

5.1 Slovenia (SI)

5.1.1 Main messages from the Commission assessment of the NPF

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

The Slovenian NPF addresses most of the requirements of Article 3. For most fuels and modes, it establishes infrastructure targets and vehicle estimates for 2020, 2025 and 2030.

The Slovenian NPF puts emphasis on the development of the market for electric vehicles. It estimates a share of roughly 1% electric passenger cars on the road in 2020 and 16.9% in 2030. The 2030 estimations are also optimistic for electric light commercial vehicles (12.4%) and electric buses (6.3%). Measures are already in place or planned to reach these estimated shares (several tax exemptions and benefits, attractive incentives for purchase and for use of electric vehicles). Slovenia already today has a well-developed recharging infrastructure, with a ratio of one public recharging point per only 1.64 electric vehicles. It plans to further increase the number of recharging points, its targets being in line with the requirements of the Directive and they seem sufficient to cover appropriately the needs of electric vehicles in terms of distance requirements. The Slovenian NPF mentions that electricity supply will be in place in all 3 airports of the TEN-T network by the end of 2025. Regarding shore-side electricity, studies are ongoing and measures are planned to build new power lines for the needs of the Port of Koper.

CNG is considered to be the key alternative fuel for buses in the future with estimated shares of CNG buses in the total buses fleet of around 9.3% (2020), 19.7% (2025) and 33.9% (2030) and measures are planned to ensure that these objectives are realised. The NPF mentions that CNG recharging infrastructure will be deployed in all municipalities and their targets for 2020 and 2025 are considered appropriate since they pass the sufficiency threshold.

A target of 3 LNG refuelling points for heavy-duty vehicles is foreseen for 2020 that will also ensure the fulfilment of the distance requirement on the TEN-T Core Network in Slovenia. The LNG road infrastructure will be built in the framework of two European projects, namely SiLNGT (2015-EU-TM-0104-S Mediterranean Corridor) and cHAMEleon.

LNG refuelling is planned for the only maritime port in the TEN-T Core Network, the port of Koper. Two studies were performed within the projects POSEIDON MED II and GAINN4MOS to find appropriate solutions for supplying ships with LNG in the port of Koper.

A target of 5 to 9 hydrogen refuelling points is established for 2025 for which full subsidies for installation are considered necessary by the NPF (in particular, grants from EU funds are mentioned).

The Slovenian NPF contains a wide range of measures, but the majority of the measures are under consideration whilst a reduced amount is already in place. The presented measures cover a wide variety of types, addressing many deployment barriers. However, information concerning their implementation status, validity periods, or appropriated budget is often lacking.

A medium overall assessment score is derived for electric road transport where the mentioned existing and planned measures seem to have the potential to contribute towards reaching the committed targets and objectives.

The NPF mentions that incentives will be available to replace public transport vehicles of EURO IV or lower standards with less polluting vehicles powered by alternative fuels, in particular in areas with poor air quality. With regard to buses, CNG is stated to be the key alternative and subsidies are being considered for the purchase of CNG buses for a period of two to five years.

The Slovenian government established an inter-ministerial working group for drafting the NPF. The Slovenian NPF considers that the local communities and other stakeholders will have an important role in implementing the planned measures.

Slovenia shows intentions to cooperate with the neighbouring countries to ensure EU-wide circulation of AF vehicles and vessels. For setting up infrastructure for the supply of ships with LNG, Slovenia cooperates with neighbouring Member States within the European projects POSEIDON MED II and GAINN4MOS.

