



Decarbonization of the transport sector in UNECE member states

Natural Gas Vehicles Association of Russia

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Goals of the Research

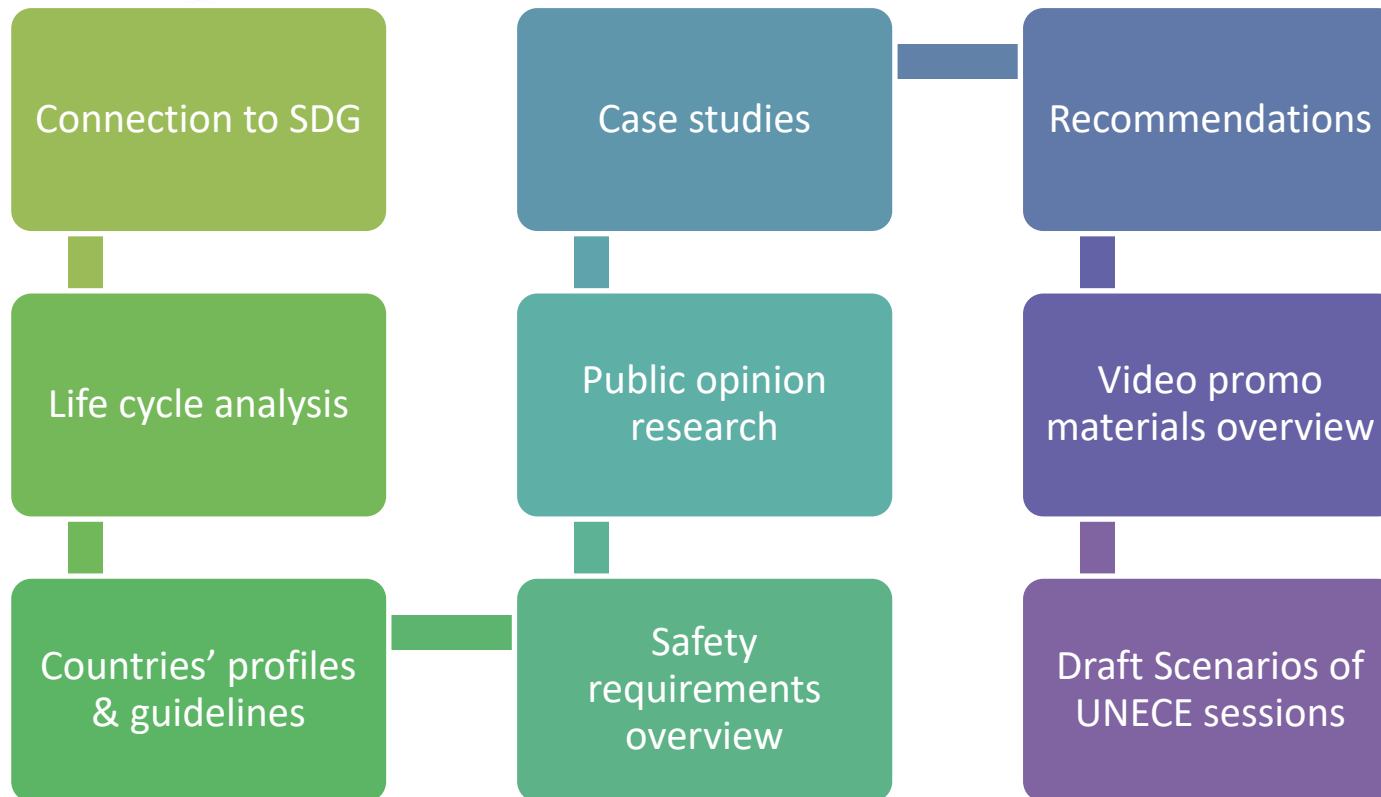
The main goal of the research is to contribute to NGV markets development in UNECE countries

- to accumulate the best practices for NGV market development,
- to analyze the specifics of selected countries,
- to estimate an effect of natural gas usage for sustainable development.





