

CONCEPT NOTE

(Below USD 250,000)

Title:	Improving capacities of the UNECE member States to decarbonize the transport sector by increasing the use of natural gas as a motor fuel
Manager:	Branko Milicevic
Subprogramme:	Sustainable Energy and Sustainable Transport
Implementing Entity:	UNECE
Start date:	June 2020
End date:	June 2022
Budget:	\$199,750
Beneficiary Countries:	Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Kazakhstan, Kyrgyzstan, Moldova, North Macedonia, Romania, Serbia, Tajikistan, Turkmenistan and Uzbekistan
Cooperating entities within the UN System:	UNESCAP
Other Implementing partners:	NGVA Europe, NGV Global, International Gas Union, Gas Exporting Countries Forum

I. Background

a. A brief description of the development challenge the intervention intends to address.

Switching to compressed or liquefied natural gas (CNG or LNG) from petrol and diesel is an effective way to reduce pollution from road transport. In countries that rely on diesel, CNG and LNG may represent an ideal bridge to more sustainable and decarbonised mobility in the future for two reasons:

- According to NGV Global, in 2018 CNG and LNG vehicles represented 1.5 per cent of the total vehicle population. The share could be even lower because the definition of what constitutes a natural gas vehicle (NGV) varies from country to country; in some countries it often includes liquefied petroleum gas (LPG) vehicles.
- Pollution from road transport contributes to poor urban air quality in large cities in many ECE member States. Using natural gas instead of diesel or petrol would lower concentrations of nitrogen oxides, carbon monoxide, methane, sulphur dioxide, volatile organic compounds and, most importantly, particulate matter, and hence improve the urban air quality.

The developmental and environmental potentials of CNG and LNG are not well understood. A lack of awareness and misconceptions of the environmental performance and the technical and economic feasibility of an expanding infrastructure for natural gas vehicles in road transport prevents some countries from reaping significant environmental and economic benefits of a sustainable transport system.

This project is based on the premise that natural gas—with its environmental, economic, availability and logistic advantages — is a serious alternative to petrol and diesel in the short- and medium-term because it is the only primary fuel that is fully technically and economically applicable in any mode of transportation: on-road vehicles (scooters, light- and heavy-duty vehicles), ships, locomotives, and so forth. Using natural gas as a transportation fuel is a critical area of opportunity for natural gas demand growth.

The project will: 1) enhance the capacity of ECE member States to develop infrastructure for affordable, sustainable and clean natural gas, 2) help them understand and harness the benefits of natural gas in transportation, as a viable low-carbon alternative to both current (petrol and diesel) and future (electricity, hydrogen) fuelling options; and 3) provide a life cycle analysis of competing fuelling options (diesel, natural gas, electricity, hydrogen) in heavy- and light-duty applications considering total energy use, fuel economy, energy efficiency and greenhouse gas emissions.

b. Reference to the UNECE intergovernmental legislation calling for action

The [Inland Transport Committee](#) (ITC) promotes sustainable, safe, clean and competitive transport by improving its environmental performance and energy efficiency. Particularly relevant is ITC's work on the harmonization of vehicle regulations (WP.29), such as UN Regulation No. 110 that contains provisions for specific components of motor vehicles using CNG and/or LNG in their propulsion system and, since both CNG and LNG are considered dangerous goods, the European Agreement concerning the International Carriage of Dangerous Goods by Road.

The [Committee on Sustainable Energy's](#) (CSE) activities ensure access to affordable and clean energy to all and help reduce greenhouse gas emissions and the carbon footprint of the energy sector. Under its current mandated programme of work UNECE is developing normative instruments including in the areas of natural gas and methane and is helping countries achieve carbon neutrality.

Annex VII of the Executive Committee's decision on Terms of Reference of the Committee on Sustainable Energy and Mandates and Terms of Reference of its subsidiary bodies (ECE/EX/2013/L.15) mandates the Group of Experts on Gas to provide a forum for multi-stakeholder dialogue on ways to promote the sustainable and clean production, distribution, and consumption of gas in the ECE region.

