

## Summary of policies

# TRANSPORT GHG REDUCTION IN VIEW OF THE NET-ZERO EMISSIONS TARGET IN VIET NAM



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# List of Abbreviations

BAU	Business As Usual
CC	Climate Change
CE	Circular Economy
COP	United Nations Framework Convention on Climate Change
EP	Environmental Protection
GG	Green Growth
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
MONRE	Ministry of Natural Resources and Environment
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
NDC	Nationally Determined Contribution
NDC TIA	NDC-Transport Initiative for Asia
NS	National Strategy
SD	Sustainable Development
IMO	International Maritime Organisation

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## INTRODUCTION

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The Paris Agreement on Climate Change (CC), which was adopted in December 2015 at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21), is a global legal document that stipulates the responsibilities of all Parties in responding to climate change through the implementation of the Nationally Determined Contribution (NDC).

From the first NDC submitted in 2015 (NDC), implementing Decision No. 1/CP.21 of the COP21 Conference, Viet Nam has completed the review and update of the NDC in 2020 (NDC 2000). Viet Nam's updated NDC in 2022 continues to be built on the basis of its NDC from 2020 and adds new articles and efforts of Viet Nam.

At the COP26 Conference in 2021, the Prime Minister of Viet Nam declared that *"Viet Nam is a country with advantages in renewable energy, will develop and implement measures to reduce greenhouse gas emissions strongly by our resources, along with the cooperation*

*and support of the international community, especially developed countries, both in terms of finance and technology transfer, including the implementation of mechanisms under the Paris Agreement, to achieve net zero emissions by 2050."* Viet Nam has also joined the commitment to reduce methane emissions by 30% by 2030, compared to 2020's level, stop developing new coal power plants after 2030, and other commitments.

On the 21st of December 2021, a National Steering Committee for the implementation of Viet Nam's commitments at COP26 was established, headed by the Prime Minister (including leaders of ministries as members) to strongly direct the development and implementation of strategies, programmes, action plans, and projects to implement Viet Nam's commitments at NDC and COP26. On this basis, the Ministry of Transport and other ministries have developed a specific sectoral action plan.

# 01. The current system of legal documents related to GHG emissions reduction in transport

As the most legally effective document in the Vietnamese legal system, the 2013 Constitution is the first Vietnamese constitution that distinctively mentions the content of responding to climate change. It is also the basic legal framework that lays the foundation for building a system of legal documents to concretise guidelines and policies on climate change and climate change response. To date, the legal framework on climate change and climate change response, including environmental protection, has been increasingly strengthened. The current system of legal documents related to GHG emissions reduction in transport, from the Constitution to Laws passed by the National Assembly, Decrees issued by the Prime Minister, and Circulars issued by Ministries, are diagrammed in Figure 1.

The most important and current legal document specifies the contents of responding to climate change and GHG emissions reduction is the **Law on Environmental Protection No. 72/2020/QH14**. In particular, Chapter VII on responding to climate change fully and comprehensively stipulates climate change adaptation, GHG emissions mitigation, ozone layer protection, and mainstreaming climate change response into the strategy

and planning, a national database on climate change, a national report on climate change response as well as implementing of international commitments on climate change and protection of the ozone layer. For the first time, the regulation on organising and developing the carbon market as a tool to promote the goal of GHG emissions reduction, contributing to the implementation of the contributions committed by Viet Nam, and the application of the Paris Agreement on Climate Change has been stipulated in the **Law on Environmental Protection 2020**.

*Aside from the 2020 Law on Environmental Protection, the 2010 Law on Economical and Efficient Use of Energy has no provision directly related to climate change, however, the economical and efficient use of energy is considered as one of the prerequisites for GHG emissions reduction, towards the goal of environmental protection, in response to climate change. In particular, this law dedicates Chapter IV to the content of energy efficiency and energy saving in the transport sector.*