5.1.2 Overview of requirements' fulfilment from Annex I of the Directive

Table 5.1.2-1 Checklist Table

Part of the Directive 2014/94/EU	Requirement	Mode of Transport / Alternative Fuel (provided in the NIR)	Yes / No
ANNEX I: 1. Legal measures	Information on legal measures, which may consist of legislative, regulatory or administrative measures to support the build-up of alternative fuels infrastructure, such as building permits, parking lot permits, certification of the environmental performance of businesses and fuel stations concessions.	Road / electricity, CNG, LNG, H2, LPG	Y
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"> • direct incentives for the purchase of means of transport using alternative fuels or for building the infrastructure, • availability of tax incentives to promote means of transport using alternative fuels and the relevant infrastructure, • use of public procurement in support of alternative fuels, including joint procurement, • demand-side non-financial incentives, for example preferential access to restricted areas, parking policy and dedicated lanes, • technical and administrative procedures and legislation with regard to the authorisation of alternative fuels supply, in order to facilitate the authorisation process. 	Road / electricity, CNG, LNG, H2, LPG	Y
	• consideration of the need for renewable jet fuel refuelling points in airports within the TEN-T Core Network		N
ANNEX I: 3. Deployment and manufacturing support	• Annual public budget allocated for alternative fuels infrastructure deployment, broken down by alternative fuel and by transport mode (road, rail, water and air).	Road / electricity, CNG, LNG, H2	Y
	• Annual public budget allocated to support manufacturing plants for alternative fuels technologies, broken down by alternative fuel and by transport mode.		N
	• Consideration of any particular needs during the initial phase of the deployment of alternative fuels infrastructures.		N
ANNEX I: 4. Research, technological development and demonstration	• Annual public budget allocated to support alternative fuels RTD&D, broken down by fuel and by transport mode.	Combination / All	Y
ANNEX I: 5. Targets and objectives	• Estimation of the number of alternative fuel vehicles expected by 2020, 2025 and 2030	Road / electricity, CNG, LNG, H2, LPG	Y
	• Level of achievement of the national objectives for the deployment of alternative fuels in the different transport modes (road, rail, water and air)	Road / electricity, CNG, LNG, H2, LPG	Y
	• Level of achievement of the national targets, year by year, for the deployment of alternative fuels infrastructure in the different transport modes	Road / electricity, CNG, LNG, H2	Y
	• Information on the methodology applied to take account of the charging efficiency of high power recharging points		N
ANNEX I:6 Alternative fuels infrastructure developments	Changes in supply (additional infrastructure capacity) and demand (capacity actually used)		N

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

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

The Slovenian NIR reports 37 measures. Under the Policy and Deployment & Manufacturing sections it was possible to identify five AF/transport mode clusters of measures, all assessable.

5.1.3 Quantitative assessment: Vehicles and infrastructure

Table 5.1.3-1 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	1,902	328	11,750	1,200	69,972	7,000	213,007	22,300
	Change NIR vs NPF [%]			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Attainment [%]			16.19%	27.33%	2.72%	4.69%	0.89%	1.47%
CNG / road	NIR	467	4	3,030	14	6,593	14	9,552	14
	Change NIR vs NPF [%]			3.48%	0.00%	3.65%	0.00%	4.09%	0.00%
	Attainment [%]			15.41%	28.57%	7.08%	28.57%	4.89%	28.57%
LNG / road	NIR	8	1	179	3	1,906	3	4,337	3
	Change NIR vs NPF [%]			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Attainment [%]			4.47%	33.33%	0.42%	33.33%	0.18%	33.33%
LNG / water (maritime)	NIR	0*	NA	NA	NA	NA	NA	NA	NA
	Change NIR vs NPF [%]								
	Attainment [%]								
H2 / road	NIR	0	1	86	2	1,240	7	6,871	7
	Change NIR vs NPF [%]			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Attainment [%]				50.00%		14.29%		14.29%
LPG / road	NIR	10,670	115	33,295	NA	41,145	NA	36,440	NA
	Change NIR vs NPF [%]			0.00%		0.00%		0.00%	
	Attainment [%]			32.05%		25.93%		29.28%	

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

* From EAFO (absent in the NIR)

5.1.3.1 Road transport

5.1.3.1.1 Electricity

Vehicles

Slovenia recorded 1,902 electric vehicles in 2018 (Table 5.1.3-1), of which 1,834 were passenger cars, 64 LCVs and 4 buses and coaches. For the period 2020-2030, the SI NIR confirms the NPF estimates (11,750 EVs in 2020, 69,972 in 2025 and 213,007 in 2030). The NPF plan is fully confirmed also in terms of vehicle categories and relative share of BEV vs. PHEV. For example, in 2030 the SI NIR confirms the estimates of 129,690 (BEV) and 71,664 (PHEV) passenger cars, of 11,020 LCVs (all BEV), of 258 (BEV) and 160 (PHEV) HCVs and of 215 buses and coaches (all BEV).

The 2018 *attainment* of future EV estimates is 16.19% for 2020 and 0.89% for 2030. According to the assessment methodology described in Section 2.1, the 2018 situation corresponds to an *adequate progress* towards reaching the envisaged EV estimates. The calculated *average annual growth rate* corresponding to the period 2016-2030 for EV fleet evolution planned by Slovenia is equal to 50%.

Infrastructure

Slovenia recorded 328 publicly accessible recharging points in 2018, of which 297 were normal power (≤ 22 kW) and 31 high power (> 22 kW) recharging points (the latter being all deployed on the TEN-T Core road network). For the next decade, in line with the EVs estimates, the SI NIR confirms the NPF targets (1,200 recharging points in 2020, 7,000 in 2025 and 22,300 in 2030). It is worth mentioning that the share of high power recharging points will remain quite low (300 foreseen in 2030).

