evolution planned by Lithuania is equal to 28%.

#### *Infrastructure*

Lithuania reported four publicly accessible CNG refuelling stations in 2018 (plus six private). The LT NIR reports that Lithuania aims to achieve 8 public CNG refuelling points in 2020 (20% less than in the NPF), 13 in 2025 (30% more than in the NPF) and 28 in 2030 (there was nothing in the NPF). The number of private CNG refuelling points is expected to decrease from the current six, to four in 2020 and two in 2025 and 2030.

The 2018 **attainment** of future public CNG refuelling infrastructure targets is 50% for 2020 and 14.29% for 2030. According to the assessment methodology described in Section 2.1, the 2018 situation corresponds to a **slow progress** towards reaching these envisaged targets. The calculated **average annual growth rate** corresponding to the period 2016-2025 for publicly accessible CNG refuelling infrastructure evolution planned by Lithuania is equal to 14%.

### Ratio

Based on the LT NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair CNG/road. The sufficiency index is always below the indicative value of 600 (see Section 2.1.5).

Sufficiency Index		2016	2017	2018	2020	2025	2030
CNG	road	88.00	94.50	101.25	70.63	115.38	439.29

### ○ LNG

### Vehicles

Lithuania reported 207 LNG vehicles in 2018 (Table Error! No text of specified style in document.-2). They were mainly buses and coaches (172) and 35 passenger cars. Regarding the next decade, the LT NIR proposes new estimates for 2025 and 2030 (not present in NPF), while 2020 is not addressed. The LT NIR aims to achieve 310 LNG vehicles in 2025 and 1,075 in 2030. This estimated growth is planned mainly for the HCVs (300 in 2025 and 1,000 in 2030), but 50 LCVs and 25 buses and coaches are also expected in 2030. For the LNG vehicles the level of ambition in the LT NIR is higher than presented in NPF.

The 2018 *attainment* of future LNG vehicles estimates is 66.77% for 2025 and 19.26% for 2030. According to the assessment methodology described in Section 2.1, the *progress* obtained by Lithuania from 2016 until 2018 for LNG vehicles deployment is 3.45% of the overall planned deployment during the period 2016-2030.

### Infrastructure

The LT NIR reports two public LNG refuelling points in 2018. The NIR provides also increased target for 2025 (three versus one in the NPF) and a new target of 5 public refuelling points for 2030 (2020 is not addressed). Also for the LNG infrastructure the level of ambition in the LT NIR is higher than in the NPF.

The 2018 *attainment* of future public LNG refuelling infrastructure targets is 66.67% for 2020 and 40% for 2030. According to the assessment methodology described in Section 2.1, the progress obtained by Lithuania from 2016 until 2018 for public LNG refuelling infrastructure deployment is 40% of the overall planned deployment during the period 2016-2030.

### Ratio

Based on the LT NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair LNG/road. The sufficiency indexes for 2016, 2017 and 2020 could not be computed as targets for infrastructure were not indicated.

Sufficiency Index		2016	2017	2018	2020	2025	2030
LNG	road			103.50		103.33	215.00

- Hydrogen

#### *Vehicles*

Lithuania recorded no hydrogen vehicle in use in 2018, but the LT NIR reports estimates for the number of hydrogen vehicles in 2020, 2025 and 2030 (all absent in NPF), which are 1, 65 and 1,250 respectively. As for 2030, 1,000 passenger cars, 100 LCVs, 50 HCVs and 100 buses and coaches are expected.

Because at the end of 2018 there were no hydrogen vehicles deployed, the 2018 **attainment** and **progress** have not been computed.

#### *Infrastructure*

The LT NIR does not report nor foresees any public hydrogen refuelling point in operation for the years from 2016 until 2020. However the LT NIR provides new targets for 2025 and 2030 (not reported in NPF), of respectively 2 and 10.

Because at the end of 2018 there are no hydrogen refuelling points deployed, the 2018 **attainment** and **progress** have not been computed.

#### *Ratio*

Based on the LT NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair hydrogen/road. Obviously the sufficiency indexes could be computed only for the years 2025 and 2030.

Sufficiency Index		2016	2017	2018	2020	2025	2030
Hydrogen	road					32.50	125.00

- Biofuels

#### *Vehicles*

The LT NIR only provides information that “*Biofuels are used for blending in petrol and diesel strictly in the manner provided for in national legislation. Lithuania aims to gradually transition to advanced biofuels produced from secondary waste. The ratios of biofuel blending in fossil fuels are increasing*”.

#### *Infrastructure*

Information is not available in the Lithuanian NIR.

