

# Second Methodology Element Assessment Report for Ecofrotas



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<b>Methodology Element Title</b>	Complete Substitution of Gasoline and Its Blends by Ethanol in Commercial Fleets of Flex-Fuel Vehicles
<b>Version</b>	01
<b>Methodology Element Category</b>	Methodology and Module
<b>Sectoral Scope(s)</b>	07

<b>Report Title</b>	Second Methodology Element Assessment Report for Ecofrotas
<b>Report Version</b>	1
<b>Assessment Criteria</b>	VCS Standard: VCS Version 3, 15 July 2011, v3.1
<b>Client</b>	Ecofrotas
<b>Pages</b>	18
<b>Date of Issue</b>	28 February 2012
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**Summary:**

First Environment, Inc. (First Environment) was retained to provide the second assessment in the VCS double-approval process for the proposed Methodology Element titled, "Complete Substitution of Gasoline and Its Blends by Ethanol in Commercial Fleets of Flex-Fuel Vehicles." The Methodology Element provides procedures for monitoring and calculating emission reductions associated with switching to ethanol fuel in commercial fleets. The Methodology Element is accompanied by a separate module titled, "Tool to Use Real Options Analysis (ROA) in Fuel Switch Projects," and dated November 6, 2011.

The methodology assessment process consists of an independent third-party review of the new Methodology Element and the "Tool to Use Real Options Analysis (ROA) in Fuel Switch Projects." In particular, the methodology assessment shall confirm that the Methodology Element and any associated tools are consistent with all relevant VCS rules and procedures. The assessment of the new Methodology Element and associated tools is done through a double-approval process, according to the VCS Standard, and is necessary to provide assurance to stakeholders of the quality of the new Methodology Element and associated tools.

The methodology assessment was conducted using the VCS Standard, v3.1 as the criteria. Additionally, First Environment followed guidance in the VCS Methodology Approval Process, v3.2 and the VCS Program Guide, v3.1 and applied its professional judgment as informed by ISO 14064-2 and 14064-3 in assessing the proposed methodology.

During the assessment process, First Environment issued several clarification and corrective action requests – all of which were addressed sufficiently by Ecofrotas and Keyassociados. First Environment is of the opinion that the "Complete substitution of gasoline and its blends by ethanol in commercial fleets of flex-fuel vehicles," as described in the Methodology Element dated December 2, 2011, and the "Tool to Use Real Options Analysis (ROA) in Fuel Switch Projects," dated November 6, 2011, meet all relevant VCS requirements.

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## 1 INTRODUCTION

This report is provided to Ecofrotas and Keyassociados as a deliverable of the Verified Carbon Standard (VCS) methodology element (ME) assessment process for the proposed VCS ME titled “Complete Substitution of Gasoline and its Blends by Ethanol in Commercial Fleets of Flex-Fuel Vehicles” and the associated module titled “Tool to Use Real Options Analysis (ROA) in Fuel Switch Projects” (ROA Tool). This report provides a description of the steps involved in conducting the second methodology assessment as a part of the VCS double-approval process and summarizes the findings of the second methodology assessment.

First Environment, Inc. (First Environment) was provided the current version of the ME, dated June 20, 2011, and the first assessment report on August 30, 2011. Based on this documentation, the Audit Team performed a document review and desktop audit which resulted in corrective action requests (discussed later in this report), revisions to the ME, and the development of the separate module for the ROA Tool. The final versions of the ME, dated December 2, 2011, and the ROA Tool, dated November 6, 2011, serve as the basis of the final conclusions presented herewith.

Throughout the methodology assessment process, First Environment communicated directly with Keyassociados regarding most methodology assessment activities.

### 1.1 Objective

The purpose of the methodology assessment is to have an independent third party assess the conformance of the ME and associated tools with VCS requirements.

### 1.2 Scope and Criteria

The methodology assessment scope is defined as an independent and objective review of the proposed ME and associated tools. The methodology assessment is conducted using the *VCS Standard, 15 July 2011, v3.1* (VCS Standard) as the criteria. The *VCS Methodology Approval Process, 19 October 2011, v3.2* (VCS Methodology Approval Process); the *VCS Program Guide, 19 October 2011, v3.1* (VCS Program Guide); and the ISO 14064-2 and 14064-3 standards guided First Environment’s process.

First Environment and Keyassociados, acting on behalf of Ecofrotas, have agreed that a reasonable level of assurance be applied to this assessment.