The areas of work of the UNECE Group of Experts on Gas are policy dialogue and exchange of information and experiences among ECE member countries on gas-related issues of regional relevance, including the role of gas in the global energy mix, and the relation between natural gas and the environment. Concrete activities that member States agreed for the Group of Experts' work in 2020-2021 include:

- Policy dialogues on gas and LNG supply, transit and demand.
- Policy dialogues on possibilities for the existing gas infrastructure to enable transition to a low-emission economy
- Policy dialogues on the role of gas in improving urban air quality
- Policy dialogues on synergies between renewable energy and gas and on the role of renewable/decarbonized/low-carbon gases in the future energy system

- Dissemination of good practices and policies on the role of renewable/decarbonized/low-carbon gases in the future energy systems
- Recommendations on how to update the gas infrastructure to accept an increased fraction of hydrogen
- Policy dialogues on smart gas grids and their potential to increase efficiency of energy transmission and use

In the field of transport, the Group of Experts on Gas has committed to develop:

- Policy dialogue on the barriers to and recent developments in the use of CNG and LNG in transportation, with a focus on maritime sector and
- Policy recommendations on removing barriers to the use of CNG and LNG in transportation which is in focus of this proposed extra-budgetary project.

c. How the intervention links to the overall normative and analytical work of UNECE and UNECE comparative advantage in this area.

UNECE possesses expertise in the use of gas in transport that gives it a comparative advantage over similar organizations active in this area. For example, in 2017 the Group of Experts on Gas drafted a report on removing barriers to the use of natural gas as maritime transportation fuel. In 2018 the Group of Experts on Gas published a case study from Spain on small-scale LNG and truck-loading, with the hope that the 50-year Spanish experience in LNG truck-loading could provide good examples for countries such as Croatia, Greece, Italy, Lithuania, Poland, or any other ECE member State looking to decarbonise transport by increasing LNG truck-loading capabilities.

d. Explanation how the project activities will contribute to the 2030 Agenda for Sustainable Development.

As gas plays an increasingly important role in improving access to affordable, reliable, sustainable and modern energy, and in achieving other targets of SDG 7, this activity is a continuation of work done in previous work cycles. The Group of Experts on Gas considers that gas represents an effective vector for decarbonizing the energy sector and improving its overall efficiency, notably in transport. From a developmental perspective, increasing the share of gas in transportation may help attain a wide range of Sustainable Development Goals, such as: SDG 1 (no poverty), SDG 5 (gender), SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure), SDG 11 (inclusive, safe, resilient and sustainable cities), SDG 12 (sustainable consumption and production patterns), and SDG 13 (climate action).

e. Information on beneficiary countries and target audience (senior government officials, national experts, representatives of the private sector, civil society, academia, etc...). Specific demand and requests for support from beneficiary countries should be emphasized.

The target group includes all stakeholders from the following member States: Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Kazakhstan, Kyrgyzstan, Moldova, North Macedonia, Romania, Serbia, Tajikistan, Turkmenistan and Uzbekistan, notably energy sector representatives, transportation engineers and planners, infrastructure developers, highway operators, transport service companies, and transport policy makers at the municipal, regional, and national levels, representatives of academia conducting research and training in the field of transport and representatives of civil society and other experts in this area. The project manager currently is confirming demand from the target countries.

f. The lessons learned and achievements from past activities in those countries, and/or complementary activities which are currently ongoing.

Since 2014 the UNECE Group of Experts on Gas has explored ways to remove barriers to the use of natural gas in transport. The [first project](#) focused on maritime sector, and the [second](#) on inland transport. Both activities stressed the catalytic role of natural gas in attaining the Sustainable Development Goals. These activities have identified drivers, key enablers, gaps and barriers to the use of CNG and LNG in transport. An important lesson learned was that reducing the use of heavy hydrocarbons and increasing the use of CNG and LNG in transport could help reduce carbon dioxide emissions and other air pollution (particulate matter, SO_x, NO_x) arising from transport and trade.

g. A brief description of how a gender perspective will be integrated to the project/ intervention and how project/ intervention address SDG5 “Achieve gender equality and empower all women and girls

Through this project UNECE and its Group of Experts on Gas will re-enforce its commitment to providing women and girls a better representation in decision-making processes along the gas value chain, including in the use of gas in applications related to transport. In line with the UNECE policy for Gender Equality and the Empowerment of Women, the project will seek to ensure equal participation of men and women in the project activities.

h. Implementation partners (national, regional and international), if any.

In this project UNECE will closely collaborate with UNESCAP because some of the target member States belong to both Commissions. Technical cooperation with relevant international organizations and associations such as the International Gas Union (IGU), the Gas Exporting Countries Forum, [NGVA Europe](#) and [NGV Global](#) is in place and will be expanded during project implementation. Both IGU and NGVA Europe have provided feedback to this concept note.

