

The "METHODOLOGICAL DOCUMENT SECTOR TRANSPORTATION". Quantification of GHG Emission Reductions due to the conversion of vehicles from gasoline to natural gas. Version 10/2020" provides holders of GHG reduction initiatives (conversion of vehicles from gasoline to natural gas), good practices related to the procedures, equations, parameters and data to quantify the reduction of GHG emissions, attributable to the project development.

The methodology contemplates the aspects related to the identification of the baseline scenario, additionality considerations, estimation of the reduction of GHG emissions by vehicular conversion in the ex-ante scenario and in the scenario with project and monitoring plan, including procedures of quality control and assurance.

With the information presented in the document, the holders of the sectoral GHG emission reduction projects will have complete and detailed guidance to design GHG emission reduction projects.

The document was published on the ProClima page (www.proclima.net.co) on October 16, 2020, with a period of 30 business days for comments from stakeholders. Additionally, it was sent to the following interested parties, by means of emails.

Organization	Name	Area
Empresas Públicas de Medellín – EPM	Andrea Viviana Marín Calderón	Unidad Planeación Gas
Empresas Públicas de Medellín – EPM	Jorge Iván Vélez Aguilar	Unidad Gestión de Aliados Gas
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During the Public Consultation period, comments were received. ProClima thanks those who submitted their comments, contributing to the joint construction of the documents, and seeking to guarantee the quality of the vehicle conversion projects, to promote the use of reliable methodologies and in line with national and international benchmarks.

As a result of the Public Consultation, the document entitled METHODOLOGICAL DOCUMENT TRANSPORTATION SECTOR. Quantification of GHG Emission Reductions by the conversion of vehicles from gasoline to natural gas. Version 01/28/2021.

Below are observations, comments and / or suggestions, clarifications or adjustments, and modifications resulting from the process.

Empresas Públicas de Medellín – EPM

Reference	Comment, remark or suggestion	Clarification/Adjustment
General	The methodological document should refer not only to the conversion of gasoline vehicles but also from ACPM (diesel) to natural gas, since diesel is also a common fuel in vehicles. Also because of the advantage of the fact that the calculations for diesel are similar and that the CO2 emission factor is also found in the referenced annex of Decree 926 of 2017. The document should have a broader scope: vehicles converted from gasoline to natural gas, vehicles dedicated to natural gas, replacement of diesel to natural gas vehicle fleets.	This methodology refers specifically to conversions of vehicles from gasoline to vehicular natural gas. A later version could include the conversion of vehicles to Diesel, or of vehicles dedicated to natural gas and replacement of vehicle fleets from Diesel to natural gas.
General	Is Compressed Natural Gas the same as Vehicle Natural Gas? If it is the same or the CNG comprises the VNG, should be clarified in the definition, in the applicability of the methodology and throughout the document. Does the methodology address compressed natural gas (CNG) vehicles or vehicles converted to natural gas (VNG)? At EPM when we talk about CNG we refer to the one that is compressed to transport it in the cars that carry the fuel to the municipalities. We understand that the chemical composition is the same, but the pressure between CNG and VNG can change. If this comment applies, it is necessary to adjust throughout the document.	Indeed, it corresponds to Vehicle Natural Gas. Clarification and corresponding adjustments are made in the revised methodology.
General	This methodological document is considered well structured; however, it would be worth considering whether it applies only to vehicles converted to natural gas or whether it can also be extended to vehicles dedicated to gas, where potentially greater reductions in GHG emissions could be demonstrated.	This methodology only applies to vehicles converted from gasoline to vehicular natural gas. For dedicated vehicles it would be necessary to consider other assumptions and methodological procedures.
General	The methodological document does not mention the vehicle model; however, we believe that it is an important criterion when it comes to conversions. In some cases, we believe that the brand also plays a role.	Since the methodology is applicable in Colombia, it was based on the principles under which the carbon tax operates, where the ways of operating engines or efficiencies are not taken into account. The tons of carbon according to Law 1819/2016, Decree 926/2010 and related regulations only take into account the effect of