### 1.3 Summary Description of the Methodology Element

The ME is applicable to projects that aim at complete substitution of gasoline or gasoline blends by ethanol in commercial fleets of flex-fuel vehicles. Emissions reductions are achieved through the reduction of carbon dioxide emissions resulting from the discontinued use of gasoline as the primary fuel source. Alternatively, ethanol sourced from renewable resources is selected as the primary fuel source in the project scenario. The ME provides procedures for establishing the project boundary, determining the baseline scenario, demonstrating additionality, monitoring fuel consumption and other relevant parameters, and finally, quantifying baseline and project emissions and total emission reductions. The ROA Tool was developed to provide additional guidance for the assessment of financial barriers in the determination of the baseline scenario and demonstration of additionality.

## 2 ASSESSMENT APPROACH

### 2.1 Method and Criteria

The following assessment process was used:

- conflict of interest review;

- selection of assessment team;
- kick-off meeting with Ecofrotas and Keyassociados;
- development of the validation plan;
- desktop review of the ME and other relevant documentation;
- follow-up discussions with Ecofrotas and Keyassociados for supplemental information as needed as well as the corrective action cycle; and
- assessment report development.

The validation process was utilized to evaluate whether the ME and ROA Tool are consistent with the stated criteria. A methodology assessment checklist was developed, which summarizes the criteria used to evaluate the ME and ROA Tool, the conformance of the ME and ROA Tool with each criterion, and the Audit Team’s assessment findings.

***Conflict of Interest Review***

Prior to beginning any assessment project such as this, First Environment conducts an evaluation to identify any potential conflicts of interest associated with the project. No potential conflicts were found for this project.

***Audit Team***

First Environment’s audit team consisted of the following individuals who were selected based on their assessment experience.

Lead Auditor – Iris Caldwell  
 Auditor – Howard Kanter, Jeff Daley, Michael Carim  
 Internal Reviewer – James Wintergreen

***Audit Kick-off***

The assessment process was initiated with a kick-off conference call on September 12, 2011 between First Environment and the primary Keyassociados contacts, Iris Gercov, Marcela Paranhos, and Carlos Shiguematsu, Jr. The communication focused on confirming the assessment scope, objectives, criteria, schedule, and the information required for the methodology assessment.

***Development of the Validation Plan***

Based on the information discussed during the kick-off conference call, the Audit Team formally documented its validation plan and provided the validation plan to Ecofrotas and Keyassociados.

***Desktop Review***

The Audit Team performed a desktop review of the ME, ROA Tool, and supporting documentation, as further described in Section 2.2 below.

***Corrective Actions and Supplemental Information***

The Audit Team issued requests for corrective action and clarification during the methodology assessment process, as described in Section 2.5. The corrective action and clarification requests and the responses provided by Ecofrotas and Keyassociados are summarized in Section 4.

## Assessment Reporting

This methodology assessment report documents the methodology assessment process and identifies its findings and results.

### 2.2 Document Review

Eligibility requirements, baseline approach, additionality, project boundary, emissions, leakage, monitoring, data and parameters, and other pertinent criteria were assessed to evaluate the ME and ROA Tool against VCS program requirements. In order to help inform the assessment, First Environment reviewed the references cited in the ME and ROA Tool, other approved methodologies, and a set of sample calculations that applied the cluster analysis and quantification methodologies given in the ME. Discrepancies between the assessment criteria and the ME and ROA Tool were considered material and identified for corrective action, as further described in Section 2.5.

### 2.3 Interviews

The Audit Team held teleconferences with the following individuals during the course of the methodology assessment:

- Iris Gobato Gercov – Keyassociados
- Marcela Paranhos – Keyassociados
- Carlos Shiguematsu, Jr.– Keyassociados

### 2.4 Use of VCS-Approved Expert

A VCS-approved expert was not retained for the purposes of this methodology assessment.

### 2.5 Resolution of Any Material Discrepancy

As described in Section 2.1, the Audit Team issued formal requests for corrective action, clarification, and supplemental information during the methodology assessment process. In particular, discrepancies between the ME, ROA Tool, and the VCS Standard were identified for corrective action and required appropriate justification. Clarification and supplemental information requests served to provide the Audit Team additional context or background information in order to complete the assessment process. Ecofrotas and Keyassociados were given the opportunity to resolve the requests through the submittal of additional evidence or justification, revisions to the ME and ROA Tool, and/or other means as appropriate. The specific corrective action and clarification requests issued by the Audit Team, as well as the responses provided by Ecofrotas and Keyassociados, are summarized in Section 4.

