

Approved VCS Methodology
VM0025

Version 1.0, 12 February 2014
Sectoral Scopes 1 and 3

Campus Clean Energy and
Energy Efficiency

The methodology was developed by Climate Neutral Business Network (CNBN) in collaboration with Bonneville Environmental Foundation based upon generous support from Chevrolet.

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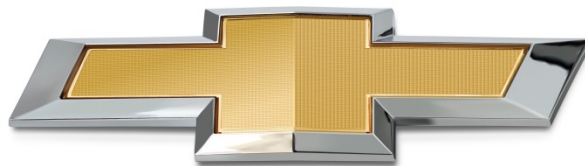
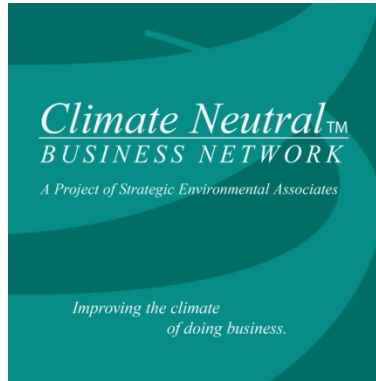


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The creation of this methodology has relied upon the creative, critical insights from a wide range of stakeholder colleagues and their wider circle of colleagues whom they consulted. Our discussions have ranged from the initial inspiring conversations regarding the project activities included within this methodology, through the initial framing of this approach via our draft white papers, to the development of the performance benchmarks used in the methodology. Their generous guidance in the development of this methodology is greatly appreciated. Special thanks to Chevrolet for their generous sponsorship for the development of this methodology and to Pat Nye from Bonneville Environmental Foundation for his dedicated efforts.

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1 SOURCES

The methodology uses the latest version of the following tools and guidance:

- VMD0038, Campus-Wide Module
- VMD0039, LEED-Certified Buildings Module
- US Environmental Protection Agency's ENERGY STAR Portfolio Manager® program¹
- US Environmental Protection Agency's ENERGY STAR Target Finder tool²
- Clean Air Cool Planet Campus Carbon Calculator³
- CDM-EB67-A06-GUID Guidelines for sampling and surveys for CDM project activities and programme of activities

The methodology is based on approaches used in the following methodologies:

- VM0008 Weatherization of Single and Multifamily Homes (version 1.1)
- NM0302 Emission reductions in the cement production facilities of Holcim Ecuador S.A. (proposed CDM methodology)

The follow have also supported the development of the methodology:

- The American College and University Presidents' Climate Commitment (ACUPCC) GHG inventory reports⁴
- Efficiency Valuation Organization's International Performance Measurement and Verification Protocol (IPMVP) for guidance on methods determining energy savings (EVO-1000-1, 2010)⁵
- USGBC's LEED certification protocols⁶
- Portfolio Manager supporting documentation⁷

¹ EPA. 2013: <http://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager>

² EPA. 2013: http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder

³ CACP. Aug, 2013: <http://cleanair-coolplanet.org/campus-carbon-calculator/>

⁴ ACUPCC. 2013: <http://rs.acupcc.org/>

⁵ EVO. 2010: http://www.evo-world.org/index.php?option=com_content&view=article&id=272&Itemid=379&lang=en

⁶ USGBC. 2013: <http://new.usgbc.org/leed>⁷ EPA. Nov, 2011. "Methodology for Greenhouse Gas Inventory Calculations" http://www.energystar.gov/ia/business/evaluate_performance/Emissions_Supporting_Doc.pdf?f655-cb13

⁷ EPA. Nov, 2011. "Methodology for Greenhouse Gas Inventory Calculations"

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EPA. Mar, 2011. "ENERGY STAR Performance Ratings – Technical Methodology"

http://www.energystar.gov/ia/business/evaluate_performance/General_Overview_tech_methodology.pdf?9d9b-0c2d

EPA. Jul, 2013. "Portfolio Manager Technical Reference: ENERGY STAR Score"

<http://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-technical-reference-energy-star-score>
http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_model_tech_desc

2 SUMMARY DESCRIPTION OF THE METHODOLOGY

This methodology provides the procedures for quantifying reductions in scope 1 stationary combustion emissions and scope 2 electricity emissions achieved by college, university and school campuses in the United States. The methodology consists of two modules: *VMD0038, Campus-Wide Module*; and *VMD0039, LEED-Certified Buildings Module*, as follows:

1) Campus-Wide Module

This module applies to projects targeting campus-wide emission reductions on existing college and university campuses in the United States (but does not apply to K-12 schools). Campuses may implement project activities that reduce scope 1 stationary combustion emissions and/or scope 2 electricity emissions. Campuses must meet the relevant additionality performance benchmark by applying a series of additionality benchmark tests. Emission reductions are quantified based on data from third-party GHG reporting programs (eg, ACUPCC, STARS and The Climate Registry) for each year relative to a three to five year adjusted baseline.