- LPG

#### *Vehicles*

Lithuania reported 109,576 LPG vehicles in 2018 (Table Error! No text of specified style in document.-2), of which 108,565 passenger cars, 503 LCVs, 623 HCVs, and 87 buses and coaches. For the next decade, the LT NIR does not propose any estimate.



Because there are no LPG vehicle estimates, the 2018 *attainment* and *progress* could not be computed.

*Infrastructure*

The LT NIR reports 664 public LPG refuelling points in 2018. This number is expected to slowly decrease in the next decade, to reach a value of 545 public refuelling points in 2030.

Because the Lithuanian NIR provided decreasing targets for publicly accessible LPG refuelling infrastructure, the 2018 *attainment* and *progress* have not been computed.

*Ratio*

Based on the LT NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair LPG/road. Clearly, the sufficiency index for 2020, 2025 and 2030 could not be computed as the number of vehicles was not indicated.

Sufficiency Index		2016	2017	2018	2020	2025	2030
LPG	road	179.31	170.83	165.02			

- Rail transport
  - Electricity

*Vehicles*

The LT NIR reports that the implementation plan of the National Transport Development Programme (see Section 5.15.4.1) includes also the purchase of electric trains. The NIR also reports 13 electric locomotives in 2018, presumably new ones, and indicates 13 electric locomotives also for 2020, 22 for 2025 and 22 for 2030.

The 2018 *attainment* of future electric locomotives estimates is 100% for 2020 and 59.09% for 2030. According to the assessment methodology described in Section 2.1, the *progress* obtained by Lithuania from 2016 until 2018 for electric locomotives deployment is 59.09% of the overall planned deployment during the period 2016-2030.

*Infrastructure*

With reference to rail infrastructure, the LT NIR provides no numerical information but only a reference to the plan to proceed with the further electrification of rail with a budget of 250 million € up to 2020 (see Section 5.15.4.2.2).

- Waterborne transport (maritime)
  - Electricity

*Vessels*

Information is not available in the Lithuanian NIR.

### *Infrastructure*

The LT NIR reports that, as Klaipėda State Seaport (KSS) is already equipped with facilities that can be used by operators of ships, no additional need of shore-side electricity supply facilities is foreseen.

- LNG

### *Vessels*

The LT NIR reports one LNG seagoing ship in service since 2016, which will continue until 2030.

### *Infrastructure*

Lithuania recorded one LNG refuelling point in its TEN-T Core port of Klaipėda in 2018. This LNG terminal has been in operation since December 2014, and recently the focus is put on Liquefied Natural Gas Distribution Station (LNG DS), which is an above-ground LNG terminal operated on a third-party access basis. The LNG DS is designed to receive LNG from small-scale carriers, to store it temporarily and to transfer it to LNG tank vehicles or vessels. LNG may also be loaded in ISO-compliant standard-sized containers which can be transported by rail and road. The LT NIR confirms this infrastructure until 2030.

- Waterborne transport (inland)
  - Electricity

### *Vessels*

Information is not available in the Lithuanian NIR.

### *Infrastructure*

Lithuania did not record any shore-side electricity supply in 2018, but the LT NIR reports the plan to have three shore-side electricity supply for inland waterway vessels or recreational crafts in inland ports by 2030. The potential locations are Kaunas Lagoon pier, Nida pier and Uostdvaris inland waterway port.

Because at the end of 2018 there are no shore-side electricity supply points deployed in the inland ports, the 2018 **attainment** and **progress** have not been computed.

- LNG

### *Vessels*

The LT NIR reports that the first LNG inland waterway vessels is foreseen for 2025, followed by other five by 2030.

### *Infrastructure*

Lithuania did not record any LNG refuelling point for inland waterway vessels in 2018, but the LT NIR mentions the proposal by the Lithuanian Inland Waterway Authority to establish a LNG refuelling point in Marvele cargo pier (Kaunas).

Because at the end of 2018 there are no LNG refuelling points in inland ports, the 2018 **attainment** and **progress** have not been computed.

- Air transport
  - Electricity

### *Airplanes*

Information is not available in the Lithuanian NIR.

### *Infrastructure (for stationary airplanes)*

Lithuania recorded 37 electric power supply points for stationary airplanes, in use since 2016. This number is expected to increase to 44 points in 2020, and 45 points in 2025 and 2030. Since, according to the LT NIR, Lithuania's international airports already have the necessary infrastructure to supply electricity to stationary airplanes, no additional need for electricity supply facilities at airports is expected.

The 2018 **attainment** of future targets for electricity supply points for stationary airplanes is 84.09% for 2020 and 82.22% for 2030. According to the assessment methodology described in Section 2.1, the **progress** obtained by Lithuania from 2016 until 2018 for the deployment of electricity supply points for stationary airplanes is 0% of the overall planned deployment during the period 2016-2030.