The 2018 *attainment* of future public recharging infrastructure targets is 27.33% for 2020 to 1.47% 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 2016-2020 for publicly accessible recharging infrastructure evolution planned by Slovenia is equal to 39%.

Ratio

Based on the SI NIR, the following table shows the ratio between vehicles and publicly accessible recharging points (i.e. sufficiency index) for the pair electricity/road. It can be seen that the foreseen sufficiency index is always below or equal to 10, thus it can be considered adequate for the next decade.

Sufficiency Index		2016	2017	2018	2020	2025	2030
Road	Electricity	2.75	3.92	5.80	9.79	10.00	9.55

Information on charging efficiency

Information is not available in the Slovenian NIR.

5.1.3.1.2 CNG

Vehicles

Slovenia recorded 467 CNG vehicles in 2018, of which 244 were passenger cars, 74 LCVs, 60 HCVs and 89 buses and coaches. For the next decade, the SI NIR presents a slightly upward revision of the CNG vehicles estimate compared to the NPF, with 9,552 vehicles in 2030 (of which 355 LCVs, 355 HCVs and 1,154 buses and coaches). This represents an increase of 4.09% compared to the NPF.

The 2018 **attainment** of future CNG vehicles estimates is 15.41% for 2020 and 4.89% 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 Slovenia is equal to 25%.

Infrastructure

In 2018, Slovenia recorded 4 publicly accessible CNG refuelling points (Table 5.1.3-1). The SI NIR confirms the NPF targets over the period 2020-2030, which consisted in 14 refuelling stations from 2020 onward.

The 2018 **attainment** of future public CNG refuelling infrastructure targets is constant and equal to 28.57% for 2020, 2025 and 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 2016-2030 for publicly accessible CNG refuelling infrastructure evolution planned by Slovenia is equal to 8%.

Ratio

Based on the SI NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair CNG/road. It can be seen that sufficiency index is well below the indicative value of 600 until 2025 and can be considered adequate also until 2030 (see Section 2.1.5).

Sufficiency Index		2016	2017	2018	2020	2025	2030
Road	CNG	82.00	105.25	116.75	216.43	470.93	682.29

5.1.3.1.3 LNG

Vehicles

Slovenia recorded eight LNG HCVs in 2018 (Table 5.1.3-1). For the next decade, once again the SI NIR fully confirms the NPF estimates (179 HCVs in 2020, 1,906 HCVs in 2025 and 4,337 HCVs in 2030).

The 2018 **attainment** of future LNG vehicles estimates is 4.47% for 2020 and 0.18% for 2030. According to the assessment methodology described in Section, the **progress** obtained by Slovenia from 2016 until 2018 for LNG vehicles deployment is 0% of the overall planned

deployment during the period 2016-2030 because there has been no increase between 2016 and 2018.

Infrastructure

The Slovenian NIR reports one publicly accessible LNG refuelling point in 2018 and confirms the NPF target for the next decade (three refuelling points from 2020 until 2030) (Table 5.1.3-1).

The 2018 **attainment** of future public LNG refuelling infrastructure targets is constant and equal to 33.33% for 2020, 2025 and 2030. According to the assessment methodology described in Section 2.1, the **progress** obtained by Slovenia from 2016 until 2018 for public LNG refuelling infrastructure deployment is 33.33% of the overall planned deployment during the period 2016-2030.

Ratio

Based on the SI NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair LNG/road.

Sufficiency Index		2016	2017	2018	2020	2025	2030
Road	LNG		8.00	8.00	59.67	635.33	1445.67

5.1.3.1.4 Hydrogen

Vehicles

There were no hydrogen vehicles recorded in Slovenia in 2018 (Table 5.1.3-1). Similarly to the other AFs, the SI NIR confirms the NPF estimates for the next decade (86 in 2020, 1,240 in 2025 and 6,871 in 2030). The majority of these vehicles will be light-duty vehicles (i.e. passenger cars and light commercial vehicles) but 800 HCVs and 57 buses and coaches are also foreseen in 2030.