Additionality and Crediting Method	
Additionality	Performance Method
Crediting Baseline	Project Method

2) LEED-Certified Buildings Module

This module applies to projects targeting emission reductions from LEED-certified New Construction or LEED-certified Existing Buildings located on college and university campuses and K-12 schools. The building must meet the relevant additionality performance benchmark. Emission reductions are quantified based on data generated using EPA's Target Finder tool for each year relative to a crediting benchmark or a three to five year adjusted baseline.

Additionality and Crediting Method	
Additionality	Performance Method
Crediting Baseline	Performance Method for New Construction and Existing Buildings B; Project Method for Existing Buildings A

This standardized methodology establishes multiple performance benchmarks which US colleges and schools can use to determine whether they have achieved a superior level of performance that would qualify as additional (additionality benchmark) and to quantify baseline emissions (crediting benchmark). Unlike project methods, performance methods are designed to identify the levels of performance (in terms of GHG emission reductions) in a given sector to allow for sector-wide benchmarking. Through extensive analyses of historical performance (outlined in the modules), this methodology establishes performance benchmarks for campus-wide emission reductions and LEED-certified building emission reductions that allow for a series of simple tests

to be conducted to determine additionality and a crediting baseline. Stakeholder consultation was an important part of the development of this methodology, and the process and participants are described in Appendix 2.

Each module provides the detailed procedures for the given type of project activities, adding to the common requirements provided in this document. Each module has distinct specifications for applicability conditions, project boundary, baseline scenario, additionality, quantification of emission reductions, and monitoring. Where both campus-wide and building reductions are sought in combination for the same campus, both modules must be applied separately, and the relevant emission reductions netted out, as described in Section 8 below. Figure 1 below provides a conceptual route map illustrating how this methodology and its two modules are applied.

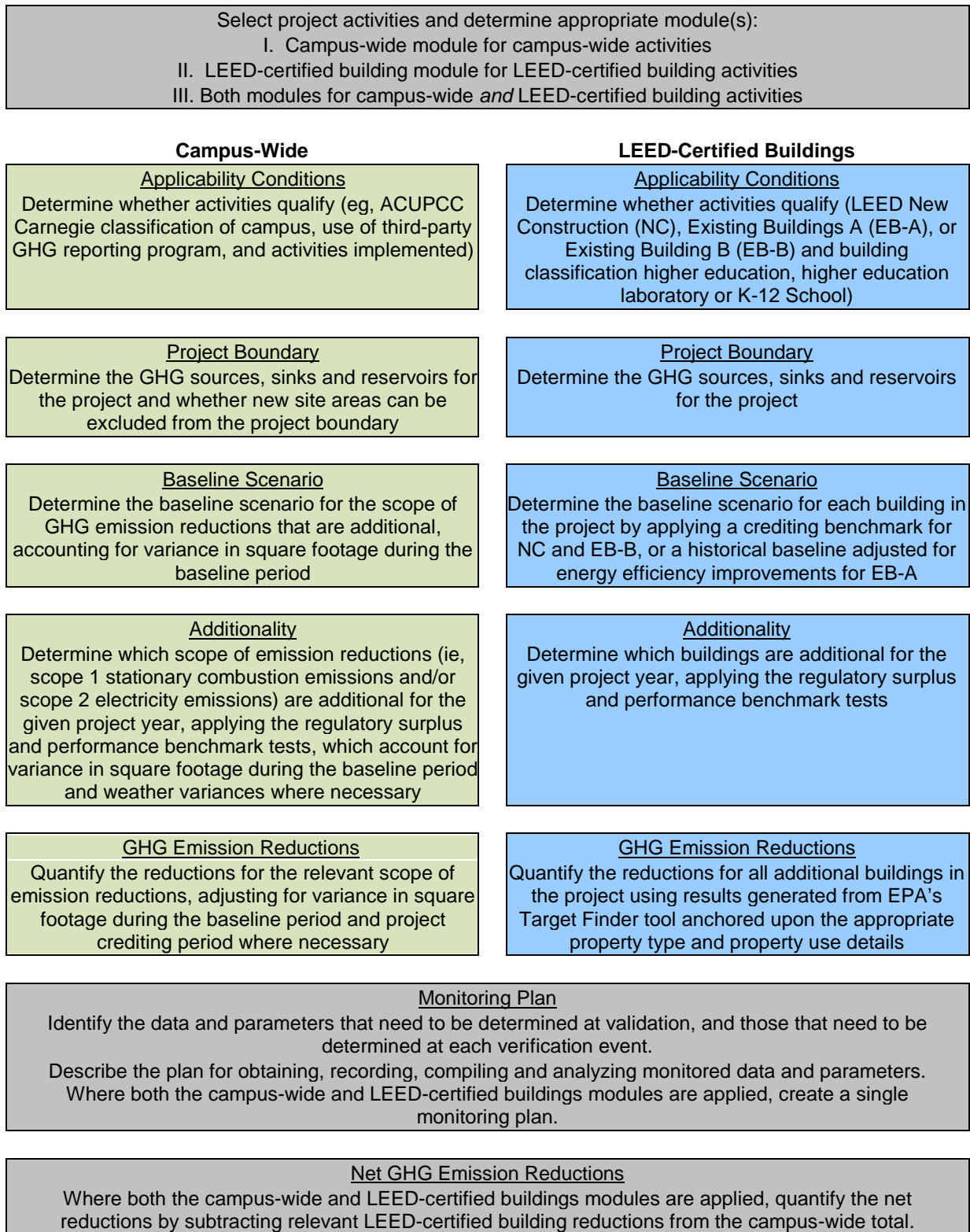
Projects must demonstrate right of use for any GHG emission reductions generated by the project, in accordance with the *VCS Standard* (for definition of *right of use* see VCS program document *Program Definitions*). Where right of use cannot be demonstrated for particular emission reductions (eg, for scope 2 emissions addressed by the project), the project proponent may choose to include only those emission reductions for which it can demonstrate right of use (eg, only include scope 1 emissions for LEED certified building projects). Emission reductions arising from a campus's third-party customer's use (eg, emission reductions achieved by a neighboring hospital which purchases energy from campus on-site energy generation) must be excluded from the project. Note that the consumption of energy services provided by off-site suppliers (eg, local industry) must be excluded from the scope 1 emissions and included in scope 2 emissions.