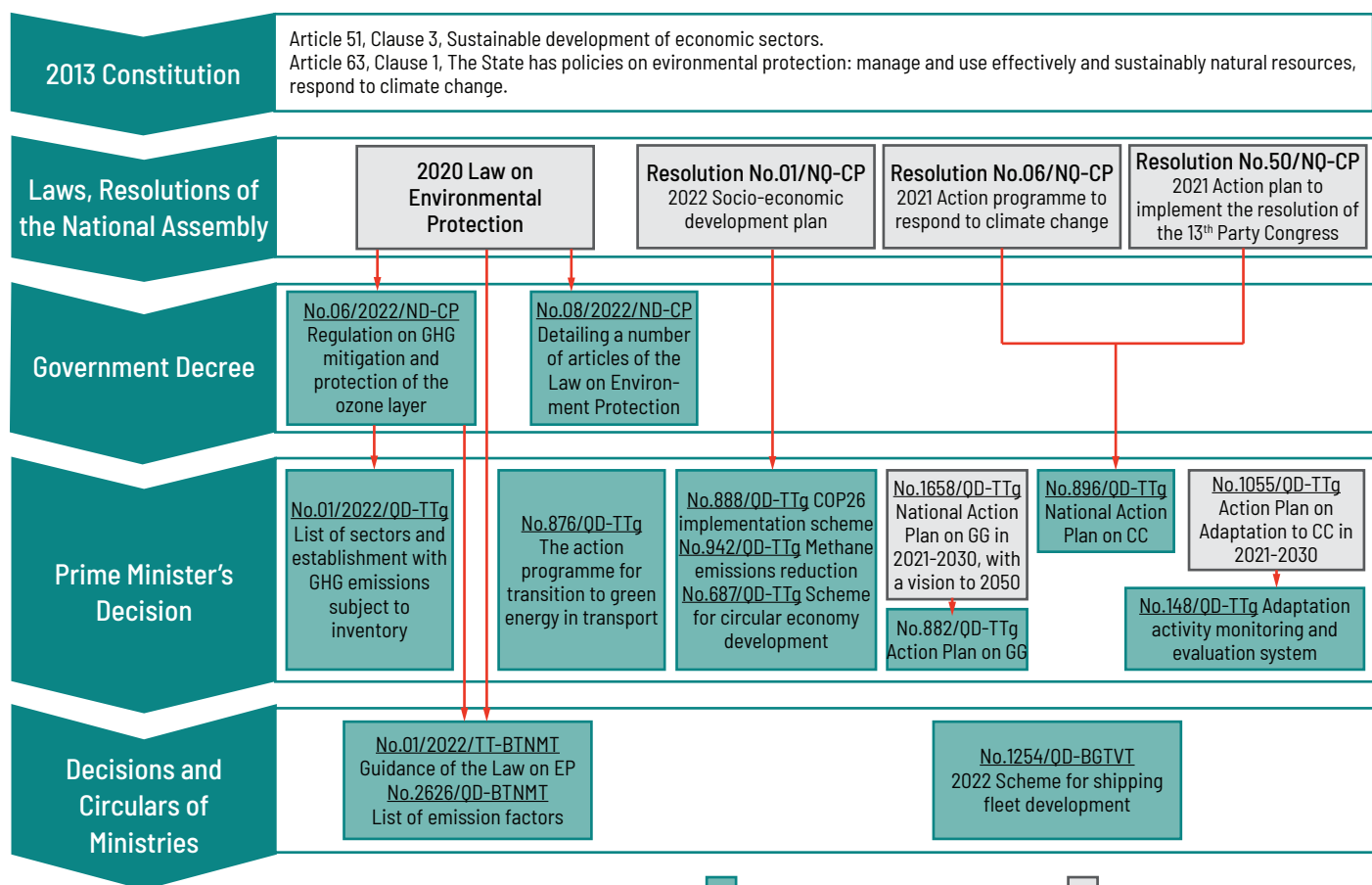


Figure 1. Diagram of the system of current legal documents related to GHG emissions reduction in transport

To implement the 2020 Law on Environmental Protection, two sub-law documents, Decree 06/2022/ND-CP and Decree 08/2022/ND-CP, were issued by the Prime Minister in 2022. (Table 1).

In the process of implementing the Law on Environmental Protection 2020 by making commitments at COP26 on net-zero

emissions by 2050, the National Steering Committee for implementing Viet Nam's commitments at COP26 has directed sectors and localities to immediately develop strategies, action programmes, action plans, and schemes on GHG emissions reduction with more ambitious target and ambitions, making use of international cooperation and support (Table 2).

**Table 1. List of current documents under the 2020 Law on Environmental Protection related to GHG emissions reduction in transport**

Leading agency	No.	Issue date	Content
MONRE	Circular No.06/2022/ND-CP	07/01/2022	Regulation on GHG mitigation and protection of the ozone layer
MONRE	Circular No.08/2022/ND-CP	10/01/2022	Detailing a number of articles of the Law on EP
MONRE	Decision No. 01/2022/QĐ-TTg	18/01/2022	List of sectors and establishments with GHG emissions subject to conducting GHG inventory

**Table 2. List of current legal documents (issued by the Prime Minister) related to GHG emissions reduction in transport towards net zero emissions**

Leading agency	No.	Issue date	Content
MOT	Decision No.876/QĐ-TTg (Main document)	22/07/2022	The action programme for transition to green energy and mitigation of carbon dioxide and methane emissions from transport
MPI	Decision No.882/QĐ-TTg	22/07/2022	The national action plan on green growth for the period of 2021 - 2030
MONRE	Decision No.888/QĐ-TTg	25/07/2022	The Scheme setting out tasks and solutions for implementation of outcomes of the COP26 Conference
MONRE	Decision No.896/QĐ-TTg	26/07/2022	National strategy for climate change until 2050
MONRE	Decision No.942/QĐ-TTg	05/08/2022	Action plan for methane emissions reduction by 2030
MONRE	Decision No.148/QĐ-TTg	28/01/2022	National-level climate change adaptation monitoring and evaluation system
MPI	Decision No.687/QĐ-TTg	07/06/2022	Approving the Scheme for circular economy development in Viet Nam
MONRE	Circular No.01/2022/TT -BTNMT	07/01/2022	Guidelines for implementation of the law on environmental protection regarding response to climate change
MONRE	Decision No.2626/QĐ-BTNMT	10/10/2022	Decision to publish the list of emission coefficients for GHG inventory
MOT	Decision No.1254/QĐ-BGTVT	28/09/2022	Approving the Scheme for shipping fleet development in Viet Nam

Figure 2 visualises the primary timelines (2015, 2020, 2021, and 2022) of the issuance of a legal corridor related to GHG emissions reduction in transport towards low-carbon development in the

previous period and towards net zero emissions orientation in the period after COP26.