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

Infrastructure

Slovenia had one publicly accessible hydrogen refuelling point in 2018 and for the future the SI NIR confirms the NPF targets (two refuelling points in 2020 and seven refuelling points from 2025 until 2030). The SI NIR also mentions a project (RESHUB), headed by the Ministry of Defence and dedicated to the establishment of 15 hydrogen refuelling points in Slovenia for strategic independence. This is linked to a project of zero emission corridors in Slovenia and will allow civilian hydrogen-powered mobility to make use of the hydrogen refuelling points of the Slovenian army. It is not clear how these 15 refuelling points relate to the seven public refuelling points mentioned above.

The 2018 **attainment** of future public hydrogen refuelling infrastructure targets is 50% for 2020 and 14.29% for 2030. According to the assessment methodology described in Section 2.1, the **progress** obtained by Slovenia from 2016 until 2018 for the deployment of public hydrogen refuelling infrastructure is 0% of the overall planned deployment during the period 2016-2030.

Ratio

Based on the SI NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair hydrogen/road.

Sufficiency Index		2016	2017	2018	2020	2025	2030
Road	H2	0.00	0.00	0.00	43.00	177.14	981.57

5.1.3.1.5 Biofuels

Vehicles

Information is not available in the Slovenian NIR.

Infrastructure

Information is not available in the Slovenian NIR.

5.1.3.1.6 LPG

Vehicles

Slovenia recorded 10,670 LPG vehicles in 2018 (of which 10,246 passenger cars, 410 LCVs and 14 HCVs). The SI NIR confirms the NPF estimates for the next decade, which include a peak of 41,145 LPG vehicles in 2025 (Table 5.1.3-1). In 2030, the total LPG fleet of 36,440 vehicles will be composed by 31,374 passenger cars, 224 LCVs and 4,842 HCVs.

The 2018 *attainment* of future LPG vehicles estimates is 32.05% for 2020 and 29.28% for 2030. According to the assessment methodology described in Section 2.1, the *progress* obtained by Slovenia from 2016 until 2018 for LPG vehicles deployment is 3.08% of the overall planned deployment during the period 2016-2030.

Infrastructure

The Slovenian NIR reported 115 public LPG refuelling points in 2018 and, similarly to the NPF, no information regarding future targets. The NIR declares that “*Refuelling infrastructure has been deployed to a satisfactory extent; users trust it and are using it.... That is why there is no provision in the Strategy for the development of refuelling infrastructure using public funds*”. This would imply that the LPG infrastructure should remain roughly the same also for the next decade.

In the absence of detailed targets, the 2018 *attainment* and *progress* have not been computed.

Ratio

Based on the SI NIR, the following table shows the ratio between vehicles and publicly accessible refuelling points (i.e. sufficiency index) for the pair LPG/road. Of course, only the sufficiency index until 2018 could be computed.

Sufficiency Index		2016	2017	2018	2020	2025	2030
Road	LPG	85.65	90.63	92.78			

5.1.3.2 Rail transport

5.1.3.2.1 Electricity

Vehicles

Information is not available in the Slovenian NIR.

Infrastructure

Information is not available in the Slovenian NIR.

5.1.3.3 Waterborne transport (maritime)

5.1.3.3.1 Electricity

Vessels

Information is not available in the Slovenian NIR.

Infrastructure

The SI NIR explains that the Port of Koper is connected to the electricity network through the 20 kV distribution network. This is sufficient for the current electricity needs at the port. For the future, an increased request of electric energy is foreseen, which might not be satisfied by the existing electricity network. For this reason, the SI NIR refers that, as part of the European project POSEIDON-MED, a document was prepared (*Feasibility of connecting the Port of Koper to the 110 kV network*). On this basis the NIR concludes that “*Measures are planned to build new power lines to connect to the 110 kV transmission network in order to realise objectives linked to supplying ships with electricity from the shore-side for the needs of the Port of Koper and to assess how much to charge for electricity to supply ships from the shore-side.*”

5.1.3.3.2 LNG

Vessels

Information is not available in the Slovenian NIR.

Infrastructure

The SI NIR makes reference to the obligation set in the Directive to deploy, by 31 December 2025, an adequate number of LNG refuelling points at maritime ports in the TEN-T Core Network, which for Slovenia relates to the Port of Koper. The NPF that had set a target of one LNG refuelling point in 2025, however the SI NIR does not provide any confirmation/modification of this plan.

5.1.3.4 Waterborne transport (inland)

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

5.1.3.5 Air transport

5.1.3.5.1 Electricity

Airplanes

Information is not available in the Slovenian NIR.

Infrastructure (for stationary airplanes)

The Slovenian NIR refers that at the TEN-T Core “Jože Pučnik” airport of Ljubljana-Brnik, all stationary aircraft already have a supply of electric power. At Maribor and Portorož airports from the TEN-T Comprehensive Network, the supply will be in place by the planned deadline (i.e. 31 December 2025).