- Biofuels

### *Airplanes*

Information on flights / airplanes powered by biofuels is unavailable in the Lithuanian NIR.

### *Infrastructure*

Information is not available in the Lithuanian NIR.

#### ▪ **Measures assessment**

The LT NIR contains an extensive and wide-scope portfolio of measures, but it often lacks a sufficient description, which makes the assessment results less robust. The majority of the reported measures focus on electricity and CNG and on road as transport mode. In comparison to the NPF the measures in the LT NIR include hydrogen, which is an additional value to the program. Also the focus on LNG development continues to be strong in Lithuania, both for water and road transport.

- Legal measures

The Lithuanian NIR contains 18 legal measures (versus 8 in the NPF) to promote AFs. The description of the measures is short and lacks relevant content.

The bases of the LT NIR legal measures are defined in the National Transport Development Programme for 2014-2022, containing policies for the development of alternative fuels and the implementation plan. The programme provides measures such as purchase of electric trains, installation of electric recharging points and the installation of LNG and CNG refuelling points.

The Law on Alternative Fuels is foreseen ‘*to be adopted in 2020*’ to clearly regulate issues related to alternative fuels, alternative fuel vehicles and refuelling/recharging infrastructure for alternative fuels. The LT NIR reports also on the 2019 draft of Lithuanian National Energy and Climate Plan<sup>2</sup>, and the preparation of the Lithuanian Transport Development Strategy up to 2050<sup>3</sup>. The latter document describes also interactions between existing and planned policies and measures.

An overall assessment of the legal measures is that the LT NIR shows an increased ambition level compared to the NPF.

- Legislative & Regulatory

Lithuania lists ten legislative and regulatory measures in its NIR, of which six are new compared to the NPF. Reported measures are proposed on the basis of the following acts:

- *Renewable Energy Act*, indicates targets of 10% RES share in transport and biofuels blending obligation;
- *Law on Alternative Transportation*, intended to draw the main concepts of alternative transportation, giving a clear direction for the market participants. It would include biofuels, biogas and electricity use in transport, the main targets and obligations, and also requirements for refuelling stations;
- *Electricity Law of the Republic of Lithuania*;
- *Gas Law of the Republic of Lithuania*.

Other regulatory measures reported in LT NIR are tackling public guidelines for the development of electric charging infrastructure, and are also derived from the following strategic documents:

- *National Transport Development Programme 2014-2022*, where the Objective 4 of the programme is to increase energy efficiency in transport and reduce the adverse impact of transport on the environment;
- *National Energy Independence Strategy*, with the goal to achieve independence from fossil fuels in both electricity generation and heating, by taking advantages of LNG development related to transport;
- *National strategy for climate change management*, tackling the mitigation in the areas of adaptation to the effects of climate change.

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<sup>2</sup> The National Energy and Climate Action Plans are documents EU Member States (including Lithuania) were required to submit to the European Commission until 31 December 2019 after the Energy Union Governance Regulation came into force at the end of 2018. [https://ec.europa.eu/energy/sites/ener/files/documents/lt\\_final\\_necp\\_main\\_en.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/lt_final_necp_main_en.pdf)

<sup>3</sup> Expected to be completed in 2020.

- Administrative

The Lithuanian NIR reports on eight administrative measures.

- The *Law of the Republic of Lithuania on Energy from Renewable Sources* sets the basis for:
  - Guarantee of origin (GO) system, where gaseous fuels can have their origin proved and the GOs are issued electronically for each MWh of energy. The target is that 100% of biogas producers should be registered in the system by 2030;
  - Discount for biogas production infrastructure connection to the grid (40%);
  - Self-certification scheme, which is a control system establishing the compliance of biofuels with sustainability criteria;
- Within the implementation of the Directive 2014/94/EU, the following procedures have been indicated:
  - Assignment of Responsibilities and Provisions of Information on Directive 2014/94/EU<sup>4</sup>;
  - The use of electrical equipment;
  - Changes to service station operating rules;
  - Description of the procedure for the provision of information on the fuel used by motor vehicles;
  - Requirements for installing Electro-computer Charging Infrastructure in residential and non-residential buildings with a parking space.
- Policy measures

The main focus in the LT NIR is on electric vehicles, but CNG and LNG on roads are also developing. LNG for waterborne transport (inland) is being addressed as well. The available financial instruments are not clearly defined in the LT NIR, but the measures have a wider scope compared to the NPF (for example, there are incentives not only for the purchase of new alternative fuel vehicles/vessels, but (in the case of waterborne transport) also for the replacement of old engines with new ones, running on alternative fuels). In comparison to NPF, hydrogen is also acknowledged and supported in the NIR. Lithuania reports the completion of optimisation of airport infrastructure as their international airports already have the necessary infrastructure to supply electricity to stationary airplanes, and there is no additional need for electricity supply facilities at airports. Lithuania also reports that Klaipėda State Seaport (KSS) and some of the country's inland ports are already equipped with shore-side electricity supply facilities that can be used by operators of ships berthed off shore, and there is also no need to deploy additional facilities.