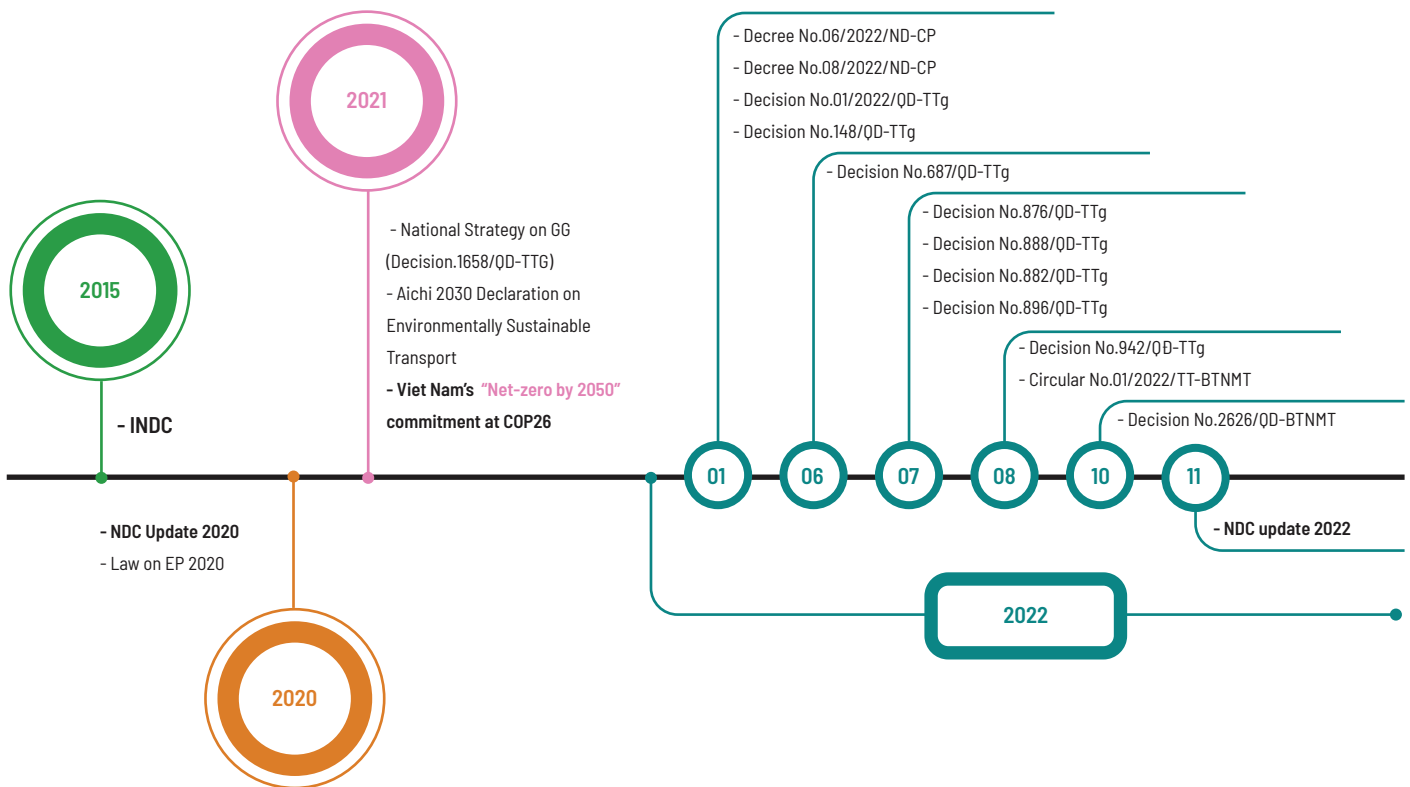


Figure 2. The primary timelines (2015, 2020, 2021, and 2022) of the legal corridor issuance related to GHG emissions reduction in transport



At the local level, local authorities have realised and organised the implementation and understanding of Viet Nam's commitments at COP26 through implementing legal documents and guidelines for environmental protection, responding to climate change, increasing the capacity and awareness of staff, propagating enterprises, organisations, and individuals to use green energy sources; urging and guiding establishments in the area subject to GHG inventory to develop master plans, plans, and roadmaps for GHG emissions reduction which are suitable to their production and business conditions. Up to now, a number of provinces, cities, and districts have developed plans to implement the above strategies, action programmes, action plans, and schemes.

Thus, the development and promulgation of several legal documents from national to local levels regulating the contents related to GHG emissions reduction reflected Viet Nam's determination in fulfilling the target committed in the NDC as well as at COP26.

## 02. Summary of GHG emissions reduction targets in the current system of legal documents

It is evident that the targets set out in Viet Nam's legal documents towards net-zero emissions commitment by 2050 are divided into two main phases: from 2022 to 2030 and from 2030 to 2050 (Table 3). Specifically, four out of seven documents with climate change targets mention target for the transport sector. In terms of the target of reducing GHG emissions in transport, these documents are divided into two following groups:

**GROUP 1** - Only mention the general target and specific groups of measures;

**GROUP 2** - Mention specific targets for reducing GHG emissions in transport. Decree No. 06/2022/ND-CP set a target to reduce at least 37.5 million tonnes of CO<sub>2</sub>eq by 2030. Especially, Decision No. 876/QĐ-TTg sets a target towards net GHG emissions by 2050.

Table 3. Summary of GHG emissions reduction target in the current system of legal documents

Leading agency	Legal documents	General target	Target for the transport sector
MONRE	<b>Decree No.06/2022/ND-CP</b> (Regulation on GHG mitigation and protection of the ozone layer)	- Total mitigation of GHG emissions by 2030 will reach a minimum of 563.8 million tonnes of CO <sub>2</sub> eq.	- Mitigation of GHG emissions by 2030 reaches a minimum of 37.5 million tonnes of CO <sub>2</sub> eq.
MOT	<b>Decision No. 876/QĐ-TTg</b> (The action programme for transition to green energy and mitigation of carbon dioxide and methane emissions from transport)		- By 2030: Improve the efficiency of energy use, accelerate the conversion of electricity use and green energy in the fields that are ready in terms of technology, institutions, and resources to fulfill commitments in the NDC and methane emissions reduction target of Viet Nam. - By 2050: Rationally develop modes of transport and strongly implement the transformation of all vehicles, equipment, and transport infrastructure to utilising electricity and green energy towards net zero emissions by 2050.
MONRE	<b>Decision No. 888/QĐ-TTg</b> (COP26 implementation scheme)	- Complete the synchronous legal corridor. - National, sectoral, and local strategies, master plans, and plans are reviewed, updated, and adjusted in line with the net zero target. - Form a carbon credit exchange, clearing mechanism, and a domestic carbon credit trading market. By 2030, the domestic carbon market will be operated and connected with countries in the region and the world. - Build and participate in the Just Energy Transition Partnership, Global Commission on Adaptation and international initiatives on GHG mitigation and energy transition.	- Activities to reduce GHG emissions in the fields of energy, transport, etc., are promoted. - By 2030, encourage the use of electricity and green energy in transport, using 100% E5 gasoline.

Table 3. Summary of GHG emissions reduction target in the current system of legal documents (continued)

Leading agency	Legal documents	General target	Target for the transport sector
MONRE	<b>Decision No. 888/QĐ-TTg</b> (COP26 implementation scheme)	<ul style="list-style-type: none"> <li>- Promote climate diplomacy, synchronously develop scientific research and innovation, promote capacity building and communication for low-carbon development and emissions reduction.</li> <li>- Climate change adaptation activities, etc., are implemented synchronously and effectively.</li> </ul>	
MONRE	<b>Decision No. 896/QĐ-TTg</b> (National strategy on climate change)	<ul style="list-style-type: none"> <li>- By 2030, critical infrastructure works to adapt to climate change will be completed with safety standards for disaster resilience.</li> <li>- By 2030, ensure that the total national GHG emissions are reduced by 43.5% compared to the BAU level. In which: Energy sector decreased by 32.6%.</li> <li>- By 2050, the economic and social infrastructure system will be developed synchronously and modernly to adapt effectively to climate change.</li> <li>- By 2050, ensure that the total national GHG emissions reach net zero emissions, with emissions peaking in 2035. By which, the energy sector decreased by 91.6%, with emissions of 101 million tonnes of CO<sub>2</sub>eq. Establishments with annual GHG emissions of 200 tonnes of CO<sub>2</sub>eq must reduce GHG emissions.</li> </ul>	
MONRE	<b>Decision No. 942/QĐ-TTg</b> (reduce methane emissions)	<ul style="list-style-type: none"> <li>- By 2025, total methane emissions will be 96.4 million tonnes of CO<sub>2</sub>, a decrease of 13.34% compared to 2020's level.</li> <li>- By 2030, total methane emissions will be 77.9 million tonnes of CO<sub>2</sub>eq, a decrease of at least 30% compared to 2020's level.</li> </ul>	
MPI	<b>Decision No. 687/QĐ-TTg</b> (Circular economy development scheme)	<ul style="list-style-type: none"> <li>- Contribute to concretise the target of reducing GHG emissions intensity per GDP by 15% by 2030 compared to the 2014 level, towards the goal of net zero emissions by 2050.</li> <li>- Increase awareness and investment interest of domestic and foreign enterprises and investors in the circular economy model; promote the application of the circular economy model to encourage the greening of economic sectors.</li> </ul>	