5.1.4 **Measures assessment**

With reference to the measures to support the uptake of AF vehicles and infrastructures, the SI NIR shows an effort to select and tailor them according to Slovenia’s objectives for 2030. However, at the moment this effort is totally concentrated on road transport only, while rail, waterborne and air transport are either just mentioned or not considered. The NPF had presented a large number of measures of all types, but most of them were only under consideration. The SI NIR presents a lower number of Legal and Policy/Deployment measures compared to the NPF, but the majority of these measures are in place or are being adopted. It is also worth mentioning that Slovenia had some measures to support the uptake of AF vehicles and infrastructure even before the introduction of the Directive. These measures have become part of the NPF and are included also in the NIR. Finally, it is noteworthy the remarkable increase in the number of RDT&D projects/measures presented in the NIR, compared to the NPF.

5.1.4.1 Legal measures

The SI NIR presents a list of five Legislative & Regulatory measures and no Administrative measures. Three of them were in place before the publication of the Directive. The other two are a consequence of the Directive. The level of ambition has generally increased compared to the NPF.

5.1.4.1.1 Legislative & Regulatory

The five Legislative & Regulatory measures are quite different in the scope and some of them contain also elements that could be considered as direct policy actions. In particular, there are:

- The Decree on the deployment of infrastructure for alternative transport, which transposes Directive 2014/94/EU into Slovenian law, entered into force on 12 August 2017;
- The Motor Vehicle Duties Act (2017), which updates the previous Annual Fee for Use of Motor Vehicles Act (in place since 2008) whereby motor vehicles with only an electric propulsion engine are exempt from annual vehicle duty;

- The Act amending the Motor Vehicles Tax Act, allowing a minimum tax rate (0.5%) for all vehicles emitting CO₂ up to and equal to 110 g/km, including alternatively powered vehicles (in place since 2010);
- The Personal Income Tax Act (that applies from 1 January 2020), where an employer provides an employee with an electric vehicle for private use, regardless of whether the vehicle is actually used for private purposes, the employee's taxable base has to include 0.3% of the purchase value of the vehicle per month, instead of 1.5% that applies to normal vehicles;
- The Corporate Income Tax Act, allowing a reduction of the tax base up to 40% of the purchase value of electric vehicles (BEV and PHEV) or of electric buses (BEV and PHEV).

5.1.4.1.2 Administrative

No Legal measure is present under this heading in the SI NIR.

5.1.4.2 Policy measures

With regards to the Policy measures, the SI NIR contains a total of 14 measures versus the 20 measures in the NPF. However, as mentioned earlier, these 14 measures are all in place or in the process of adoption, while the NPF included several measures under consideration (thus with low impact by default). Two things shall be highlighted here: first, all the measures are related to road transport only; second, the SI NIR has listed Policy and Deployment measures all together under the Policy heading, but this is not a problem for their assessment.

5.1.4.2.1 Measures to ensure national targets and objectives

Road transport

Ten out of the 14 Policy measures are dedicated to ensure national targets and objectives. Nine of these are financial incentives (either non-repayable, or favourable loans). The most relevant is the incentive scheme for the purchase of AF vehicles:

- €7,500 for a new electric vehicle without CO₂ emissions or an electrically processed vehicle, category M1;
- €4,500 for a new electric vehicle without CO₂ emissions or a power-driven vehicle, category N1 or L7e;
- €4,500 for a new plug-in hybrid vehicle or a new electric vehicle with a range extender, with CO₂ emissions at a discharge of less than 50g/km, category M1 or N1;
- €3,000 for a new electric vehicle without CO₂ emissions or a power-driven vehicle, category L6e.
- €1,000 for a new electric vehicle without CO₂ emissions of category L3e or L4e or L5e;
- €500 for a new electric vehicle without CO₂ emissions of category L1e-B or L2e;
- €200 for a new electric vehicle without CO₂ emissions of category L1e-A.

Other measures are related to providing incentives to municipalities for deploying publicly accessible recharging infrastructure; incentives to municipalities to support the purchase of AF vehicles for public transport and relative recharging/refuelling points; incentives to support public administration to purchase AF vehicles.

Other transport modes

The SI NIR does not provide measure addressing other transport modes (rail, waterborne, air).

5.1.4.2.2 Measures that can promote AFI in public transport services

The Slovenian NIR lists four measures to promote AFI in public transport services. They are related to providing direct incentives for the purchase of AF vehicles (BEV, PHEV and CNG) and for building recharging/refuelling infrastructure for these vehicles. A measure is under adoption for the construction of a hydrogen refuelling station in the municipality of Velenje.