### 2.6 Internal Quality Control

First Environment is an accredited validation and verification body by the American National Standards Institute (ANSI). This accreditation assures the quality controls inherent in our assessment process, which includes an independent internal review process as required by the ISO 14064-3 standard. The Internal Reviewer, who is selected as a senior member of First Environment’s staff, conducts a high-level review of the methodology assessment activities and conclusions and confirms that they are consistent with the assessment criteria as well as First Environment’s internal management procedures. All issues identified during the internal review are resolved before the issuance of deliverables to the client.

### 3 ASSESSMENT FINDINGS

#### 3.1 Applicability Conditions

The ME clearly identifies criteria by which to assess the eligibility of fuel switch projects involving commercial fleets. Specifically, the ME requires that eligible projects must meet the following applicability conditions:

- The project boundary contains commercial fleets that consist exclusively of flex-fuel vehicles, i.e., only flex-fuel vehicles are used in both the baseline scenario and in the project activity.
- Only existent fleets of flex-fuel vehicles are eligible, i.e., acquisitions of new flex-fuel vehicles are not acceptable under the ME.
- In the baseline scenario, the vehicles use only gasoline or blends of any proportion of ethanol and gasoline (0-99 percent).
- Fuel consumed in the project activity is exclusively ethanol (E100) with the exception of up to five percent of fuel consumed per fleet and per year, which can be gasoline for the purpose of emergency use and for the start-up mechanism as required by the flex-fuel motor technology. Fleets that consume more than five percent of gasoline in a given year are permanently excluded from the project activity.
- Ethanol is available in the same gas stations as the baseline fuel for at least 50 percent of the gas stations available in the project region.
- Gasoline, ethanol, and their blends comply with national regulations.
- Ethanol used in the project is produced from renewable resources.
- Consumption of fuel used by each vehicle of the commercial fleet within the project boundary is monitored constantly during the crediting period and during the period to which the historical consumption pattern refers.
- The system of measurement (direct and indirect) shall guarantee that 95 percent of the fuel consumed by the project activity per fleet and per year is ethanol. The Validation and Verification Body (VVB) must approve the system of direct measurement. The system of indirect measurement must ensure that the width of the 95 percent confidence interval does not exceed 30 percent of the estimated value.
- No legal requirement exists to use exclusively ethanol fuel in commercial fleets in the relevant national market.
- In case the project proponent is not the owner of the commercial fleet vehicles (e.g., the project proponent is a fleet manager with many clients, each client being the owner of its respective commercial fleet vehicles), the project proponent shall have a contract with each fleet owner to establish clear ownership of the emission reductions.
- Emission reductions can only be claimed by the commercial fleet owner or manager. As such, any contracts between the project proponent and fleet owners shall include a clause stating that, to avoid double-counting in the supply chain, the commercial fleet owner must not participate in any other emission reductions project associated with a biofuel producer or retailer.

The criteria identified provide a clear basis for determining the ME's applicability to potential project activities. In addition, the ROA Tool also identifies clear applicability conditions for its application. First Environment concluded that the applicability requirements given in the ME and ROA Tool are appropriate, adequate, and consistent with the VCS Standard.



### 3.2 Project Boundary

The project boundary encompasses the operation of flex-fuel vehicles from the commercial fleets included in the project activity. The special extent of the project boundary is defined by the gas stations used by the project activity. The ME further directs project proponents to segregate the project area into distinct regions via a cluster analysis. The VVB shall assess the appropriateness of the clustering methods chosen by project proponents for this purpose; however, at a minimum, the cluster analysis shall consider fuel availability, fuel price, and regulatory framework.

The ME identifies relevant sources of baseline and project emissions and indicates whether each is included or excluded from the project boundary. First Environment determined that the ME provided sufficient criteria to establish the project boundary and that all relevant emission sources and GHGs are included.

### 3.3 Procedure for Determining the Baseline Scenario

The ME establishes a two-step procedure to determine the most plausible baseline scenario. The procedure is applied to each commercial fleet as well as to each project region (as identified in the cluster analysis described above). According to the first step, project proponents must identify all realistic and credible alternatives to the project activity, including at a minimum:

- the continuation of the existing fuel consumption pattern, and
- the adoption of proposed project activity without carbon credits.

The project proponent must also consider whether the alternatives are in compliance with legal and regulatory requirements.

The second step is performed in accordance with the barriers analysis provided in the Clean Development Mechanism’s (CDM) “Combined tool to identify the baseline scenario and demonstrate additionality” (Combined Additionality Tool). The ME recommends the use of the ROA Tool when financial barriers are identified. The ROA Tool was developed to assist project proponents with demonstrating the economics of a fuel switch option. The ME also provides guidance for assessing the outcome of the second step. First Environment found the two-step procedure for determining the most plausible baseline scenario to be appropriate, adequate, and consistent with the VCS Standard.