Table 3. Summary of GHG emissions reduction target in the current system of legal documents (continued)

Leading agency	Legal documents	General target	Target for the transport sector
MPI	<b>Decision No. 687/QĐ-TTg</b> (Circular economy development scheme)	<ul style="list-style-type: none"> <li>- The circular economy model supports building a green lifestyle and promoting sustainable consumption.</li> <li>- The circular economy model makes a vital contribution to improving the quality of life, ensuring equality in conditions and opportunities for capacity development, and improving labor productivity and income of employees in the circular economy.</li> </ul>	
MOT	<b>Decision No. 1254/QĐ-BGTVT</b> (Scheme for shipping fleet development in Viet Nam)		<ul style="list-style-type: none"> <li>- Propose the type of ship suitable to the actual situation that needs to be developed.</li> <li>- Mechanisms and policies needed to build and develop shipping fleets.</li> <li>- Complete legal regulations, create a transparent and open legal framework, apply information technology, and reform administrative procedures.</li> <li>- Double the market share of import and export cargo transport through Viet Nam's seaports by Vietnamese shipping fleet to 10% by 2026 and 20% by 2030.</li> </ul>
MPI	<b>Decision No. 1658/QĐ-TTg</b> (National Green Growth for 2021-2030 period, with a vision by 2050)		<ul style="list-style-type: none"> <li>- The rate of public transport of passengers in special-class cities and class-I cities is expected to reach 20% and 5% respectively.</li> <li>- The rate of clean energy buses is expected to reach at least 15% of total operating buses in special-class cities and 10% of total new buses in class-I cities.</li> </ul>



## 03. Summary of tasks for GHG emissions reduction goal in the transport sector in the current system of legal documents

To achieve the GHG emissions reduction goal in the transport sector, specific measures, as well as a group of measures and/or general tasks, have been identified. The mitigation measures in the transport are specified in the NDC and are summarised

below. This section focuses on summarising the main groups of measures and specific tasks presented in 04 documents approved by the Prime Minister right in the implementation phase of COP26 commitments.

Table 4. Summary of tasks for the target of GHG emissions reduction in transport

No.	Measure group	Task	Number of QD-TTg			
			876	882	888	896
1.	Complete the general policy/strategy	Review, amend and supplement specialised laws, strategies, master plans, and sector plans towards 2050.	✓	✓		✓
2.	Switch the mode of passenger transport	Complete public transport infrastructure and develop mass public transport infrastructure and non-motorised traffic infrastructure.	✓		✓	
		Develop and implement roadmaps, implement pilot models, mobilise social resources to encourage businesses and people to switch to public transport nationwide.		✓		
		Develop non-motorised transport infrastructure.	✓			
3.	Switch the mode of freight transport	Develop the supply chain of logistics services, enhance connectivity, and promote the development of multimodal transport.	✓	✓		
		Digitise information and operate according to the digital economic model in the field of logistics.	✓	✓		
4.	Switch to clean fuel	Build, amend, and perfect a system of regulations, technical guidelines, norms, etc., related to imports, production, new construction, switch, and conversion of vehicles and transport equipment to using electricity and green energy.	✓	✓		
		Review and propose amendments to 05 laws, specialized laws on transport, and sub-law documents to promote the conversion of transport vehicles and equipment to using electricity and green energy.	✓			
		Gradually reduce and stop using fossil fuels in transport.	✓	✓		
		Formulate investment incentive policies for manufacturing enterprises, roadmaps, and incentives for businesses and people to switch to vehicles and equipment using electricity and green energy.	✓	✓		

Table 4. Summary of tasks for the target of GHG emissions reduction in transport (continued)

No.	Measure group	Task	Number of QD-TTg			
			876	882	888	896
4.	Switch to clean fuel	Formulate preferential policies for enterprises in investment activities, construction and development of electric charging systems, and green energy supply infrastructure, giving priority to investment and development of supporting infrastructure for road vehicles using electric energy.	✓			
		Develop infrastructure for vehicles using green energy (charging stations, depots, power supplies, etc.).	✓		✓	
		Develop and implement roadmaps, action plans, and pilot models to switch to vehicles using clean energy.		✓	✓	✓
		Electrify existing national railway lines and invest in building new national railway lines using electric energy: the North-South national high-speed railway and railway branches connected to seaports using electric energy.			✓	
5.	Increase fuel efficiency	Develop regulations on fuel consumption limits for road vehicles, regulations on efficient use of energy for inland waterway vessels, and ships and aircraft operating on inland routes.	✓		○	
		Apply fuel consumption standards and emission norms.				✓
6.	Green infrastructure development	Develop regulations and criteria for "green" infrastructure.	✓	✓		
		Develop mechanisms and policies to encourage and implement the transformation of new and existing seaports, inland waterway ports, airports, railway stations, bus stations, and rest stops to meet "green" criteria.	✓			
		Promulgate standards for the system of equipment to monitor and ensure traffic safety using solar energy on several national expressways, national highways, and inland waterways; synchronously deploy clean energy application projects into the traffic regulation and assurance system.		✓		○
		Promulgate the process of managing, collecting, storing, transporting, and treating waste at inland ports and wharves.		✓		
		Develop transport infrastructure to adapt to climate change.		✓		✓
7.	Perform MRV and inventory	Complete regulations, processes, and technical guidelines on GHG inventory, the "measurement, reporting, and verification" system for GHG mitigation activities at sectoral and grassroots levels.				✓
		Build a database of GHG by sector for MRV and inventory.		✓		

**Note:**

- ○ only mention a group of general measures.

Table 4. Summary of tasks for the target of GHG emissions reduction in transport (continued)

No.	Measure group	Task	Number of QD-TTg			
			876	882	888	896
8.	Digital transformation and application of technology	Research, develop and transform vehicle technology, energy, green infrastructure, reducing GHG emissions, paying special attention to technology, development supporting industries, vehicle and equipment maintenance using electricity, and green energy.	✓	✓		
		Promote the development of the digital economy and digital transformation.	✓			
9.	Human resource development	Train, retrain and improve existing human resources in the transport sector in order to be ready to receive, manage and operate new technologies in vehicles and equipment using electricity, green energy, and green infrastructure.	✓			
10.	Communication and awareness raising	Develop a communication plan and organise communication with people and businesses about the roadmap, policies, and benefits of converting to vehicles and equipment using electricity and green energy.	✓			

In comparing the specific tasks and solutions for the transport sector mentioned in the Prime Minister's decisions since the net-zero target's commitment, it is clear that the tasks mentioned in Decision No. 876/QD-TTg have the most detailed and complete action plan as this is a document focusing specifically on the transport sector. Details of the implementation roadmap are presented in Figure 3.