		combustion with officially established conversion factors.
General	How are the margins of error considered regarding driving techniques? We understand that driving techniques are relevant in GHG emissions.	Driving practices were not considered since they are not considered in the payment of the carbon tax. Only the official conversion factor from gallons of fuel to tons of CO ₂ e applies.
Cover page	Why is it only talking about converting gasoline to natural gas? No conversions from diesel to natural gas? Given the similarities, this methodological document should also address the possibility of converting diesel or ACPM to natural gas. Take into account that the diesel emission factor considered in Decree 926 is 10.13 kgCO ₂ / gal, a little higher than that of gasoline. When talking about converting a vehicle that was by gasoline, is it only operating with natural gas or does it have the possibility of combining both fuels? Is this possibility considered within the document? or is it completely clear that it does not apply to vehicles that have both technologies installed?	It is a methodology specifically developed for vehicles converted from gasoline to NGV, including dual systems (contemplated). A later version could include other types of conversions.
Acronyms	¿It is indifferent to talk about CNG and NGV? Should a differentiation be made?	Clarification is made in the revised document.
4. Scope	Please explain if sector projects should be carried out by the initiative holder in conjunction with a transport authority. ¿What does the term "sectoral GHG reduction project" imply here?, Or does it refer to any project that converts gasoline vehicles to CNG vehicles? If a company decides to change its vehicle fleet from gasoline to natural gas, is it classified as a "sector project"?	It refers to any project that converts gasoline to NGV vehicles. It does not need to involve the public sector. The term "sectoral" refers to the transport sector. Indeed, if a company decides to change its vehicle fleet from gasoline to natural gas, it is understood as a transportation sector project.
4. Scope	If a company acts as a financier so that, for example, a fleet of taxis, a fleet of buses or private individuals make the conversion, who is understood as the holder of the initiative?, How are the Verified Carbon Credits derived from the initiative "distributed"?, ¿What happens to the ownership of the reductions if the vehicle changes ownership during the initiative?	The owner of the initiative, in principle, is the one who finances the technological change, but the distribution can always be agreed in the contracts established between the participating parties of the project, or even with third parties. It is, in essence, a contractual issue. For further information, refer to the PROCLIMA Standard.
5. Applicability	Why is this methodology restricted to these types of vehicles? Dump trucks, heavy-duty	This particular methodology refers to those types of vehicles. But anyone can propose a

	<p>vehicles (equipment) and trucks should also be considered.</p> <p>If they are vehicles that provide waste collection service, are they not covered by this methodological document? The scope should be expanded.</p>	<p>new methodology to include vehicles of another type, or that operate with another type of fuel.</p>
7. Terms and definitions	<p>Is Compressed Natural Gas the same Vehicle Natural Gas? If it is the same or CNG includes NGV, it should be clarified in the definition. Clarify the applicability of the methodology: Is it aimed for compressed natural gas (CNG) vehicles or vehicles converted to natural gas (NGV)? At EPM, when we talk about CNG, we refer to the one that is compressed to transport it in the cars that carry the fuel to the municipalities. We understand that the chemical composition is the same, but the pressure between CNG and NGV can change.</p> <p>If this comment applies, it is necessary to adjust throughout the document.</p>	<p>The clarification and adjustment is presented in the revised document.</p>
7. Terms and definitions	<p>Would the operational period of the project then be understood as the useful life of the vehicles in which the conversion from gasoline to natural gas will be carried out?</p>	<p>This is correct, but the duration of the crediting periods depends on the maximums established by the PROCLIMA Standard.</p>
8. GHG sources	<p>Why are CH₄ and N₂O emissions from land mobile sources being assumed to be zero? The document mentions that they are a minor source of emissions compared to CO₂ (which is true), but given the values, why ignore them? When a large number of vehicles are added, these values can have a significant weight. Although Decree 926 of 2017 does not mention the emission factors of CH₄ and N₂O, the FECOC does establish these emission factors for all Colombian fuels.</p>	<p>The methodology is based on the provisions of Law 1819 and Decree 926, and only refers to CO₂ emissions. As indicated above, later additions to this methodology may be suggested, as well as new methodologies.</p>
10.2 Additionality analysis	<p>If the initiative consists of the conversion of many vehicles from gasoline to natural gas, Is the project start date taken from the date the first vehicle is converted or from the date the last vehicle is converted?</p>	<p>The start date refers to the conversion of the first vehicle.</p>
10.2 Additionality analysis	<p>Is it correct to speak at this point of "CDM project activity"?</p>	<p>The comment is received, it refers to other initiatives to reduce emissions already registered. Clarification is made in the revised document.</p>