Structure of the Report



- 8 SDG;
- 4 LCA studies;
- 14 countries;
- 5 regional cases;
- 15 promo-materials





Goals 2030 and NGV



NGV market development contributes to at least 8 SDGs

Natural gas is an important tool for sustainable development balancing social, economical, environmental objectives



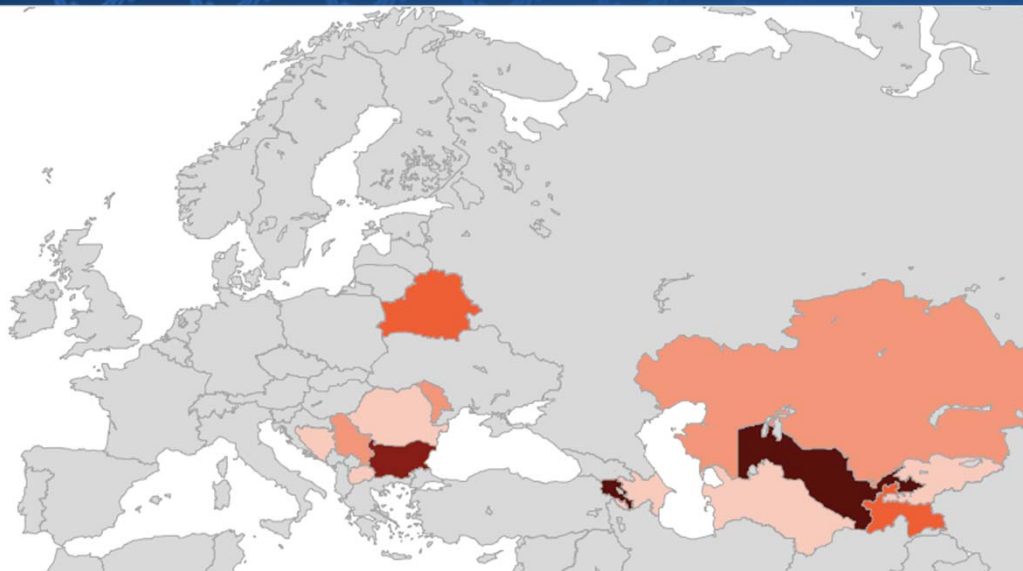
Life cycle analysis

1. According to the life cycle analysis natural gas allows to decrease GHG emissions and to get rid of the most harmful substances absorbed by particulate matter.
2. The use of biogas from municipal and agricultural waste allows implement a comprehensive approach to solving environmental problems.
3. Retrofitting of old vehicles to CNG is the most fast and cheap way to decrease harmful emissions.
4. The transition to e-mobility implies a mandatory change in the power mix, while the transition to NGV does not require huge investments in the power generation.
5. It is worth conducting a detailed analysis of the transport transition opportunities in each country, taking into account the prospects for energy development (including power mix forecasting)