In comparing groups of measures between decisions, the group of measures on converting to electric and green energy vehicles is paid more attention when mentioned in all four documents with several specific tasks listed. In addition, the duties of developing green infrastructure in transport are also quite focused. Notably, in both Decision No. 882/QD-TTg on the National Strategy on Climate Change until 2050 and Decision No. 896/QD-TTg on the National Action Plan on Green Growth in 2021-2030, the task of climate change adaptation in transport is mentioned, though, it only stops at the general task of developing transport infrastructure for the adaptation to climate change, without specified specific adaptation tasks.

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*Decision No. 942/QD-TTg in 2022 on the Action Plan to reduce methane emissions by 2030 only mentions one transport-related task, which is "Save and use energy efficiently; use clean, renewable energy to reduce greenhouse gas emissions, including methane, through optimising energy use in transport; renovate, upgrade and replace outdated equipment, technologies and vehicles that use a lot of energy."*

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*Decision No. 687/QD-TTg on the Circular Economy Development Scheme in Viet Nam does not mention specific tasks for the transport sector, only stating the MOT's responsibilities in organising implementation, including green infrastructure development; encouraging vehicles that use clean, economical, efficient energy and environmentally friendly technologies; research and apply science and technology in improving public transport infrastructure.*

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	2022	2025	2027	2030	2035	2040	2045	2050	Target in 2050	Target from 2050
	<b>ROADS</b>									
	<ul style="list-style-type: none"> <li>Promote the manufacturing, assembly, import and use of electric motorised road vehicles.</li> <li>Expand in mixing, using 100% E5 gasoline with motorised road vehicles.</li> </ul>			<ul style="list-style-type: none"> <li>Promote the manufacturing, assembly, import and use of electric road vehicles</li> <li>Convert all machinery and equipment for loading and unloading using fossil fuels to using electricity</li> <li>100% of vehicles use E5 gasoline</li> </ul>			<ul style="list-style-type: none"> <li>100% motorised road vehicles, machinery and equipment use electricity and green energy</li> </ul>			
	Develop charging infrastructure.			Step by step restrict and stop: manufacturing, assembling and importing automobiles, motorcycles and mopeds using fossil fuels for domestic use.			Complete charging infrastructure, provide green energy nationwide			
	Encourage new and existing bus stations and rest stops to be converted to green criteria						Convert all bus stations and rest stops to meet green criteria			100% of bus stations and rest stops meet green criteria
	<b>RAILWAY</b>									
	<ul style="list-style-type: none"> <li>Conduct pilot study on the use of electric vehicles and green energy on existing railway lines.</li> <li>Encourage the conversion of equipment at the railway station to electricity and green energy.</li> </ul>			Introduce step by step new investment and transition of railway vehicles using fossil fuels to electricity and green energy			Convert vehicles (locomotives, wagons) and equipment using fossil fuels to using electricity and green energy			100% of vehicles (locomotives, wagons), and equipment at the station use electricity and green energy
	Invest and develop roadmap in replacing old railway vehicles with new ones that can be converted to electricity and green energy.			Partially stop the production, assembly and import of railway vehicles and equipment using fossil fuels						
	Invest in building new railway lines in the direction of green energy transition.			<ul style="list-style-type: none"> <li>Renovate and upgrade the infrastructure of existing railway lines to fully meet the demands of green energy transition for railway vehicles.</li> <li>Continue investing in building new railway lines in the direction of green energy transition</li> </ul>						The infrastructure is fully eligible for green transformation
	<b>INLAND WATERWAY</b>									
	Encourage investment in building, importing, and converting inland watercraft using fossil fuels to using electricity and green energy.			Continue to encourage investment in building, importing, and converting inland watercraft using fossil fuels to electricity and green energy			100% of newly built inland waterway vehicles use electricity and green energy			<ul style="list-style-type: none"> <li>100% vehicles use electricity and green energy</li> <li>100% of equipment at ports and inland waterways are converted to electricity and green energy</li> </ul>
	<ul style="list-style-type: none"> <li>Research and develop criteria for green ports and green transport routes for formulating mechanisms and policies to encourage new investment in green inland waterway ports.</li> <li>Conduct pilot study and application to turn some waterways into green transport routes.</li> </ul>			Encourage new investment in inland waterway ports in the direction of green growth			<ul style="list-style-type: none"> <li>100% of newly built inland waterway ports must apply green criteria for ports</li> <li>Encourage existing inland ports and wharves to switch to green port criteria</li> </ul>			
	<b>MARITIME</b>									
	Encourage Vietnamese ships operating inland to fully comply with the provisions of the International Maritime Organization (IMO).			Ships operating inland fully comply with IMO commitments (Annex VI, MARPOL Convention)			Ships built, converted or imported after 2035 must use electricity and green energy			100% of existing ships operating on domestic routes are converted to electricity and green energy
	Encourage the conversion of vehicles and equipment to electricity, green energy or equivalent measures at new, additional and existing ports.			Invest in vehicles and equipment using electricity and green energy or equivalent measures at new and additional investment ports must be taken			Carry out the conversion of vehicles and equipment at existing ports, marine signaling devices using electricity, green energy or equivalent measures must be taken			All means of transport and equipment at port, marine signaling devices use electricity, green energy or equivalent measures
	<b>AVIATION</b>									
	<ul style="list-style-type: none"> <li>Implement all of the aviation industry's potential measures to reduce CO2 emissions.</li> <li>Finalise and complete the database system on energy use and fuel consumption of aviation enterprises.</li> </ul>			100% of newly invested passenger vehicles and other vehicles in the airport are electricity and green energy vehicles			100% of vehicles operating in the airfield use electricity and green energy (except for specialised vehicles)			<ul style="list-style-type: none"> <li>Convert to 100% green energy, sustainable aviation fuel for aircraft</li> <li>Depending on technological conditions, residual emissions are compensated by carbon offsetting to achieve net zero emissions</li> </ul>
	In 2030: Research on the use of alternative fuels to supplement part of aviation fuel.						Use a minimum of 10% sustainable fuel for some short flights			
	<b>URBAN TRAFFIC</b>									
	100% replacement bus, newly invested bus use electricity and green energy.			<ul style="list-style-type: none"> <li>At least 50% of vehicles use electricity and green energy</li> <li>100% replacement and newly invested taxi use electricity and green energy</li> </ul>						100% bus, taxi use electricity and green energy.
	The rate of public passenger transport in:			Increase the occupancy rate of public passenger transport						The rate of public passenger transport <ul style="list-style-type: none"> <li>In special urban areas reaches at least 40%</li> <li>In grade I cities reaches at least 10%</li> </ul>
	<ul style="list-style-type: none"> <li>Hanoi reaches 45% - 50%;</li> <li>HCMC reaches 25%;</li> <li>Da Nang reaches 25% - 35%;</li> <li>Can Tho reaches 20%;</li> <li>Hai Phong reaches 10% - 15%;</li> <li>Grade I cities reaches at least 5%</li> </ul>									