The policy direction in Lithuania is presented in National Energy and Climate Action Plan of the Republic of Lithuania for 2021-2030, which focuses on addressing issues of EU's climate change and energy policy, but amongst others presents policies and measures for increasing the use of renewables in transport and its role in decarbonisation. This Action Plan presents existing, as well as planned up to 2030 policy measures in the transport sector. Taking into

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<sup>4</sup> provided by the Resolution of the Government of the Republic of Lithuania No 86 of 1 February 2017 amending Resolution of the Government of the Republic of Lithuania No 1253 of 18 December 2013 approving the National Transport Development Programme for 2014-2022.

consideration that this plan is not a part of the LT NIR, it has been used as a back-up source of information, but only the measures reported by Lithuania in its NIR were assessed.

○ Measures to ensure national targets and objectives

The large majority of policy measures described in the Lithuanian NIR can be categorised as measures to ensure national targets and objectives. There are 20 of them (of which 11 financial, and 9 non-financial), mainly related to road transport, but including also LNG and electricity with their applicable transport modes.

*Road*

Two of the financial incentives involve taxation: vehicle registration/re-registration fees related to pollution (starting from 2020) and excise duty exemption for natural gas consumed in transport (existing since 2018). Although both of them were present also in the NPF, some changes have been brought. The excise duty exemption for natural gas is planned to be modified in order to promote other alternative fuel use (but not LPG) for the development of related infrastructure. On the other hand very limited information was given on the registration fees, stating only that: *“From next year (excel: 2020) the registration and re-registration of polluting vehicles would be taxed. Polluting vehicles are those which have a petrol and / or gas engine with a CO<sub>2</sub> emissions greater than 130 g/km and a diesel engine with a CO<sub>2</sub> emissions above 115 g/km.”*

The LT NIR also reports policy measures dealing with subsidies, in particular:

- Support to municipalities to purchase electric and other alternative fuel buses (43 million € in the period 2017-2020);
- Installation of primary necessary infrastructure for electric recharging points near state roads and in municipalities with a population >25,000 (2 million € in 2018-2020);
- Co-financing the purchase of natural gas buses that could be fuelled also with compressed biomethane gas, only for public transportation (37 million € in 2020-2030);
- Deployment of the measures of sustainable mobility (30 million € in 2019-2020);
- Reconstruction and development of pedestrian and bicycles paths (10.3 million € in 2017-2020) – this measure was excluded from assessment and clustering, as not directly referring to the AFID deployment, but was considered in the overall Lithuanian (climate) policy goals achievement.

The LT NIR reports also about the measure implemented from the EU funds in 2017 that allows for *“no charge fees for electric cars for 5 years at electric access points near national roads and municipalities”*, but does not give any further information.

Finally the LT NIR refers about a series of measures planned for the period 2022-2030, with a total budget of 900 million € (no allocations), as for example:

- incentives / subsidies for the purchase of pure electric vehicles, for the installation of electric vehicle recharging points;
- strengthening of national legislation to promote electric mobility and infrastructure development: obligation to provide recharging points in new or refurbished buildings and parking areas; obligation for new/refurbished conventional fuel stations adjacent to state roads to provide EV recharging access;
- widespread social dissemination, public awareness, habit building, pilot projects;

- annual taxes on internal combustion engine cars linked to pollution;
- creation of zero emission zones in cities.

#### *Waterborne transport*

The LT NIR reports two planned measures on financial incentives originating from the *Draft air pollution reduction plan*<sup>5</sup>. The first is to support building of new cargo vessels and barges with a budget of 50 million € for 2021-2030 period. The second refers to the replacement of current vessel engines with new, alternative fuel powered engines, and with a budget of 2 million € for 2021-2025.

Regarding shore-side electricity supply, the LT NIR states that, as Klaipėda State Seaport (KSS) and some of the inland ports are already equipped with shore-side electricity supply facilities, there is no need to deploy additional facilities.

#### *Other transport modes*

Optimisation of airport infrastructure of Lithuania's international airports is reported as completed in terms of the necessary infrastructure to supply electricity to stationary airplanes. Therefore the LT NIR declares no additional need for electricity supply facilities at airports.