II. Impact

As the short-term impact, the project will improve understanding of the UNECE member States on benefits of natural gas in transportation as a viable and low-carbon option as well as will advance capacities of the UNECE member States to develop infrastructure for affordable, sustainable and clean natural gas.

In a longer-term, the project will contribute to reducing pollution from road transport thus contributing to improving urban air quality in large cities in UNECE member States.

III. Relationship to the Programme Budget and the Sustainable Development Goals

The project contributes to the objective of the Subprogramme 5 “Sustainable Energy”, to ensure access to affordable and clean energy for all and reduce greenhouse gas emissions and the carbon footprint of the energy sector in the region.

The Group of Experts on Gas is mandated by the ECE Committee on Sustainable Energy (CSE) to provide a forum for multi-stakeholder dialogue on promoting the sustainable and clean production, distribution, and consumption of gas in the ECE region and to help ECE member States deliver on key political commitments, such as the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change. “Use of gas in transportation-challenges and opportunities” is one of the activities of the Group’s work plan for 2020-21, approved by the CSE in September 2019.

The project will be implemented in close collaboration with the Subprogramme “Sustainable Transport” through their work on UN Regulation 110 (motor vehicles using CNG and/or LNG in their propulsion

system). An objective of the Subprogramme 2 “Sustainable Transport” is to improve sustainable inland transport by making it safer, cleaner, more efficient and more affordable, for both freight transport and personal mobility.

IV. Voluntary National Reviews (VNRs)

As the project’s aim is to help decarbonize transport sectors, it is relevant to SDG7 and SDG13. By removing barriers to the use of natural gas in transport, the project will help target countries in closing gaps related to SDG7, particularly with improving access to clean energy research and technology and advanced and cleaner fossil-fuel technology and promote investment in energy infrastructure and clean energy technology.

Several prospective target countries conducted [Voluntary National Reviews](#) (VNRs) in 2019: [Azerbaijan](#), [Kazakhstan](#), [Serbia](#), and [Turkmenistan](#). Several more will carry out their VNRs in early 2020, before the project implementation fully starts. In 2019 Bosnia and Herzegovina, for example, approved the Framework Energy Strategy until 2035, which implement reforms to improve energy efficiency, and improve security of the energy supply and responsibility toward the environment and this project may prove to be a catalyst for such transition. Several of the target countries are land-locked and the project will take into account their specific circumstances.

V. Objective

Improved capacities of the UNECE member States in decarbonize transport sector by increasing the use of natural gas as a motor fuel. This will be achieved by:

- increasing the share of natural gas in road transportation and hence reducing its carbon footprint;
- helping decarbonize the transport sector as UNECE member States confront the challenges of climate change and air quality;
- identifying key drivers for and barriers to developing refueling infrastructure for CNG and LNG in road transportation.

VI. Expected accomplishments

EA1. Improved understanding of the UNECE member States on the benefits of natural gas in transportation as a viable low-carbon alternative to incumbent fuels (petrol and diesel) and emerging technologies (electricity, hydrogen)

EA2. Improved national capacities for developing gas infrastructure in the context of sustainable energy (accessible, affordable, clean)

EA3. Improved awareness of the role of CNG and LNG in transportation in selected countries and worldwide.

VII. Indicators of achievements

IA1.1. At least 80 participants from (eight) selected countries improved their understanding of the benefits of natural gas in transportation (evidenced by the event evaluation of participants).

IA2.1. At least 40 experts improved their skills in managing gas infrastructure projects

IA2.2. At least 4 countries submitted national case studies on removing barriers to the use of gas in transport (evidenced by the impact discovery).

EA3.1. At least 100 participants from (eight) selected countries confirmed improved understanding key global trends and developments, and opportunities to expand s of the role of CNG and LNG in transportation.