Figure 3. Roadmap for the transition to green energy in the transport sector – Decision No. 876/QĐ-TTg

## 04. Nationally Determined Contribution (NDC) – Analysis of new features in the updated NDC 2022 after commitments at COP26

Following the net-zero emissions commitment at COP26, Viet Nam submitted an updated Nationally Determined Contribution (NDC) Report to the Convention Secretariat at COP 27. Compared to the 2020 NDC, 2022's updated NDC has increased the unconditional contribution of emissions reduction by 2030 from 9% to 15.8%; and conditional contribution from 27% to 43.5% (compared to BAU). In there:

### UNCONDITIONAL CONTRIBUTION

A national effort to reduce emissions made with resources, including the state budget, loans, investment of domestic and foreign enterprises, contributions, and investments of people.

### CONDITIONAL CONTRIBUTION

A national effort to reduce emissions when adequately and appropriately financed by international financing through grants, concessional loans, financial resources, technology, and capacity building under bilateral and multilateral international cooperation mechanisms, especially within the framework of the UNFCCC and the Paris Agreement.

Specifically in the field of transport, compared to the 2020 NDC, the number of mitigation measures in 2022's updated NDC has been increased along with updates on assumptions, better suiting the actual situation. With the Unconditional Contribution, the number of additional measures is 04 measures, including 01 new measure (electric buses) and 03 measures, under the group of international support in the 2020 updated NDC.

Thus, some measures are in the scenario with international support in 2020's updated NDC, such as E30\_2020 (Shifting mode of transport from road to railway), E29\_2020 (Increasing the load factor of trucks), E28\_2020 (Encouraging the use of electric cars) have been included in the Unconditional Contribution scenario (a national effort to reduce emissions made with resources including, state budget, loan capital, investment of domestic and foreign enterprises, contributions and investments of the people).

Table 5 shows a comparison summary of measures, assumptions, and potential for GHG emissions reduction of each measure in transport according to the 2020 and 2022 NDC. In the field of transport, compared to the 2020 NDC, 2022's updated NDC has increased the unconditional emissions reduction contribution in 2030 from 9% to 12%; and conditional contribution from 15% to 22% (compared to the BAU scenario). In addition, the total GHG emissions reduction potential in the transport sector in 2030 of the 2022 NDC compared to the 2020 NDC will increase by 70% and 82%, respectively, under the Unconditional Contribution and the Conditional Contribution.

*In the transport sector, 2022's updated NDC following Viet Nam's commitment at COP 26 has reflected an ambitious goal of contributing to GHG emissions reduction by 2030 for both the Unconditional Contribution and the Conditional Contribution case. Specifically, the Conditional Contribution is set to increase the contribution level.*



Table 5. Summary of measures, assumptions, and potential to reduce GHG emissions in transport according to the 2020 and 2022 updated NDC

Measure code according to updated NDC		Name of measure	Hypothesis description according to		Contributing by 2030, million tonnes of CO <sub>2</sub> e			
					Unconditional (national effort) according to the updated NDC		Conditional (with additional international support) according to updated NDC	
2022	2020		2022 updated NDC	2020 updated NDC	2020	2022	2020	2022
E17	E15_2020	Limiting fuel consumption for newly manufactured, assembled, and imported motor vehicles	By 2030, limiting fuel consumption for motor vehicles will have obtained the following results: 100% of motorbikes sold will have reached the fuel consumption of 2.3 litres/100km; 100% of cars sold will have reached the following standard: fuel consumption of 4.7 litres/100km for small engine cars (<1400cc), 5.3 litres/100km for mid-engine cars (1400-2000cc) and 6.4 litres/100km for large-engine cars (>2000cc).	By 2030, limiting fuel consumption for motor vehicles will have obtained the following results: 100% of motorbikes sold will have reached the fuel consumption of 2.3 litres/100km; 100% of cars sold will have reached the following standard: fuel consumption of 4.7 litres/100km for small engine cars (<1400cc), 5.3 litres/100km for mid-engine cars (1400-2000cc) and 6.4 litres/100km for large-engine cars (>2000cc).	5.10	5.06	5.10	5.06
E18+E18s	E16_2020	Shifting passenger transport from private to public transport	By 2030, the proportion of public passenger transport will reach 45-50% in Hanoi, 25% in Ho Chi Minh City, 25-30% in Da Nang, 20% in Can Tho, and 10-15% in Hai Phong; at least 5% in class I cities.	By 2030, the shifting of transport vehicles from private to public transport will achieve the following results: Developing a bus system in 05 municipalities (HN, HCMC, HP, DN, CT); Operating 04 new BRT routes in Hanoi, DN and Ho Chi Minh City; Operate 03 new UMRT routes in Hanoi and Ho Chi Minh City.	0.40	0.21	0.40	0.42
E19+E19s	E30s_2020	Shifting cargo transport from roadway to railway	By 2030, cargo transport by railway will have increased by 12.5% annually.	By 2030, cargo transport by railway will have increased by 12.5% annually.	-	0.18	1.10	0.96

*Note: "s": Additional international support measures.*

Table 5. Summary of measures, assumptions, and potential to reduce GHG emissions in transport according to the 2020 and 2022 updated NDC (continued)