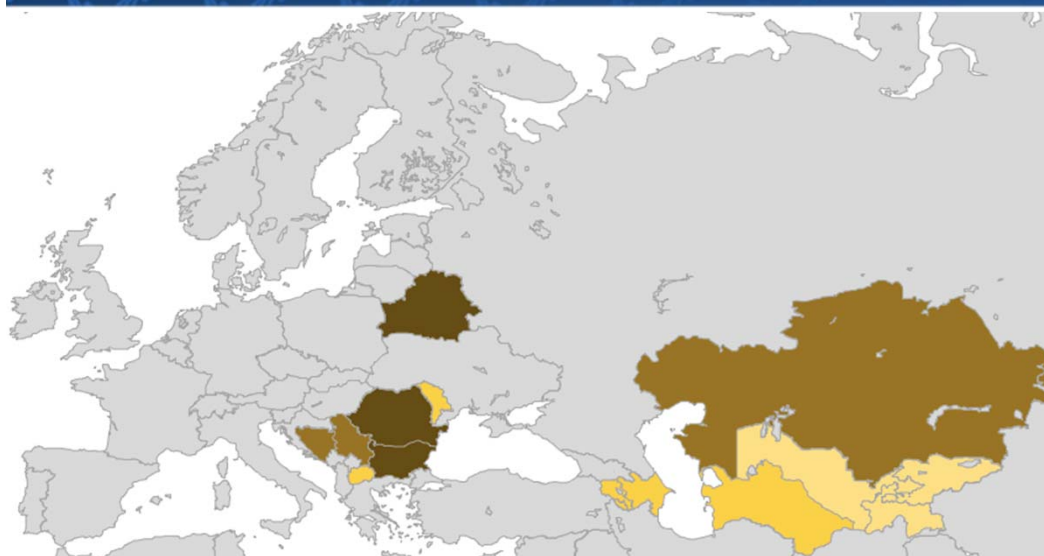
Number of existing CNG stations



• Armenia	-	400
• Azerbaijan	-	6
• Belarus	-	42
• Bosnia & Herzegovina	-	2
• Bulgaria	-	121
• Kazakhstan	-	10
• Kyrgyzstan	-	6
• Moldova	-	14
• North Macedonia	-	6
• Romania	-	3
• Serbia	-	24
• Tajikistan	-	53
• Turkmenistan	-	0
• Uzbekistan	-	1,070



Motorization level (per 1000 inhabitants)

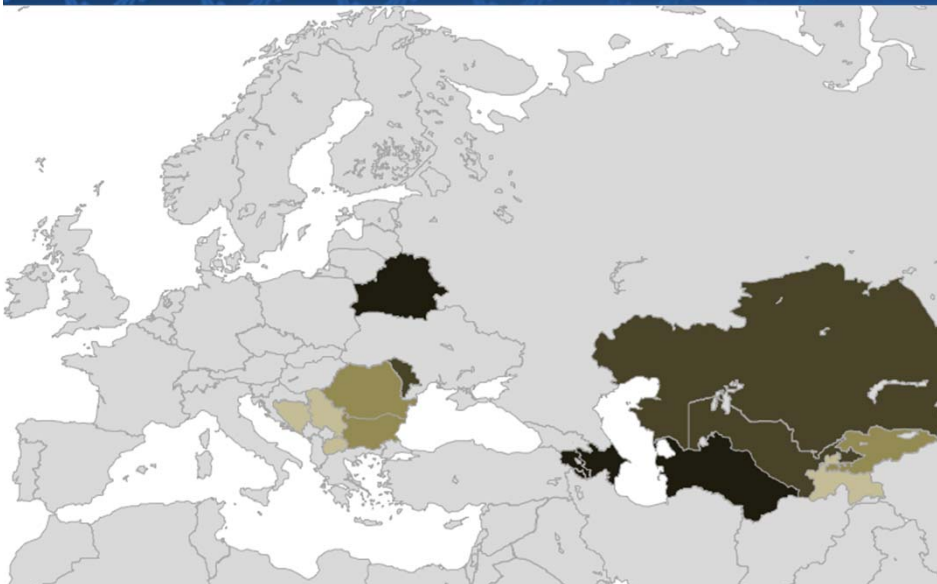


• Armenia	-	110
• Azerbaijan	-	119
• Belarus	-	334
• Bosnia & Herzegovina	-	263
• Bulgaria	-	393
• Kazakhstan	-	209
• Kyrgyzstan	-	n/a
• Moldova	-	173
• North Macedonia	-	194
• Romania	-	330
• Serbia	-	252
• Tajikistan	-	37
• Turkmenistan	-	107
• Uzbekistan	-	70