- Measures that can promote AFI in public transport services

Eight of the policy measures described in the Lithuanian NIR can be categorised also as measures that can promote AFI in public transport services. Two of them are existing measures and refer to sustainable mobility plans and incentives for municipalities to buy alternative fuel buses.

Six new measures are reported as not fully operative yet. They aim at further AFI development, AFV rollout and public awareness.

#### *Buses*

The LT NIR reports on measures applied to support public transport only in tabularised way. One measure is planned to support the purchases of natural gas buses for public transportation, which could be driven on compressed biomethane gas. Partial compensation of investment costs is foreseen for the 2021-2030 period, with a budget of 37 million €. This measure seems to be a continuation of the support to municipalities to purchase electric and other alternative fuel buses, which counted 43 million € in 2017-2020.

#### *Rail*

The LT NIR reports on further electrification of rail, as a measure being implemented from EU funds. The total estimated budget is 250 million € for 2020.

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

Private electro-mobility infrastructure deployment has not been covered in the implementation period (2016-2018). However, in the package of measures under discussion for the period 2022-

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<sup>5</sup> National Energy and Climate Action Plan of the Republic of Lithuania for 2021-2030.

2030 with a total budget of 900 million € (described earlier) a measure is included regarding the obligation to provide recharging points in new or refurbished buildings.

- Deployment and manufacturing support
  - AFI deployment

The Lithuanian NIR lists three Deployment measures (there were two in the NPF). The first is related to a proposal, under adoption, to build four normal power ( $\leq 22\text{kW}$ ) and eight high power ( $> 22\text{kW}$ ) road recharging points, one recharging point for stationary airplanes, five CNG refuelling points and two hydrogen refuelling points. The second measure (also under adoption) relates to the construction of an LNG infrastructure at the inland port in Marvele cargo pier (Kaunas). Finally, the LT NIR reports that the biggest challenge at present remains the installation of recharging infrastructure in towns outside large cities and along national roads in commercially unattractive places (complex/expensive installation). Therefore the possibility of subsidising the installation/purchase of electric recharging points in such places is reported as under consideration.

- Support of manufacturing plants for AF technologies

Information on support of manufacturing plants for AF technologies is unavailable in the LT NIR.

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

Information is not available in the Lithuanian NIR.

- Quantitative assessment of Policy and Deployment & Manufacturing measures

Table *Error! No text of specified style in document.-3* presents an analysis of all the Policy and Deployment & Manufacturing measures, carried out according to the assessment methodology described in Section 2.2. As it can be seen, several clusters of measures have been identified, however it shall be remarked that the description of the measures and the level of details provided in the LT NIR are not sufficient to carry out a robust assessment. Notwithstanding this, an attempt has been made to provide some insight. Nine clusters of measures have been identified and none of them obtains an overall high score. Only the clusters for electricity/road, CNG/road, LNG/road and hydrogen/road result to be comprehensive, while all the others are 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, keeping in mind the caveat mentioned earlier, it can be said that the measures for the pairs electricity/road and CNG/road might have a medium impact, while all the others might have a lower impact.

Compared to the NPF, the level of ambition of the Policy and Deployment & Manufacturing measures support measures has increased for all pairs.



*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	M	C	M	+
LNG	Road	L	C	L	+
	Water - maritime	L/M	N	L	+
	Water -inland	M	N	L	+
Electricity	Rail	X			+
H2	Road	L/M	C	L/M	+
Biofuel	Road	L	N	L	+
LPG	Road	L	N	L	+

**Legend:** Score: 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 LT NIR reports on three RTD&D projects versus none in the NPF. This shows an increased level of ambition. The first RTD&D project is on buses powered by hydrogen-enriched natural gas (H2NG). The NIR adds that, at the time of writing, there were three CNG stations (in Ukmergė, Telšiai and Marijampolė), where natural gas was enriched with hydrogen. The second RTD&D measure is on the development of a LNG driven tugboat for shallow inland waterways, with a foreseen budget of 2.2 million € for 2021-2025. Finally, the LT NIR reports on the participation<sup>6</sup> in the multilateral pilot project initiated by the European Commission "Data collection related to recharging/refuelling points for alternative fuels and the unique identification codes related to e-Mobility actors", where the goal is to establish, at European Union level, an identification system for electric car charging access and electric car charging access operators, and an information system for consumers with information on electric car charging access. No information was provided on the financing instruments established to support RTD&D activities in Lithuania.