VIII. Main activities

A.1.1. Assessing the state of development of CNG and LNG refueling and storage infrastructure in target UNECE countries;

A.1.2. Identifying and developing case studies with effective regulatory, legal, economic, technical, and public perception promotional activities as well as barriers to increasing the share on CNG/LNG vehicles in the light- and heavy-duty road fleets;

A1.3. Conducting a life cycle analysis of competing fueling options (diesel, natural gas, electricity, hydrogen) in target UNECE countries evaluating total energy use, fuel economy, energy efficiency and greenhouse gas emissions;

A.1.4. Conducting comparative analysis of safety requirements for refueling stations as one of the most serious barriers to market development,

A.1.5. Conducting public opinion research on introducing natural gas as a motor fuel,

A.1.6. Developing collection of case studies (and translating them into Russian) on popularization of using natural gas for vehicles, such as advertising, video, films, etc.,

A.2.1. Developing recommendations/policy guidelines on removing regulatory, legal, economic, technical and public perception measures aimed at promoting the use of gas in transportation and removing relevant barriers;

A.2.2. Developing up to 4 (four) national case studies on CNG/LNG refueling infrastructure and/or removing other barriers to the use of CNG/LNG in transportation;

A.3.1. Organizing 2 (two) capacity-building workshops to disseminate key recommendations and support peer-to-peer learning and adoption of good practices,

A.3.2. Participating in two other meetings to present and promote the results of the project and raise awareness of the benefits of natural gas in transportation.

IX. Risks and mitigation actions

Risks	Mitigating Actions
Lack of commitment by member States to applying lessons learn and case studies in the use of natural gas in transportation.	Involving government officials from the start of project implementation. Maintaining regular consultations with stakeholders in the countries.

X. Monitoring and Evaluation

The UNECE intervention manager will be responsible for regular monitoring of the activities’ implementation. The progress will be reported annually by preparing the progress reports. The final report will be prepared upon completion. The reports, materials and information related to the intervention will be shared on Activity Monitoring Tool (PMT). In addition, a questionnaire will be developed by the project manager to evaluate the impact, effectiveness and long-term sustainability of training and workshops organized. The questionnaire will be circulated regularly, after each workshop in the target countries among participants in the workshops.

ANNEX 1

Budget

Code	Object class	Activity/ Purpose	Units	Cost per unit (USD)	Total amount per object class (USD)
010	Staff and other personnel costs (<i>staff</i>)	To manage project and overall implementation of activities A.1.1., A.1.2., A.1.3., A.1.4., A.1.5., A.2.1., A.2.2., A.3.1. and A.3.2.	P2 x 6 months x \$10,000	10,000	60,000
010	Staff and other personnel costs (<i>consultants</i>)	<p>A1.1. Assessing the state of development of CNG and LNG refueling and storage infrastructure in target UNECE countries</p> <p>A1.2. Identifying and developing case studies with effective regulatory, legal, economic, technical, and public perception promotional activities as well as barriers to increasing the share on CNG/LNG vehicles in the light- and heavy-duty road fleets</p> <p>A1.3. Conducting a life cycle analysis of competing fueling options (diesel, natural gas, electricity, hydrogen) in target UNECE countries evaluating total energy use, fuel economy, energy efficiency and greenhouse gas emission</p> <p>A.1.4. Conducting comparative analysis of safety requirements for refueling stations as one of the most serious barriers to market development</p> <p>A.1.5. Conducting public opinion research on introducing natural gas as a motor fuel</p> <p>A.2.1. Developing recommendations/policy guidelines on removing regulatory, legal, economic, technical and public perception measures aimed at promoting the use of gas in transportation and removing relevant barriers</p> <p>A.2.2. Developing up to 4 (four) national case studies on CNG/LNG refueling infrastructure and/or removing other barriers to the use of CNG/LNG in transportation</p> <p>A.3.1. Organizing 2 (two) capacity-building workshops to disseminate key recommendations and support peer-to-peer learning and adoption of good practices</p>	<p>Consultant x ½month x 8,000</p> <p>Consultant x ½month x 8,000</p> <p>Consultant x ½month x 8,000</p> <p>Consultant x ½month x 8,000</p> <p>Consultant x ½month x 8,000</p> <p>Consultant x ½month x 8,000</p> <p>Consultant x ½month x 8,000</p> <p>Consultant x ½month x 8,000</p>	<p>4,000</p> <p>4,000</p> <p>4,000</p> <p>4,000</p> <p>4,000</p> <p>4,000</p> <p>4,000</p>	32,000
010	Staff and other personnel costs (<i>consultant travel</i>)	A3.1. Organizing 2 (two) capacity-building workshops to disseminate key	2 missions x 1 consultant x 1,500\$	3,000	3,000