### 3.4 Procedure for Demonstrating Additionality

The ME requires the use of the Combined Additionality Tool in order to demonstrate project additionality. Because the CDM is considered an approved GHG program under the VCS, First Environment considered the use of the Combined Additionality Tool an acceptable approach consistent with the VCS Standard. In addition, as noted above, the ROA Tool is provided for cases in which financial barriers are identified.

### 3.5 Baseline Emissions

The ME provides procedures and equations for the calculation of baseline emissions. Specifically, baseline emissions are equivalent to the metric tonnes of carbon dioxide emitted to the atmosphere from the combustion of gasoline in the absence of the project activity. The quantity of gasoline consumed by each fleet in the baseline scenario is estimated from the quantity of ethanol consumed by the same fleet during the project activity. The quantity of ethanol is multiplied by a baseline fuel consumption pattern, which accounts for any ethanol consumption in the baseline scenario; and a net calorific value conversion factor between ethanol and gasoline. The equivalent volume of gasoline consumed by each fleet is summed across the project regions and then multiplied by the carbon dioxide emission factor for gasoline. Finally, the baseline emissions from each fleet are summed in order to determine the total baseline emissions for the project activity.



The ME provides additional procedures for determining the baseline fuel consumption pattern, net calorific value conversion factor, and carbon dioxide emission factor. First Environment reviewed all formulae and quantification methods for accuracy and concluded that the approach to calculate baseline emissions is appropriate, adequate, and consistent with the VCS Standard.

### 3.6 Project Emissions

Project emissions consist of gasoline consumed by the flex-fuel vehicles during the project activity for start-up and in emergency cases when ethanol is temporarily not available. The ME specifies that gasoline consumption for these purposes shall not exceed five percent of the total annual fuel consumption per fleet. The ME provides procedures and equations for the calculation of project emissions. Specifically, project emissions are determined by multiplying the quantity of gasoline consumed by each fleet by the carbon dioxide emission factor for gasoline and summing the total emissions across all fleets in the project activity.

First Environment reviewed all formulae and quantification methods for accuracy and concluded that the approach to calculate project emissions is appropriate, adequate, and consistent with the VCS Standard.

### 3.7 Leakage

The ME does not identify any sources of leakage. This is justified because no increases in GHG emissions are expected outside of the project boundary as a result of the project activity.

### 3.8 Quantification of Net GHG Emission Reductions and/or Removals

Emission reductions are calculated as the difference between baseline and project emissions. Baseline and project emissions are aggregated across all fleets and project regions in a given year. First Environment determined that this approach to calculate emission reductions is appropriate, adequate, and consistent with the VCS Standard.

### 3.9 Monitoring

The monitoring of all data and parameters required to quantify emissions are described and appropriately defined in the ME. Specifically, the ME establishes requirements for monitoring procedures, measurement frequency, and quality control and quality assurance for all monitored data and parameters. The ME does distinguish between direct and indirect measurements and provides adequate guidance on how to address the potential uncertainty with each. Additionally, the ME specifies that all data shall be retained for at least two years after the end of the last crediting period, consistent with VCS requirements. First Environment determined that the monitoring approach is appropriate and sufficient in order to obtain the necessary data for emission reductions quantification as well as meets relevant requirements in the VCS Standard.

### 3.10 Data and Parameters

The ME describes all data and parameters required for emission reductions quantification and classifies them as either monitored or not monitored. The descriptions include source of data, unit of measurement, measurement procedures and frequency, default values where appropriate, and other comments necessary for project implementation or validation/verification. The ME requires that factors used in the emission reduction calculations are from reputable sources and/or representative of the emission source or activity for which they relate.

Similarly, the ROA Tool identifies relevant parameters for the purpose of the real options analysis. The descriptions include source of data and measurement methods. The ROA Tool requires that a minimum of three years of historical data be used in the calculations.

First Environment concluded that the data and parameters given in the ME and ROA Tool as well as the associated requirements for measurement, are appropriate and sufficient to reduce uncertainty in the emission reduction calculations and financial barriers analysis.

### 3.11 Use of Tools/Modules

The ME references aspects of the Combined Additionality Tool, the CDM's "Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion," and the "Tool to use Real Option Analysis (ROA) in Fuel Switch Projects." The first two tools were developed by the CDM, which is an approved GHG program under the VCS. The third tool was developed by Ecofrotas and Keyassociados to provide additional guidance for the assessment of financial barriers in the baseline and additionality determinations and was assessed by First Environment in conjunction with the ME. First Environment confirmed that the ROA Tool was prepared in accordance with the VCS module template and that all tools were appropriately referenced in the ME.