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

The SI NIR explains that at the moment it does not provide measures to promote private infrastructure for electro-mobility, because the State aid scheme for the private sector has not been set up yet. The plan is to have this scheme in 2020 on the basis of an amendment to the Energy Act.

5.1.4.3 Deployment and manufacturing support

5.1.4.3.1 AFI deployment

As mentioned earlier, the SI NIR has not distinguished between Policy and Deployment measures, listing all of them under the Policy measures heading.

5.1.4.3.2 Support of manufacturing plants for AF technologies

Information is not available in the SI NIR.

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

Information is not available in the SI NIR.

5.1.4.4 Quantitative assessment of Policy and Deployment & Manufacturing measures

Table 5.1.4-1 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, five clusters of measures could be identified in the Slovenian NIR on electricity, CNG, LNG, hydrogen and LPG, all for road transport. No measure was found regarding LNG for waterborne transport, nor for rail or air. All the clusters obtained a medium or a low score and only the ones for the pair electricity/road and CNG/road resulted to be comprehensive. In terms of expected impact of these measures to support the realisation of the AFV/AFI objectives as presented in the NPF and revised in the NIR, the measures for the pairs electricity/road and CNG/road have a medium impact, while those for the pairs LNG/road, hydrogen/road and LPG/road have a low impact.

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

Table 5.1.4-1 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	N	L	+
	Water - maritime				
H2	Road	M	N	L	+
LPG	Road	L	N	L	+

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

5.1.4.5 Research, Technological Development & Demonstration

The SI NIR shows a remarkable increase of RTD&D projects compared to the NPF. In the latter, only two projects were listed, while the NIR presents 18 projects that, for the period 2016 to 2019, received a total funding of 2.95 million €. These projects cover all the alternative fuels indicated in the Directive, except LPG. In particular, five RTD&D projects address electricity, one is related to the direct conversion of natural gas to higher hydrocarbons, two projects are focused on hydrogen, five projects on biofuels and five on synthetic & paraffinic fuels. This clearly is assessed as showing a higher level of ambition compared to the NPF.

5.1.5 Additional information on alternative fuels infrastructure developments

Information is not available in the Slovenian NIR.

5.1.6 Summary of the assessment

Tabular overview

Table 5.1.6-1 Overview of the NIR assessment

	Indicators	Alternative fuel / transport mode						
		Electricity / road	CNG / road	LNG / road	LNG / water (maritime)	H2 / road	LPG / road	
AF Vehicles / Vessels	Past situation (2016)	626	328	8	NA	0	9,850	
	Situation (2018)	1,902	467	8	0**	0	10,670	
	Estimate (2030)	213,007	9,552	4,337	NA	6,871	36,440	
	Future share (2030) [%]	17.53%	0.79%	9.09%		0.57%	3.00%	
	Estimate attainment (2018 vs 2030) [%]	0.89%	4.89%	0.18%			29.28%	
	Progress (2018)	adequate	slow	0.00%			3.08%	
Publicly accessible AF Infrastructure	Past situation (2016)	228	4	0	0*	1	115	
	Situation (2018)	328	4	1	NA	1	115	
	Target (2030)	22,300	14	3	NA	7	NA	
	Target attainment (2018 vs 2030) [%]	1.47%	28.57%	33.33%		14.29%		
	Progress (2018)	slow	slow	33.33%		0.00%		
Sufficiency Index	2016	2.75	82.00			0.00	85.65	
	2018	5.80	116.75	8.00		0.00	92.78	
	2020	9.79	216.43	59.67		43.00		
	2025	10.00	470.93	635.33		177.14		
	2030	9.55	682.29	1445.67		981.57		
Measures	Legal measures	Ambition (NIR vs NPF)	+	+	+	+	=	
	Policy measures + Deployment & manufacturing support	Score	M	M	L		M	L
		Comprehensiveness	C	C	N		N	N
	Impact	M	M	L		L	L	
	Ambition (NIR vs NPF)	+	+	+		+	+	
RTD&D	Ambition (NIR vs NPF)	+	+	+	+	+	+	

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

* Value taken or calculated from SI NPF. ** Value taken from EAFO (absent in NIR).

The Slovenian NIR addresses several requirements of Annex I from the Directive but only for road transport. The level of attainment in terms of AFV and AFI is reported for electricity, CNG, LNG, hydrogen and LPG. Vehicle estimates and infrastructure targets are provided for electricity, CNG, LNG and hydrogen.