- *Additional information on alternative fuels infrastructure developments*

The LT NIR provides information on the changes in fuel use but only until 2018 and only for road transport (see Table Error! No text of specified style in document.-4). As no future estimates were provided, one can only comment on a slight decrease in gasoline and LPG use for road and a comparable diesel increase. No growing use of biofuels or CNG is noticed, nor any noticeable consumption of electricity and LNG is reported.

<sup>6</sup> Together with France, the Netherlands, Poland, Austria, Belgium, Croatia, Luxembourg, Germany, Spain, Slovenia, Czechia, Portugal, Greece and Hungary

Table Error! No text of specified style in document.-4 Changes in fuel use in transport sector (2016-2018)

		PAST AND CURRENT STATUS OF FUELS USE IN THE TRANSPORT SECTOR		
MODE OF TRANSPORT	FUEL	Percentage of different fuels use for transport [%]		
		2016	2017	2018
Road	Gasoline	12%	11%	11%
	Diesel	76%	77%	78%
	CNG	5%	5%	5%
	LPG	6%	6%	5%
	Biofuels	1%	1%	1%
	<b>Total Road</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

▪ *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					H2/ road
			Electricity / road	CNG / road	LNG / road	LNG / water (maritime)	LNG / water (inland)	
AF Vehicles / Vessels	Past situation (2016)	364	352	176	1	0	0	
	Situation (2018)	1,556	405	207	1	0	0	
	Estimate (2030)	248,563	12,300	1,075	1	6	1,250	
	Future share (2030) [%]	14.80%	0.73%	0.98%			0.07%	
	Estimate attainment (2018 vs 2030) [%]	0.63%	3.29%	19.26%	100.00%			
	Progress (2018)	adequate	slow	3.45%				
Publicly accessible AF Infrastructure	Past situation (2016)	5	4	0*	1*	0*	0	
	Situation (2018)	212	4	2	1	0	0	
	Target (2030)	15,055	28	5	1	1	10	
	Target attainment (2018 vs 2030) [%]	1.41%	14.29%	40.00%	100.00%			
	Progress (2018)	adequate	slow	40.00%				
Sufficiency Index	2016	72.80	88.00					
	2018	7.34	101.25	103.50				
	2020	10.10	70.63					
	2025	166.24	115.38	103.33			32.50	
	2030	16.51	439.29	215.00			125.00	
Measures	Legal measures	Ambition (NIR vs NPF)	+	+	+	+	+	+
	Policy measures + Deployment & manufacturing support	Score	M	M	L	L/M	M	L/M
		Comprehensiveness	C	C	C	N	N	C
	RTD&D	Impact	M	M	L	L	L	L/M
		Ambition (NIR vs NPF)	+	+	+	+	+	+
	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 both NPF and NIR).

The LT NIR addresses most of the requirements of Annex I of the Directive, but only partially, and it does not provide specific information on the methodology applied to take account of the charging efficiency of high power recharging points. Also it does not provide considerations on any particular needs during the initial phase of AFI deployment.

The LT NIR contains an extensive and wide-scope portfolio of measures, but often it lacks a sufficient description, which makes the assessment results less robust. The majority of reported measures focus on electricity and CNG for road transport.

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

#### *Road transport*

- **Electricity** – Lithuania reported a total of 1,556 electric vehicles in use in 2018 (Table Error! *No text of specified style in document.*-2), of which 1,539 were passenger cars, 16 LCVs and 1 HCV. The Lithuanian NIR presents a new plan with increased ambition compared to the NPF, with an estimate of 230,332 passenger cars and 18,231 LCVs by 2030. The heavy-duty sector is excluded from future estimates in the LT NIR. With respect to this plan, the 2018 progress is adequate. Similarly to the vehicles, the level of ambition for infrastructure in the LT NIR is higher than presented in NPF. With 212 publically accessible recharging points recorded in 2018, Lithuania plans to have 15,055 public and 60,000 private recharging points in 2030. Also the progress towards this target is assessed as adequate in 2018. The sufficiency ratio is adequate in 2018 and in 2030, however a big unbalance exists in the foreseen progression of EVs and public recharging points between 2020 and 2025 (with a sufficiency index in 2025 equal to 166.24, thus highly inadequate).
- **CNG** – Lithuania recorded 300 CNG buses and coaches in 2018, out of a total CNG fleet of 405 vehicles. This indicates that CNG is the main alternative fuel used by public transport fleets in large cities in Lithuania. Lithuanian ambitions for the number of CNG vehicles and infrastructure in the LT NIR are again higher than presented in NPF. New estimates for CNG vehicles reveal that the biggest growth is expected in numbers of CNG passenger cars (10,000 in 2030) and HCVs (1,000 in 2030). The progress in 2018 is slow. Lithuania reported four publicly accessible CNG refuelling stations in 2018 (plus six private). The LT NIR reports that Lithuania aims to achieve 8 public CNG refuelling points in 2020 (20% less than in the NPF) and 28 in 2030 (no target was present in the NPF). Also for CNG infrastructure the 2018 progress is slow, while the sufficiency index is considered adequate for the whole period 2016-2030.
- **LNG** – Lithuania reported 207 LNG vehicles in 2018, mainly buses and coaches (172). With regard to the next decade, the LT NIR proposes new (not present in NPF) estimates for 2025 and 2030, while 2020 is not addressed. The LT NIR aims to achieve 1,075 LNG vehicles in 2030. This estimated growth is planned mainly for the HCVs (1,000), but 50 LCVs and 25 buses and coaches are also expected in 2030. As for the infrastructure, the LT NIR reports two public LNG refuelling points in 2018 and a new target of five public refuelling points for 2030.