### 3.12 Adherence to the Project Principles of the VCS Program

The ME and ROA Tool were developed in accordance with the requirements of VCS and adequately addresses the principles of relevance, completeness, consistency, accuracy, transparency, and conservativeness.

### 3.13 Relationship to Approved or Pending Methodologies

The ME draws upon elements of several approved CDM methodologies. However, the degree to which these existing methodologies would have to be revised in order to incorporate the fuel-switch activity from the perspective of a commercial fleet owner/manager is substantial enough to warrant a new methodology.

### 3.14 Stakeholder Comments

The ME received two comments during the public stakeholder consultation process. The original comments, the responses by Ecofrotas and Keyassociados, and First Environment's conclusion are provided in the table below.

ID	Original Comment	Methodology Developer Response	Validation Conclusion
1a	<p>As far as I'm concern, the gasoline vs ethanol prices aren't stable enough so a long-time based project could guarantee its additionality during its life-time (ethanol could become economically more interesting than gasoline).</p>	<p>Prices of both ethanol and gasoline are not stable; the flex-fuel technology allows the consumer to choose the cheaper fuel each time he fills the car. The proposed approach (ROA) takes into consideration historical price fluctuations as well as historical consumption pattern in the project region; therefore, it addresses the key questions of additionality. The eligible projects must guarantee that they will give up the option of choice in the result of the project activity (i.e., can fill their flex-fuel car only with ethanol); therefore, the approach that calculates the value of this lost option in the specific project region reality results in precise assessment of additionality.</p>	<p>The ME and ROA Tool provide adequate procedures for the determination of additionality during project validation. Accordingly, each project developer will be responsible for demonstrating to the VVB that its project activity is additional. Therefore, this comment has been adequately addressed.</p>
1b	<p>Also, there is already a strong pressure by the community/ market to organization reduce their carbon footprint, and, one way to do that, would be exactly use ethanol in the vehicles (especially in countries where flex-fuel vehicle are, in general, preferred than non flex-fuel ones), that is why I consider this methodology could become a simple instrument to improve profits with no great efforts beyond the ones that would be already taken by simple sustainability strategies and environmental concerns. It does not changes habits nor contribute to clean development (unless it is implemented in countries where flex-fuel vehicles are not used), it also doesn't implicate in significant risks to the project entity and, I'm guessing, the monitoring plan could be easily rigged.</p>	<p>Improving of profits is not possible under the project activity because the project proponent "...shall present to [VVB] a clear result of the value of the switch option from the baseline scenario and demonstrate objectively how this switch option will be lost with the project activity undertaken, therefore, the project activity without the VCS benefits would not be financially attractive."</p> <p>The QA/QC monitoring procedures are based on all confidence level requirements of UNFCCC: "If direct measurement is used, the respective equipment shall be regularly calibrated following the manufacture specification. If indirect measurement is used, the system of measurement and registry of data shall statistically guarantee that the data (variables of type and quantity of fuel consumed) obtained, processed and registered satisfies 95 percent confidence interval." The reliability of monitoring plan of the project proponent will be assessed by specialized [VVB] during the project validation process.</p>	<p>The ME provides clear guidance for monitoring procedures that will help ensure that the data and parameters used to determine emission reductions are accurate and representative of the baseline and project activities. Furthermore, the VVB will confirm both the additionality of the project and the quality of the monitoring plan during project validation. Therefore, this comment has been adequately addressed.</p>