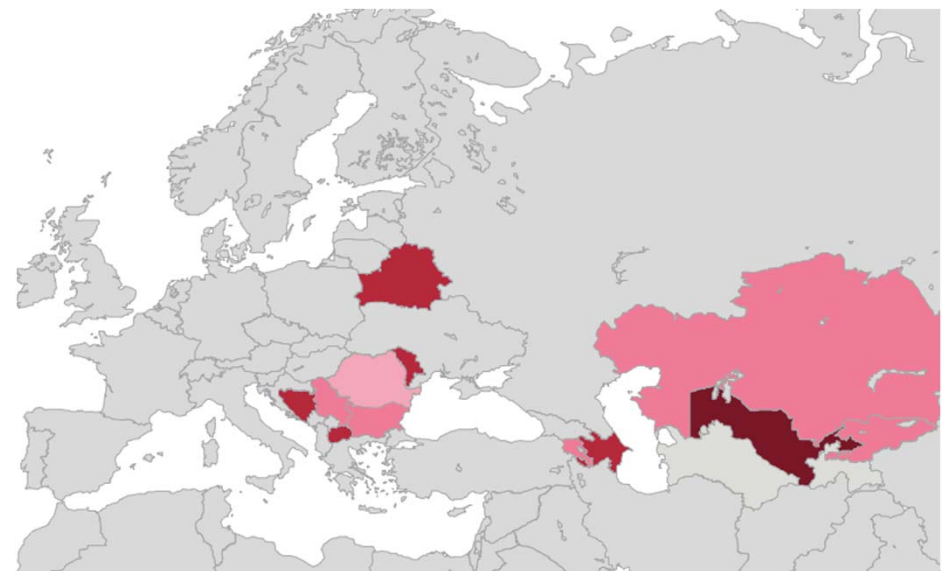


Natural Gas Market

NG Network coverage



CNG/gasoline price difference





Environmental effects






- 20%- and 50%-scenarios for **Moldova**
- The additional gas consumption in 50% scenario does not exceed **0.5 bcm annually**
- Complex analysis requires specific LCA with power mix forecasting



Structure of the Transportation Sector (incl off-road machinery)

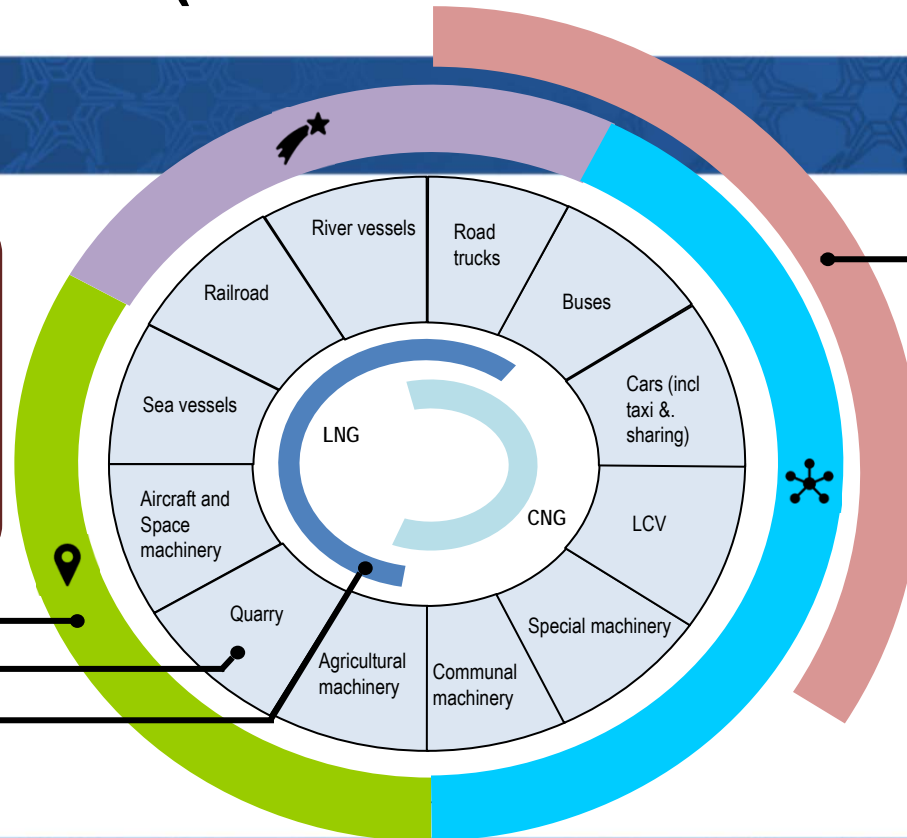
Types of infrastructure:

-  Network covers the area for limited logistic routes
-  Highway covers the main transportation routes between agglomerations
-  Pointed covers closed logistic routes

Type of infrastructure

Segment

Type of fuel



Scope of Study

Water transport, Railroads and off-road machinery should be covered at the next stage of the research