For LPG, only vehicle estimates are provided. For all the other transport modes, the SI NIR does not report assessable information.

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

Road transport

- **Electricity** – Slovenia recorded 1,902 electric vehicles in 2018 (Table 5.1.3-1), of which 1,834 were passenger cars, 64 LCVs and 4 buses and coaches. The SI NIR confirms the NPF estimates for the next decade, also in terms of vehicle categories and ratio BEV/PHEV. For example, for 2030 the SI NIR confirms the estimate of 129,690 (BEV) and 71,664 (PHEV) passenger cars, of 11,020 LCVs (all BEV), of 258 (BEV) and 160 (PHEV) HCVs

and of 215 buses and coaches (all BEV). The 2018 progress is adequate. As for the infrastructure, Slovenia recorded 328 publicly accessible recharging points in 2018. In line with the EVs estimates, the SI NIR confirms the NPF targets (1,200 recharging points in 2020, 7,000 in 2025 and 22,300 in 2030). In this case the progress is assessed as slow, but the sufficiency index is adequate for the whole period.

- **CNG** – Slovenia recorded 467 CNG vehicles in 2018, of which 244 were passenger cars, 74 LCVs, 60 HCVs and 89 buses and coaches. For the next decade, the SI NIR presents a slightly upward revision of the CNG vehicles estimate compared to the NPF, with 9,552 vehicles in 2030 (of which 355 HCVs and 1,154 buses and coaches). The 2018 progress is slow. The Slovenian NIR presents 4 publicly accessible CNG refuelling points in 2018 and a confirmation of the NPF targets over the period 2020-2030, which consisted in 14 refuelling stations from 2020 onward. The 2018 progress is slow also for CNG infrastructure, but the sufficiency index is adequate until 2030.
- **LNG** – The SI NIR lists eight LNG HCVs in 2018 and fully confirms the NPF estimates (179 HCVs in 2020, 1,906 HCVs in 2025 and 4,337 HCVs in 2030). On the infrastructure side, the Slovenian NIR reports one publicly accessible LNG refuelling point in 2018 and confirms the NPF target for the next decade (three refuelling points from 2020 until 2030).
- **Hydrogen** – In 2018, there were no hydrogen vehicles in Slovenia. The SI NIR confirms the NPF estimate (86 in 2020, 1,240 in 2025 and 6,871 in 2030). The majority of these vehicles will be light-duty vehicles, but 800 HCVs and 57 buses and coaches are also foreseen in 2030. Slovenia had one publicly accessible hydrogen refuelling point in 2018 and the SI NIR confirms the NPF targets (two refuelling points in 2020 and seven refuelling points from 2025 until 2030).
- **Biofuels** – Information is not available in the SI NIR.
- **LPG** – Slovenia recorded 10,670 LPG vehicles in 2018 (of which 10,246 passenger cars, 410 LCVs and 14 HCVs). For the next decade, the NPF vehicle estimates are confirmed. Concerning infrastructure, the SI NIR declares that the 115 public refuelling points in 2018 are sufficient also for the next decade, thus no further investment is foreseen.

Rail transport

Information is not available in the Slovenian NIR.

Waterborne transport (maritime)

- **Electricity** – The SI NIR explains that the Port of Koper is connected to the electricity network through the 20 kV distribution network. This is sufficient at the moment but in the future the request of shore-side electricity should increase. There is a plan to connect the Port of Koper to the 110kV transmission network, but no details concerning timetable and budget are provided.
- **LNG** – Contrary to the NPF that had set a target of one LNG refuelling point in 2025, the SI NIR does not provide any confirmation/modification of this plan.

Air transport

- **Electricity** - The Slovenian NIR refers that at the Jože Pučnik airport of Ljubljana-Brnik, all stationary aircraft already have a supply of electric power. At Maribor and Portorož airports the supply will be in place by the planned deadline (i.e. 31 December 2025).

With reference to the **measures** to support the uptake of AF vehicles and infrastructures, the SI NIR shows an effort to move from the wide list of measures under discussion in the NPF to a

more limited but focussed set of measures. However, at the moment this effort is totally concentrated on road transport only, while rail, waterborne and air transport are either just mentioned or not considered.

The SI NIR presents a list of five Legislative & Regulatory measures and no Administrative measures. Three of them were in place before the publication of the Directive. The other two are a consequence of the Directive. The level of ambition has generally increased compared to the NPF.