ID	Original Comment	Methodology Developer Response	Validation Conclusion
2a	<p>There is a strong weakness in the proposed document as it does not point a leakage analysis. In principle, it is my belief that no project based activity or system is leakage free.</p>	<p>As per applicability conditions, project boundary contains commercial fleets that consist exclusively of flex-fuel vehicles. Therefore, in the baseline scenario the same flex-fuel cars would have been used. If the host country possesses flex-fuel fleets, it means that both fuels are available at the gas stations in the host country independently of the consumer's choice, and no extra transportation of fuels due to the project activity is needed. Therefore, the project activity does not imply in leakage, and no leakage emissions are considered in this methodology".</p>	<p>In response to corrective action request No. 11 issued by First Environment, Ecofrotas and Keyassociados revised the ME to require that at least 50 percent of the gas stations are the same in the baseline and project activity scenarios. This significantly reduces the potential for additional transportation as a result of the project activity and eliminates the need to account for these potential emission sources as leakage. Therefore, this comment has been adequately addressed.</p>
2b	<p>In this case, it should not be different. Based on the fact that emissions outside the project boundaries, caused by project activities, will be fully possible. To pose a negative assumption to that, project proponent would have to demonstrate the nexus between its proposed activities and the reduction of consumption of gasoline in the region outside its fleet or even worse in the country of interest. Thus, methodology would have to include a mechanism that demonstrate the reduction of use of gasoline the proposed project is actually achieving and that it is also not being used by others outside the project. This would entail, necessarily, the involvement of the refinery plants responsible for the gasoline consumed by project proponents of such methodology, demonstrating that it has reduced its production of gasoline due to the project itself. Of course that crude arriving at the refinery could be shipped elsewhere for production of gasoline, but this could be an acceptable limit for leakage analysis.</p>	<p>The project boundary is the commercial fleet that is implementing the project activity (not using gasoline anymore) and the gas stations of the Host Country that, independently of the project activity, will continue having both fuels available for sale. The fossil fuel consumption inside the project boundary will be reduced to zero (except in cases gasoline has to be used in a different section of the motor) and it has no relation with the productive/logistical process of each fuel.</p>	<p>In response to corrective action request No. 8 issued by First Environment, Ecofrotas and Keyassociados provided additional evidence to demonstrate that fleets are not anticipated to have a significant market effect. Therefore, this comment has been adequately addressed.</p>

ID	Original Comment	Methodology Developer Response	Validation Conclusion
2c	It also could be argued that the production of gasoline has been increasing steadily over the years in the region of project since the moment that a steady-state use of ethanol occurred. A much more complex analysis is needed to be possible to identify the additionality level that a fleet exchange of fuel consumption would have today.	During the validation, the [VVB] will critically assess the evidences presented in the VCS-PD as a support for additionality assessment according to the “CDM Combined tool to identify the baseline scenario and demonstrate additionality.” The DOE will use its sectorial and financial expertise to define whether further explanation or a more complex analysis is required.	First Environment agrees that this comment is adequately addressed through the project validation process and the procedures given in the ME for the demonstration of additionality. As such, additionality will be confirmed on a project-specific basis at validation.
2d	Therefore, the baseline analysis needs to take in consideration the reduction of emissions due to the ethanol use in the country fleet has taken place in the initial years of the introduction of a new fuel in the system. We believe that it is very difficult to demonstrate – by methodology based on additionality criteria – i.e., that emission reductions can be accounted for by simple comparison of change in fuel consumption. This would be the case for Brazil where we assume this methodology was born. Whereas we believe in the benefit of use of ethanol in emission reductions, we also believe this methodology needs improvement in concept to make possible the desired benefit to be achieved.	The baseline scenario will be based on historical data as it is not possible to forecast the fuel consumption of gasoline and ethanol in a future scenario, so the parameter “Fraction of gasoline in the fuel consumption pattern in project region, in the baseline scenario ( $F_{gas,R,y}$ )” is calculated ex-ante and applied to the whole crediting period.	In response to corrective action requests Nos. 2 and 4, Ecofrotas and Keyassociados further justified the approach of using historical fuel consumption data to estimate baseline emissions during the crediting period. In addition, the ME accounts for consumption of ethanol in the baseline scenario as well as differences between the net calorific values of ethanol and gasoline. Therefore, this comment has been adequately addressed.

#### 4 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

As described above, the Audit Team requested corrective actions, clarification, and supplemental information during the methodology assessment process. The corrective action and clarification requests and the responses provided by Ecofrotas and Keyassociados are summarized in the tables below.

ID	Corrective Action Request	Summary of Methodology Developer Response	Validation Conclusion
1	Please provide additional detail regarding the specifics of the similarities and dissimilarities between the proposed methodology and each of the methodologies identified from Sectoral Scope 7.	Ecofrotas and Keyassociados provided First Environment a table summarizing the dissimilarities between the ME and each existing or pending methodology that had been identified. In addition, further explanation was included in the ME regarding the four methodologies that are specifically cited in the body of the ME and why they are not considered similar enough to reasonably revise.	Response is acceptable.