Comprehensive Development Program

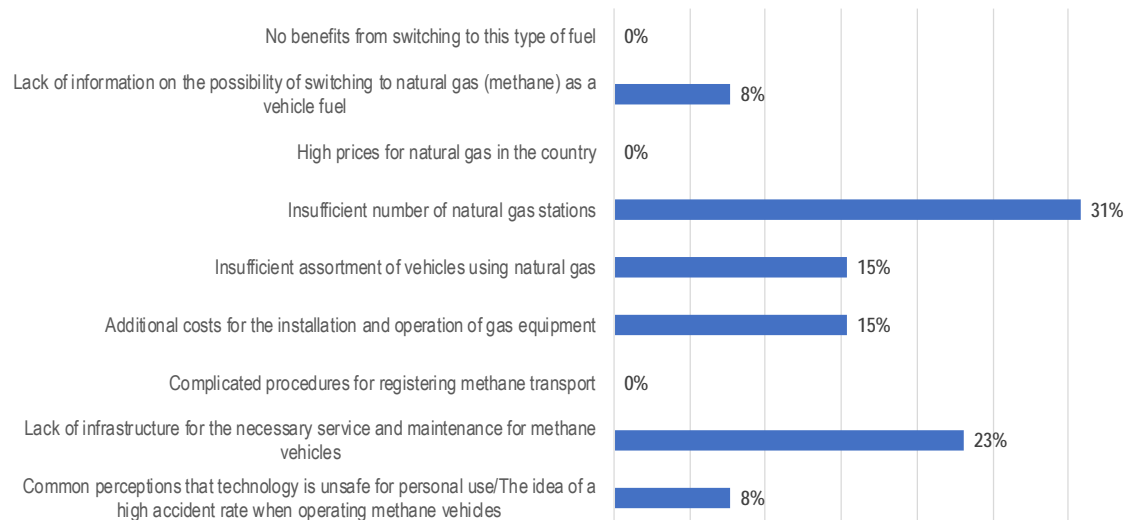
1. Each country should have a comprehensive development program for the NGV market including different segments of the transport sector: private cars, buses, LCVs, heavy trucks, construction and communal machinery, agricultural and quarry machinery, railway transport, water transport etc.
2. A comprehensive development program should be based on the long-term scenario of power sector (including power mix forecasting). We recommend to organize a specific research of power mix for every target country within the framework of the project.
3. A comprehensive development program should include a layout for filling infrastructure (CNG and LNG) with pipeline connection and supporting infrastructure (cylinder inspection centers, service centers, retrofitting points etc). The layout should be based on the potential demand research for the different segments of the transport sector.
4. The meaningful result of the UNECE project would be the start of a pilot project to develop a comprehensive development program for one of the developing NGV markets in target UNECE countries



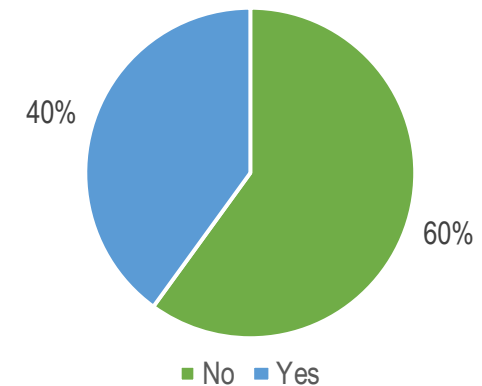
Public Opinion Research

We propose to initiate a promo project clarifying the specifics of NGV fuel in UNECE countries involving industrial associations

The main barrier to using natural gas (methane) vehicles is...



Do you know that the use of methane reduces emissions of pollutants into the atmosphere?





Recommendations

- To organize a specific research of power mix perspectives for every target country from the list
- To initiate pilot projects for implementation a comprehensive development program in several countries from the list
- To support creation of a unified interstate register of cylinders to control their circulation and simplify procedures for the end user when crossing borders
- To initiate a project to create promo video-materials clarifying the specifics of NGV fuel in the UNECE countries involving industrial associations



Thank you for attention!

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