10.2 Additionality analysis	Is it correct to speak at this point of "CDM project activity"? Or what is meant is that the vehicles operate with CNG without this activity being registered in any of the carbon standards? (the same happens on page 18. It is suggested to review in the rest of the document).	The comment is received, it refers to other initiatives to reduce emissions already registered. Clarification is made in the revised document.
10.2 Additionality analysis	In order to be consistent with the acronyms of the document, please validate if the correct term to use here is Certified Emission Reductions, or instead it is more appropriate to speak of Verified Carbon Credits.	The comment is received and is adjusted in the revised version of the methodology.
10.2 Additionality analysis	If it is an initiative that has been developing in a region of the country that began between 2010 and 2011, it is most likely that the option of income from the sale of Verified Carbon Credits has not been considered. If you show that it was not the most economically or financially attractive option, can it be eligible according to this methodological document?	It is about a financial analysis of comparison or "benchmark". It must be demonstrated that carbon revenues were being considered, if financial additionality is chosen.
10.2 Additionality analysis	Is it correct to refer to the PDD-CDM? Please review and adjust if applicable.	Comments are received and adjusted in the revised version of the methodology.
11.1 Emissions generated in the baseline scenario	Is it correct that the emissions of the baseline scenario consider the consumption of CNG in year y?, Shouldn't gasoline consumption, which is the fuel used before project implementation, be considered instead?	The methodological approach starts from NGV consumption and builds the relationship against the baseline with a conversion factor to establish the consumption that would have been made if gasoline had been used.
11.1 Emissions generated in the baseline scenario	Does this factor also apply to trucks, buses and campervans? Is this value approved by the Ministry of Environment and Sustainable Development and the Ministry of Mines and Energy?	Applies to gasoline vehicles, no matter their type.
11.2 Emissions generated with the project	How to estimate the ex-ante amount of CNG to be consumed by each vehicle, should it be done based on the estimated distance traveled?	The methodology is based on the consumption of NGV. It should be estimated from gasoline consumption, using the proposed conversion factor. The revised methodology includes the procedure for estimating emissions in the ex-ante scenario.
12.1 Monitoring of project boundaries	Are vehicle plates presented? Should license plates be presented? How should vehicles converted from gasoline to NGV be presented in the project?	The revised document presents the clarifying note regarding the identification of the vehicles.
12.1 Monitoring of project boundaries	Why was GNV talked about here instead of CNG? It is the first time in the document where	Clarification and adjustment is made in the revised document.

		GNV is specified. Please correct throughout the document or clarify that the terms GNC and GNV are used interchangeably.	
12.3	CNG consumption monitoring	Does this mean that vehicle owners must request from the service station the registration of the volume of CNG purchased each time in order to know the annual consumption? Or is it enough to have some of these records and the time period to which each one corresponds, in order to make an annual estimate? Will it be done with all CNG service stations? Through the chip? Will all distributors be able to access the CNG consumptions of the vehicles of any EDS? Currently we can only access the information on the consumption of the EPM stations. This point needs to be adjusted so that it can be monitored.	Records must be available. Consumption not reported cannot be accounted for.
12.6.2	Information management	How are these agreements related to the transfer of ownership of GHG reductions handled in this type of project?	This depends on the private agreements that are reached. As mentioned above, this aspect will depend on the established contract between the parties.