ID	Corrective Action Request	Summary of Methodology Developer Response	Validation Conclusion
2	The ME does not identify a means for ensuring that the reference period for historic fuel consumption is appropriately defined.	The ME was revised to indicate that a minimum reference period of three years is required. This is consistent with the guidance given in the ROA tool. The ME also identifies that the maximum reference period should be determined according to national circumstances such as policies and market conditions, and be approved by the VVB.	Response is acceptable.
3	Direct and indirect measurement methods are not addressed for the historic fuel consumption parameters (i.e., $FC_{gas,i,R,BSL}$ and $FC_{ethanol,i,R,BS}$ ).	The ME was revised to indicate that the historical fuel consumption parameters shall have the same monitoring quality requirements as project fuel consumption parameters, namely calibration of equipment used for direct measurement and a robust, statistically guaranteed system for indirect measurement.	Response is acceptable.
4	Please justify the appropriateness of establishing the fuel consumption pattern based on historic data and assuming that this pattern remains fixed for the entire crediting period.	The project proponent assumes the risk of market volatility by opting for ethanol throughout the crediting period. This decision, and therefore the additionality of the project, is determined ex-ante without knowledge of future fuel prices/availability. Additionally, it is not possible to monitor the baseline fuel consumption pattern ex-post. As can be seen in much of the CDM modalities and procedures, the minimum reference period of three years of historic data is often used when establishing an ex-ante baseline pattern, with no need to revise during the crediting period. Ecofrotas and Keyassociados provided examples and revised the ME to reflect a minimum reference period of three years. The VVB will also assess on a project-specific basis whether the selection of the historic reference period can be assumed to be appropriately representative, considering such things as potential market fluctuations.	Response is acceptable.
5	The ME does not clearly indicate how indirect measurements should be statistically guaranteed in order to satisfy the 95% confidence interval.	The applicability section was revised to further require project developers to “guarantee that the width of a 95% confidence interval does not exceed 30% of the estimated value, in order to ensure that the uncertainty range is not significant.” Additionally, if the data does not satisfy these criteria, it cannot be used in the project activity.	Response is acceptable.



ID	Corrective Action Request	Summary of Methodology Developer Response	Validation Conclusion
6	The ME inconsistently references the guidance on ROA. Please clarify whether the guidance is considered a “tool” or “guideline” and whether its use is mandatory. Additionally, the VCS module template is not followed for the ROA guidance.	The ROA guidance was removed from the ME and submitted as a separate tool using the VCS module template. The ME was revised to indicate that project proponents may use the tool or "other appropriate method to demonstrate the opportunity cost for the fleet owner when deciding to consume exclusively ethanol."	Response is acceptable.
7	Please justify the appropriateness of establishing project area stratification ex ante, specifically regarding potential variability in the cluster analysis over time.	The additionality of each stratum is assessed at project validation based on the fleet owner’s decision to participate in the project and give up his option to choose between the two types of fuel. It is desirable that the project activity be established in a transparent and reliable manner, in order that fleet owners can make an early evaluation of the trade-offs of adhering to the project activity. Additionality, because the fuel consumption pattern remains fixed for the entire crediting period, it is reasonable that the project area stratification would also remain fixed.	Response is acceptable.
8	Please justify why fuel consumption by the project activity is not expected to influence or otherwise cause market effects at gas stations in the Host Country.	Ecofrotas and Keyassociados assert that Brazil is currently the only country with the ability to provide renewable ethanol at a large scale consistent with the ME requirements. Even so, the largest commercial fleets in Brazil account for less than two percent of total automobiles in the country. Thus, the overall potential market impact of these commercial fleets is not significant.	Response is acceptable.
9	Please justify the use of “historical data of a comparable fleet located in a similar region” as an accurate representation of a project’s baseline fuel consumption pattern in lieu of project-specific data.	The ME was revised to indicate that in the absence of historical data, the baseline fuel consumption pattern of a particular fleet will be estimated using the average historical fuel consumption pattern of the same cluster(s) in which the fleet operates.	Response is acceptable.
10	The ME does not explicitly state whether a new flex-fuel fleet consuming exclusively ethanol is an eligible project activity.	The ME was revised to explicitly state as an applicability condition that “only existent fleets of flex-fuel vehicles are eligible.”	Response is acceptable.
11	Please justify why the Methodology Element does not account for additional fuel consumption as a result of different fueling stations being used during the project activity.	The ME was revised to include as an applicability condition that at least 50 percent of the gas stations are the same in the baseline and project activity scenarios.	Response is acceptable.