Measure code according to updated NDC		Name of measure	Hypothesis description according to		Contributing by 2030, million tonnes of CO <sub>2</sub> e			
					Unconditional (national effort) according to the updated NDC		Conditional (with additional international support) according to updated NDC	
2022	2020		2022 updated NDC	2020 updated NDC	2020	2022	2020	2022
E20+E20s	E17_2020	Shifting the transport mode from the roadway to inland waterway and coastal roadway	By 2030, the volume of goods transported by the inland waterways will increase from 127,8 billion tonnes-km to 128,8 billion tonnes-km (increasing from 20.6% to 21.6% of the total volume); the rate of road transport decreasing from 23.3% to 21.2%; The volume of goods shifted from the road to the sea is considered to be equal to the volume of goods shifted from road to inland waterway in the same period.	By 2030, the volume of goods transport by IWT: increasing from 127,8 billion ton-km to 128,8 billion ton-km (increasing from 20.6% to 20.8% of the total volume); the rate of road transport decreasing from 23.4% to 23.0%; The volume of goods shifted from road to sea is considered to be equal to the volume of goods shifted from the road to the inland waterway in the same period.	1.60	0.32	1.60	1.584
E21+E21s	E20_2020	Promoting the use of CNG buses	By 2030, the total number of CNG buses will be 623, including 423 in HCMC and 200 in Hanoi.	By 2030, the total number of CNG buses will be 623, including 423 in HCMC and 200 in Hanoi.	0.01	0.01	0.01	0.015
E22+E22s	E29s_2020	Increasing load factor of truck fleets	By 2030, the average truck's load factor will have increased from 56% to 60%.	By 2030, the average truck's load factor will have increased from 56% to 60%.	-	0.80	1.30	1.142
E23+E23s	E19_2020 E19s_2020	Encouraging the use of biofuel	Expand mixing and using 100% of E5 gasoline for road motor vehicles by 2030.	<b>E19_2020:</b> The average annual production of Ethanol is 145,000 m <sup>3</sup> , which is used to produce E5 biofuel for transport. <b>E19s_2020:</b> E5 gasoline accounts for 40% of total gasoline sales, assuming there are no supply constraints.	0.30	1.54	0.60	1.926

**Note:** "s": Additional international support measures



Table 5. Summary of measures, assumptions, and potential to reduce GHG emissions in transport according to the 2020 and 2022 updated NDC (continued)

Measure code according to updated NDC		Name of measure	Hypothesis description according to		Contributing by 2030, million tonnes of CO <sub>2</sub> e			
					Unconditional (national effort) according to the updated NDC		Conditional (with additional international support) according to updated NDC	
2022	2020		2022 updated NDC	2020 updated NDC	2020	2022	2020	2022
E24+E24s	E28s_2020	Using electric cars	By 2030, electric cars will account for 30% of the usage rate.	By 2030, the number of new electric cars sold will account for 30% of the total number of cars sold on the market.	-	0.86	1.90	4.308
E25+E25s	E18_2020 E18s_2020	Using electric motorbikes	By 2030, it is believed that electric motorbikes will account for 22% of the total number of motorbikes in use.	<b>E18_2020:</b> By 2030, new electric motorcycles will account for 7% of the total number of new motorcycles sold on the market every year. <b>E18s_2020:</b> By 2030, new electric motorbikes will account for 14% of the total number of new motorcycles sold on the market annually.	0.60	1.41	1.60	2.82
E26+E26s	E29s_2020	Using electric buses	Start using electric buses by 2025, and expect to reach 30% of the usage rate by 2030.		-	0.22	-	1.116
<b>TOTAL</b>					<b>8.01</b>	<b>10.61</b>	<b>13.61</b>	<b>19.307</b>

Note: "s": Additional international support measures.

The GHG emissions reduction potential of mitigation measures in the transport sector in 2030 between the 2020 NDC and the 2022 NDC for two cases (Unconditional Contribution and Conditional Contribution) are summarised in the graphs of Figure 4 and Figure 5.

Both the 2020 NDC and 2022 NDC showcase a significant contribution of the measure of limiting fuel consumption (E17) implemented with domestic resources. In the 2022 NDC, Energy Conversion Measures, particularly electric transport (E24, E25, E26), are included in the Unconditional Contribution scenario (Figure 4). However, the contribution of these three measures makes a substantial leap at the 2022 NDC under the Conditional Contribution scenario, including additional international support,

with an increase of 3.3 times. The 2022 NDC also demonstrates a high level of expectation for international support for measures under the group of freight modal shifting (E19s, E20s), increasing truck load factor (E22s), and using biofuels (E23s). With the introduction of electric buses in 2021 and the advantages of this mode, the measure of using CNG buses (E21) merely set a target of a very modest level of contribution.

For measures E18 and E20 on passenger and cargo modal shift, considering the feasibility in the context of time and investment resources such as urban railway system, port system, warehouse, and logistics, the potential of emission reduction potential of these measures has been reassessed and set at a lower level than in NDC 2020.

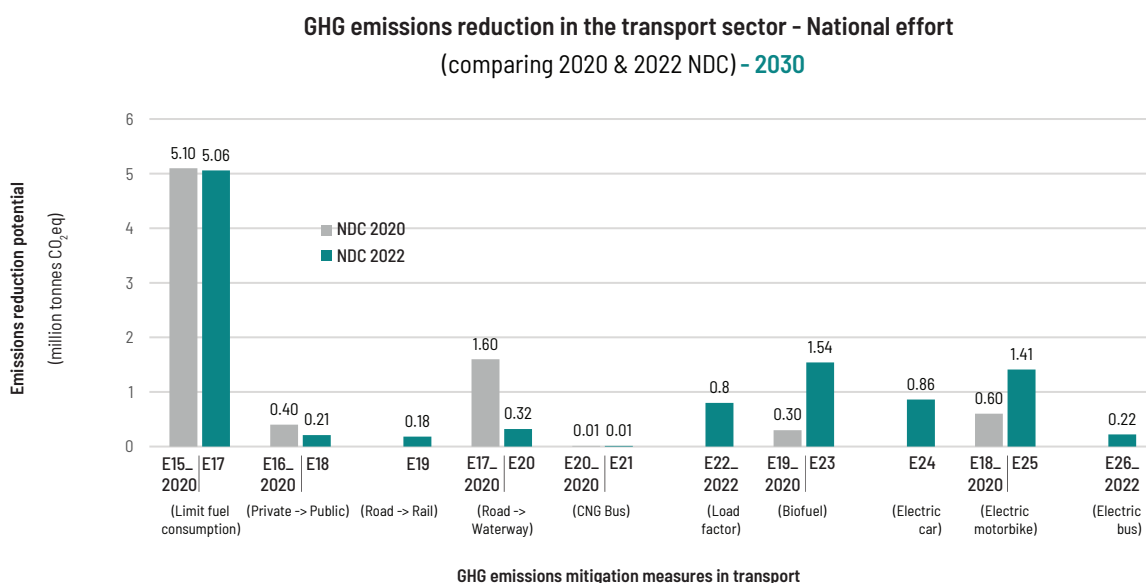


Figure 4. Comparing the potential for GHG emissions reduction in the transport sector in 2030 between the 2020 NDC and the 2022 NDC (Unconditional Contribution - national effort)