As for the Policy and Deployment & Manufacturing measures, the SI NIR contains a total of 14 measures versus the 20 measures in the NPF. However, these 14 measures are all in place or in the process of adoption, while the NPF included several measures under consideration. The SI NIR has listed Policy and Deployment measures all together under the Policy heading. In terms of expected impact of these measures to support the realisation of the AFV/AFI objectives as presented in the NPF and revised in the NIR, the measures for the pairs electricity/road and CNG/road have a medium impact, while those for the pairs LNG/road, hydrogen/road and LPG/road have a low impact. The level of ambition has generally increased for all the assessed pairs.

The SI NIR shows a remarkable increase of RTD&D projects compared to the NPF, with 18 projects (versus two in the NPF) that cover all the AFs (including biofuels and synthetic & paraffinic fuels) and all transport modes.

5.1.7 *Final remarks*

The Slovenian's NIR provides a rather comprehensive report on efforts to implement the Directive. It complies with most of the provisions of Annex I to the Directive, with the main exception being the lack of information on LNG infrastructure at the port of Koper, the only Slovenian port in the TEN-T Core Network. The measures provided by Slovenia target all fuels with varying scopes and impacts; but with a clear focus on road transport. Future reporting should better describe measures for other modes of transport, particularly for LNG in maritime transport.

With regard to electricity, the NIR estimates that by 2030 there could be 213,007 electric vehicles on the roads, representing about 17.5% of the fleet by that time, as well as 22,300 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 the full transition to carbon neutrality by 2050. No information on charging efficiency is provided. The Port of Koper is connected to the electricity network. Electricity supply is provided to stationary airplanes in Ljubljana-Brnik airport "Jože Pučnik" and is planned to be made available in the Maribor and Portorož airports by 2025. The Slovenian NIR does not provide information on the share of the electrified rail network. More information on Slovenia's future plans for further electrification of this mode of transport should be provided.

Regarding hydrogen for transport, there is already one hydrogen refuelling point in Slovenia. The NIR estimates a small fleet of about 6,900 FCHVs for 2030. Further, it estimates seven hydrogen refuelling points by 2030. This number seems sufficient, taking into account the

length of the TEN-T Core Network, provided that the refuelling stations are equally distributed along the network.

Concerning natural gas, 14 CNG refuelling points are planned for 2020 for a small fleet that is estimated to increase from 467 CNG vehicles in 2018 to about 9,552 in 2030. The number of CNG refuelling points is not expected to increase, as it is considered sufficient given the estimated size of the CNG fleet by 2030. One LNG refuelling point for road transport was recorded in Slovenia in 2018, three LNG refuelling points are planned in Slovenia for 2020. This seems sufficient considering the length of the TEN-T Core Network, provided that the refuelling points are widely distributed along the network. A significant increase in the number of LNG heavy-duty vehicles is foreseen (4,337 LNG HDVs by 2030). No information is provided on the LNG infrastructure at the port of Koper. To this end, Slovenia should clarify how it intends to ensure the supply of LNG in the port of Koper by 2025.

There are already 115 LPG refuelling points in Slovenia. It is not foreseen to build additional infrastructure, but an increase of the LPG fleet from 10,670 vehicles in 2018 to 36,440 in 2030 is estimated.

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

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

On a surface area of 20,300 km², Slovenia has a population of 2.067 million people in 2018, which makes up for a population density of 102 inhabitants/km².

Number of main urban agglomerations

- 2 urban agglomerations > 50,000 inhabitants

In 2018, Slovenia achieves a per capita gross domestic product at market prices of €22,080, which represents a per capita gross domestic product in purchasing power standards of 87 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 Slovenia is 446 km. The total road network length is 20,051 km, of which 623 km are motorways.

The following lengths of the TEN-T Road Corridors are present in Slovenia: 8% (433 km) of the Mediterranean Corridor and 7% (262 km) of the Baltic - Adriatic Corridor.

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

- Austria (through the Baltic – Adriatic Corridor),
- Italy (through the Baltic – Adriatic and the Mediterranean Corridor),
- Hungary (through the Mediterranean Corridor),
- Croatia (through the Mediterranean Corridor).

Number of registered road vehicles

At the end of 2018, Slovenia accounts for 1,376,012 registered road vehicles of which 1,143,150 are categorised as passenger cars, 89,000 as light goods vehicles, 15,928 as heavy goods vehicles and 2,834 as buses and coaches. The motorisation rate is 553 passenger cars per 1,000 inhabitants.

Number of ports in the TEN-T Core Network

- 1 maritime port in the TEN-T Core Network (Koper)
- 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 (Ljubljana)
- 2 airports in the TEN-T Comprehensive Network