		recommendations and support peer-to-peer learning and adoption of good practices A3.2. Participating in two other meetings to present and promote the results of the project and raise awareness of the benefits of natural gas in transportation			
160	Travel of Staff	A3.1. Organizing 2 (two) capacity-building workshops to disseminate key recommendations and support peer-to-peer learning and adoption of good practices A3.2. Participating in two other meetings to present and promote the results of the project and raise awareness of the benefits of natural gas in transportation	4 missions x 2 staff x 1,500\$	12,000	12,000
160	Travel of meeting participants	A.3.1. Organization of 2 (two) capacity-building workshops to disseminate key recommendations.	30 participants x 1,500\$		45,000
120	Contractual services (individual contractors)	For overall implementation and for A.1.6. and A3.1. (translation and interpretation)			20,000
125	Operating and other direct costs	For overall implementation (activities A.1.1., A.1.2., A.1.3., A.1.4., A.1.5., A.2.1., A.2.2., A.3.1. and A.3.2.) including IT costs			1,500
Budget Sub-Total					175,000
13% UN Programme Support Cost					22,750
1% Coordination levy (rounded)					2,000
Total budget (rounded)*					199,750

Upon receipt of the new contribution from donor(s), when issuing the released budget for the new intervention, apart from the deduction of the required standard 13% UN Programme Support Costs, 15% operating reserve of the estimated annual expenditures during the year will be deducted from the cash available balance, which will release during the last year of the project implementation.

ANNEX 2

Assessment of Gender Mainstreaming

Project Analysis/Justification	How central is gender equality to the objectives of this intervention?
	<input type="checkbox"/> Gender equality is the principal objective or one of the key objectives of the intervention <input checked="" type="checkbox"/> Gender equality has a moderate or minor role in the objectives of the project <input type="checkbox"/> Gender equality is not among the objectives of the intervention.
	Comments/evidence
	To what extent is this intervention expected to contribute to gender equality and the empowerment of women?
	<input type="checkbox"/> It will make a significant contribution <input checked="" type="checkbox"/> It will contribute in some way, including limited or marginal contributions <input type="checkbox"/> It is not expected to make a noticeable contribution.
	Comments/evidence
	Does the background/context analysis of the intervention:
<input type="checkbox"/> examine the different situations, roles, needs and challenges faced by women and men? <input type="checkbox"/> analyze whether women and men will be differently affected by the intervention (in terms of their benefits, rights, needs, roles, opportunities, etc.)?	
Comments/evidence	
Does the intervention justification explicitly take into consideration any of the following?	
<input type="checkbox"/> International gender equality frameworks (such as the Beijing Platform for Action) <input type="checkbox"/> International frameworks with a clear gender component (SDGs, human rights instruments, etc) <input type="checkbox"/> Country-specific gender policies or commitments, e.g. National Gender Action Plans	
<i>If so, specify which?</i>	
UNECE Policy and Gender Action Plan	Does the intervention correspond to any of the strategic objectives specified in the UNECE Policy for Gender Equality and the Empowerment of Women for your Sub-programme (refer to page 16 of the policy document for these objectives)?
	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	If so, which?
Data	Will the intervention do any of the following to analyze and track gender issues?
	<input type="checkbox"/> collect or produce sex-disaggregated or gender-relevant data

	<input checked="" type="checkbox"/> make use of sex-disaggregated or gender-relevant data
	<input type="checkbox"/> produce sex-disaggregated or gender-relevant qualitative indicators
	<input type="checkbox"/> make use of sex-disaggregated or gender-relevant qualitative indicators
	<input checked="" type="checkbox"/> gather information on the proportion of female and male beneficiaries?
	If yes, explain
Results framework	In what ways, if any, are the following designed to meet the different needs and priorities of women and men?
	Outcomes: Click or tap here to enter text.
	Outputs: Click or tap here to enter text.
	Activities: Click or tap here to enter text.
	Does the results framework include the following?
	<input type="checkbox"/> gender responsive indicators or targets*
	<input type="checkbox"/> a baseline to monitor gender equality results
Comments/evidence	

* A gender-responsive indicator is one which permits analysis of the differential impacts of the intervention on women or girls as compared to men or boys; or one which assesses the intervention's impact on outcomes that are specific to a particular gender. The simplest form of gender-responsiveness is sex-disaggregation, but more subtle gender-responsive indicators can include measures of many things which affect women and men differently or meet their specific needs: for example, services, resources or facilities that are used differently by women and men, women and men differently or meet their specific needs: for example, services, resources or facilities that are used differently by women and men.