ID	Clarification Request	Summary of Methodology Developer Response	Validation Conclusion
1	Please further clarify whether parameters that fall outside of the IPCC uncertainty ranges are eligible for use in the CO <sub>2</sub> emission coefficient determination.	Parameters that fall outside of the IPCC uncertainty range are acceptable. If the values fall outside of the uncertainty range, additional information shall be collected from the testing laboratory to justify the outcome or additional measurements shall be conducted. The ME was revised to indicate that the VVB has the authority to determine if such values are appropriate.	Response is acceptable.
2	Please describe anticipated implementation barriers and net benefits faced by the proposed project activity and its alternatives.	Ecofrotas and Keyassociados provided additional detail on the anticipated barriers and benefits to the proposed project type. Recognizing the risk that project developers might choose to only participate when it is economically beneficial, the ME was revised to clearly indicate that once a fleet exceeds the five percent gasoline consumption threshold, it will be permanently excluded from the project.	Response is acceptable.
3	Please clarify what is meant by monitoring fuel consumption "constantly" as indicated in Section 4 of the ME.	Ecofrotas and Keyassociados clarified that constant monitoring is the ability to measure vehicle fuel consumption without pause.	Response is acceptable.
4	The further clarify what constitutes "renewable materials."	Additional detail was added to the ME regarding the definition of "renewable materials." Specifically, "in the case of fuels, renewable materials are those whose source can be cultivated and/or replaced by human activity (e.g., wheat, corn, sugar beets, sugar cane, and molasses."	Response is acceptable.
5	Please clarify for what reason(s) a project activity may be required to consume emergency gasoline.	Emergency gasoline is consumed in cases when ethanol is temporarily unavailable at specific gas stations. The ME allows gasoline to amount to no more than five percent of total annual fuel consumption per fleet.	Response is acceptable.
6	The ME indicates that up to 3 percent gasoline can be used in the start-up mechanism for flex-fuel technologies employed by the project activity. Please clarify how this GHG source is accounted for in the ME.	The gasoline consumed by the start-up mechanism is accounted for as a project emissions source. The ME was revised to more clearly indicate that project emissions from gasoline consumption result from the use of both start-up and emergency gasoline and that the total gasoline consumption by a given fleet is capped at five percent of total annual fuel consumption.	Response is acceptable.

ID	Clarification Request	Summary of Methodology Developer Response	Validation Conclusion
7	Please clarify what "on-site registry" means as the source of data for FCethanol,iR,y and FCgas,i,y.	"On-site registry" refers to the system used to monitor fueling data such as location, date, type, and quantity. The ME was revised to indicate the source of this data is the "refueling transactions database."	Response is acceptable.
8	Please clarify whether emission factors determined from measurements by the project proponent are preferred over regional, national, or IPCC default values.	The ME was revised to indicate that parameters measured by the project proponent are preferred over regional/national data, while regional/national data are preferred over the IPCC default values.	Response is acceptable.
9	Please clarify what is meant by "the contract of the previous item" in the last applicability condition given in Section 4 of the ME.	The language in the applicability condition was revised to specifically reference "the contract between the project proponent and the fleet owner."	Response is acceptable.

## 5 ASSESSMENT CONCLUSION

First Environment performed the methodology assessment of the ME and ROA Tool as part of the VCS double-approval process. First Environment used the VCS Standard as the criteria for the assessment. The assessment process was further guided by the VCS Methodology Approval Process and the VCS Program Guide.

The review of the ME and ROA Tool and the satisfaction of corrective action and clarification requests have provided First Environment with sufficient evidence to determine the fulfillment of stated criteria.

The ME and ROA Tool were prepared in accordance with the VCS Standard, the VCS Methodology Approval Process, and the VCS Program Guide. The proposed methodology belongs to Sectoral Scope 7 – Transport.

In summary, it is First Environment’s opinion that the ME titled, “Complete substitution of gasoline and its blends by ethanol in commercial fleets of flex-fuel vehicles,” dated December 2, 2011, and the associated module titled “Tool to Use Real Options Analysis (ROA) in Fuel Switch Projects,” dated November 6, 2011, meet all relevant VCS requirements.

## 6 REPORT RECONCILIATION

No revisions were required to this report as a result of the reconciliation process with the first assessor.

## 7 EVIDENCE OF FULFILMENT OF VVB ELIGIBILITY REQUIREMENTS

First Environment has not completed 10 validations in the VCS Sectoral Scope 7 – Transport and therefore cannot independently fulfill the requirement as specified in Table 1 of the VCS Methodology Approval Process document. However, First Environment is otherwise eligible to perform validation for this sectoral scope based on its accreditation by ANSI under ISO 14065.

## 8 SIGNATURE

Signed for and on behalf of First Environment on 28 February 2012.



Iris Caldwell, P.E.  
Senior Engineer



James Wintergreen  
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