- **Hydrogen** – There are currently no hydrogen vehicles in Lithuania but for 2030, 1,000 passenger cars, 100 LCVs, 50 HCVs and 100 buses and coaches are expected. The LT NIR does not report nor foresees any public hydrogen refuelling point in operation for the years from 2016 until 2020. However it provides new targets for 2025 and 2030 (not reported in NPF), respectively 2 and 10 refuelling points.
- **Biofuels** – LT NIR only provides the information that “*Biofuels are used for blending in petrol and diesel strictly in the manner provided for in national legislation. Lithuania aims to gradually transition to advanced biofuels produced from secondary waste. The ratios of biofuel blending in fossil fuels are increasing*”.
- **LPG** – Lithuania reported 109,576 LPG vehicles in 2018, of which 108,565 passenger cars, 503 LCVs, 623 HCVs, and 87 buses and coaches. It also recorded 664 public LPG refuelling points in 2018. Regarding the next decade, the LT NIR does not propose any vehicle estimate and forecasts a slow but steady decline of LPG infrastructure.

#### *Rail transport*

The LT NIR reports the plan to have 22 new electric locomotives in 2030 and a budget of 250 million € from EU funds for electrification of railway in 2020.

#### *Waterborne transport (maritime)*

- **Electricity** – The LT NIR reports that, as Klaipėda State Seaport (KSS) is already equipped with facilities that can be used by operators of ships, no additional need of shore-side electricity supply facilities is foreseen. Similarly, no plans about electric boats were revealed.
- **LNG** - Lithuania recorded one LNG refuelling point in its TEN-T Core port of Klaipėda in 2018. This LNG terminal has been in operation since December 2014, and recently the focus is put on Liquefied Natural Gas Distribution Station (LNG DS), which is an above-ground LNG terminal operated on a third-party access basis. The LT NIR confirms this infrastructure until 2030.

#### *Waterborne transport (inland)*

- **Electricity** - Lithuania did not record any shore-side electricity supply in 2018, but the LT NIR reports the plan to have three shore-side electricity supply for inland waterway vessels or recreational crafts in inland ports. The potential locations are Kaunas Lagoon pier, Nida pier and Uostdvaris inland waterway port.
- **LNG** - The LT NIR reports that the first LNG inland waterway vessels is foreseen for 2025, followed by other five by 2030. There was no LNG refuelling point for inland waterway vessels in 2018, but the LT NIR mentions the proposal by the Lithuanian Inland Waterway Authority to establish a LNG refuelling point in Marvele cargo pier (Kaunas).

#### *Air transport*

- **Electricity** - Lithuania recorded 37 electric power supply points for stationary airplanes in use since 2016. This number is expected to increase to 44 points in 2020, and 45 points in 2025 and 2030. Since according to the LT NIR Lithuania’s international airports already have the necessary infrastructure to supply electricity to stationary airplanes, no additional need for electricity supply facilities at airports is expected.

The LT NIR contains an extensive and wide-scope portfolio of **measures**, but often lacks a sufficient description, which makes the assessment results less robust. It presents 18 legal measures (versus 8 in the NPF) to promote AFs. Their description is short and mostly in the form of tables, but overall they show an increased ambition level compared to the NPF. As for the Policy and Deployment & Manufacturing support measures, the main focus in the LT NIR is on electric vehicles, but CNG and LNG on roads are developing as well and concrete plans are also presented for hydrogen/road and LNG/waterborne (inland) transport. Several clusters of measures have been identified, however their description and the level of details provided in the LT NIR are not sufficient to carry out a robust assessment. 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, keeping in mind the caveat mentioned earlier, it can be said that the measures for the pairs electricity/road and CNG/road might have a medium impact, while all the others might have a lower impact. Compared to the NPF, the level of ambition of the Policy and Deployment & Manufacturing measures support measures has increased for all pairs.