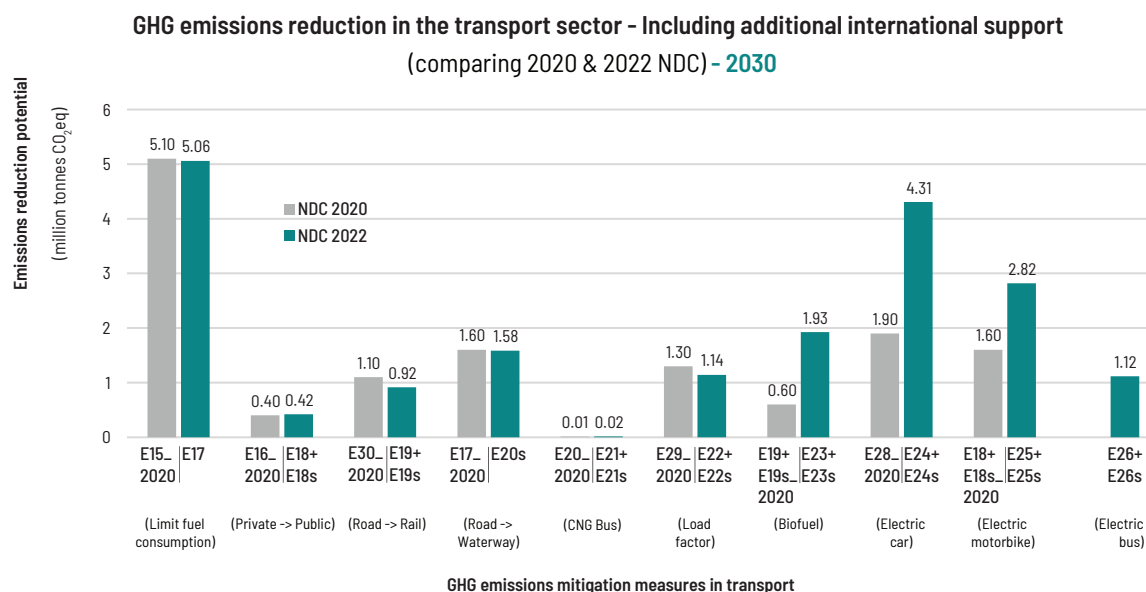


Figure 5. Comparing the potential for GHG emissions reduction in the transport sector in 2030 between the 2020 NDC and the 2022 NDC (Conditional Contribution - Including additional international support)

The potential for GHG emissions reduction in transport for the 2021-2030 period is updated in the 2022 NDC with levels of 45.62 and 88.25 million tonnes of CO<sub>2</sub>eq, respectively (Unconditional Contribution and Conditional Contribution). This result corresponds to a ratio of 12% and 7% for the Energy Sector, respectively (Figure 6).

Currently, GIZ, through the NDC-TIA project, is supporting the Ministry of Transport in developing a GHG emissions reduction plan in the transport sector, in accordance with the provisions of Decree No. 06/2022/ND-CP, aiming to concretise the implementation of the 2022 updated NDC.

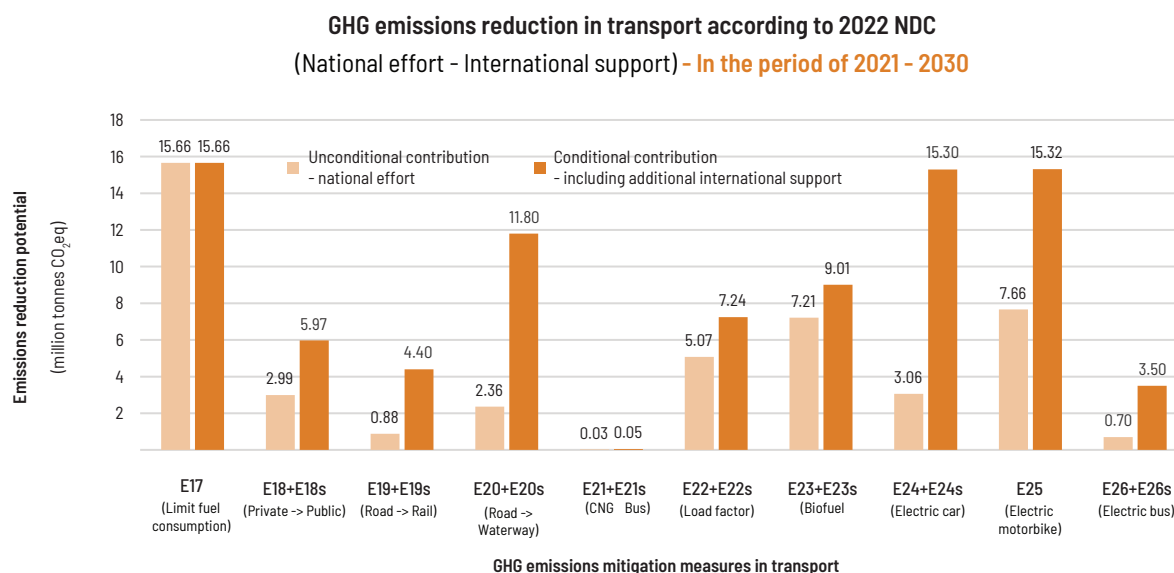


Figure 6. Potential to reduce GHG emissions in the transport sector in the period of 2021-2030, according to 2022's updated NDC

## CONCLUSION

In order to implement the Paris Agreement on climate change, Viet Nam has actively implemented numerous tasks, including building and completing relevant legal and institutional corridor. Key policies related to GHG emissions reduction and net-zero emissions target by 2050 in transport have been summarised in this report. These policies have been strongly promoted and gradually integrated into the legal corridor system, strategies, and master plans, among others. Additionally, specific measures to reduce GHG emissions in the transport sector have also been developed and implemented according to the roadmap, ensuring compliance with national conditions and international commitments. Some of the measures include the promotion of e-mobility development, fuel economy standards, modal shift, and the promotion of digital transformation in transport.

Although the legal framework for implementation of regulations is clear, it is still necessary to continue reviewing, updating, adjusting, and supplementing. Measures to reduce GHG emissions in transport are not limited to the entire transport

sector but are directly related to other sectors, ministries, localities, people, and businesses. The main subjects of each measure are also different, such as the transport sector and enterprises for infrastructure development, people for changing transport behaviour and utility vehicle ownership, etc. Meanwhile, financial policies have also been incorporated in the Law to support and promote the implementation of measures reducing GHG emissions, including business investment incentives in public transport services using electricity and renewable fuels, green signal, green bond, green procurement, and carbon market.

Along with continuing to improve the legal corridor, policies and cooperation among stakeholders, Viet Nam needs to mobilise both domestic resources and international financial support to successfully implement the mentioned policies. This is the first decisive factor to help Viet Nam achieve its goals, especially the long-term goal of net-zero emissions target by 2050 in transport.

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