The LT NIR reports on three RTD&D projects versus none in the NPF, showing an increased level of ambition also in this field. The first RTD&D project is on buses powered by hydrogen-enriched natural gas (H<sub>2</sub>NG). The second measure is on the development of a LNG driven tugboat for shallow inland waterways. The third is on the participation in the multilateral pilot project initiated by the European Commission "*Data collection related to recharging/refuelling points for alternative fuels and the unique identification codes related to e-Mobility actors*".

#### ▪ *Final remarks*

The Lithuanian NIR provides a quite comprehensive report on the efforts to implement the Directive. The NIR complies, to a large extent, with the requirements of Annex I to the Directive and provides a relevant number of measures to support the uptake of alternative fuels for transport. However, these measures lack granularity, which creates uncertainty about the impact of the overall Lithuanian approach for alternative fuels. Future reporting should provide further detail on measures planned to support ramp up of use of alternative fuels in all mode of transport.

For electricity, the NIR estimates that approximately 250,000 electric vehicles could be on the road by 2030, representing about 15% of the future fleet, as well as around 15,000 recharging points in the same year. 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. No direct information on charging efficiency is provided. The port of Klaipėda in the TEN-T Core Network is already equipped with shore-side electricity supply. Furthermore, Lithuania supports also the electrification for inland waterway vessels and recreational crafts in inland ports with shore-side electricity supply towards 2030. Lithuania's international airports already have the necessary infrastructure to supply electricity to stationary airplanes. However, that the NIR outlines that the number of electricity supply to stationary aircraft should continue to grow to 45 in 2025, in an attempt to equip other airports. Future reporting should provide further information on the current and future share of electrified rail network. However, a budget of 250 million € is devoted to further electrification of rail up to 2020.

Currently there are no hydrogen vehicles in Lithuania. However, 1,000 passenger cars, 100 Light Commercial Vehicles, 50 Heavy-Duty Vehicles and 100 buses and coaches are estimated for 2030. Likewise, hydrogen infrastructure deployment by 2030 is estimated to include at least 10 refuelling points, with an initial uptake of two refuelling points in 2025.

Concerning natural gas, the NIR shows a limited ambition for CNG vehicles; it notes about 12,300 vehicles and 28 refuelling points in place by 2030. A significant growth in LNG HDV is expected (1,075 HDV by 2030). Furthermore, there will be three LNG refuelling points by 2025 and five by 2030. This seems sufficient taking into account the length of its TEN-T Road Core Network, provided that the refuelling points are widely distributed along the network. For waterborne transport, the first LNG inland waterway vessels is foreseen for 2025. In addition, Lithuania reports one LNG refuelling point in its TEN-T Core Network port of Klaipėda.

On LPG, Lithuania reported about 110.000 LPG vehicles in 2018, which corresponds to approximately 7% of its fleet. In terms of infrastructure, 664 public LPG refuelling points are reported, with a projection of 545 for 2030. Despite the lack of LPG vehicles estimates for 2030, the infrastructure targets indicate an expected steady decline of those vehicles.

Further information should be provided on the consumption of biofuels in road and air transport. Lithuania 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 65,300 km<sup>2</sup>, Lithuania has a population of 2.809 million people in 2018, which makes up for a population density of 43 inhabitants/km<sup>2</sup>.

*Number of main urban agglomerations*

- 6 urban agglomerations > 50,000 inhabitants

In 2018, Lithuania achieves a per capita gross domestic product at market prices of €16,170, which represents a per capita gross domestic product in purchasing power standards of 80 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 Lithuania is 665 km. The total road network length is 21,242 km, of which 324 km are motorways.

The following lengths of the TEN-T Road Corridors are present in Lithuania: 20% (820 km) of the North Sea - Baltic Corridor.

Through the TEN-T Road Corridors, Lithuania is connected with the following Member States:

- Latvia (through the North Sea - Baltic Corridor),
- Poland (through the North Sea - Baltic Corridor)

*Number of registered road vehicles*

At the end of 2018, Lithuania accounts for 1,606,222 registered road vehicles of which 1,430,520 are categorized as passenger cars, 64,345 as light goods vehicles, 61,332 as heavy goods vehicles and 7,925 as buses and coaches. The motorisation rate is 509 passenger cars per 1,000 inhabitants.

*Number of ports in the TEN-T Core Network*

- 1 maritime port in the TEN-T Core Network (Klaipėda)
- No 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 (Vilnius)
- 2 airports in the TEN-T Comprehensive Network