Where projects generate other forms of environmental credit (eg, renewable energy certificates (RECs)), the project must meet VCS rules and guidance on double counting (see *VCS Standard, Registration and Issuance Process*, and VCS guidance on double counting). For example GHG emission reductions that arise from the installation of renewable energy systems located on a campus, whose GHG-related attributes have been sold as RECs to other third parties must also be excluded from the quantification of emission reductions. Similarly, where RECs from off-site renewable installations are purchased by the campus, the lower GHG emissions or the respective grid emission factors associated with the RECs cannot be used to decrease project emissions in the quantification of emission reductions.

Emission reduction generated within a region subject to a carbon cap (eg, campuses' whose electricity emissions are included within a regulatory cap and trade program such as that in California) must meet the VCS rules regarding emission trading programs and other binding limits (ie, double counting) set out in the *VCS Standard*.

Where emission reductions are verified and intend to be issued as VCUs, project proponents must ensure that such VCUs are accurately reported in accordance with any procedures set out under any applicable third-party GHG reporting program under which the campus reports. The sale, transfer or retirement of any VCUs must be accurately reported to any applicable third-party GHG reporting program during the period where such sale, transfer or retirement occurs.

Figure 1: Conceptual Route Map for Methodology



3 DEFINITIONS

Definitions are specified in each of the modules referenced by this methodology.

4 APPLICABILITY CONDITIONS

This methodology applies to project activities that reduce emissions through the implementation of clean energy and/or energy efficiency activities at college and school campuses in the United States.

Projects applying this methodology must use the latest versions of one, or both, of the following modules:

- 1) VMD0038, Campus-Wide Module
- 2) VMD0039, LEED-Certified Buildings Module

Where the project applies one of these modules (ie, is implementing campus-wide activities *or* LEED-certified building activities), the project must meet the applicability conditions specified in the relevant module. Where the project applies both modules (ie, is implementing both campus-wide *and* LEED-certified building activities), the campus-wide activities must meet the applicability conditions set out in the campus-wide module, while the LEED-certified building activities must meet the applicability conditions set out in the LEED-certified buildings module.

Note that this methodology applies a standardized method and therefore must be used in preference to project methods (methodologies) available for the same project activities. Appendix 1 provides an indicative (non-exhaustive) list of project methods available for clean energy and energy efficiency projects.

5 PROJECT BOUNDARY

The procedures in the module being applied must be followed.

6 BASELINE SCENARIO

The procedures in the module being applied must be followed.

7 ADDITIONALITY

The procedures in the module being applied must be followed.

8 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

The procedures in the module being applied must be followed.

Where both campus-wide and building reductions are sought in combination from the same campus (ie, both the campus-wide and LEED modules have been applied), then the building reductions must be subtracted from the campus-wide reductions, as follows:

$$ER_y = ER_{y,cw} - ER_{y,lcb} \quad (1)$$

Where:

- ER_y = Net GHG emission reductions in year y for the project
 $ER_{y,cw}$ = Net GHG emission reductions in year y from campus-wide module
 $ER_{y,lcb}$ = Net GHG emission reductions in year y from LEED-certified building module

Only the relevant scope of emissions used in the quantification of campus-wide emission reductions must be subtracted (ie, only stationary combustion emissions reductions from LEED-certified buildings must be subtracted from projects quantifying campus-wide stationary combustion emission reductions). The LEED certification documents contain all the relevant information regarding the contributions that each source of energy (ie, stationary combustion or scope 2 electricity) contributed to the building's total energy consumption. These may be used, if sub-metering of the LEED-certified building is not accessible, to assess the total portion of the emission reductions from LEED-certified buildings that should be subtracted. For example, if a project sought emission reductions from both campus-wide stationary combustion and LEED-certified buildings, and the stationary combustion energy sources represent 40% of the LEED-certified building's energy consumption, then 40% of the LEED-certified building's emission reductions must be deducted from the campus-wide emission reductions.⁸

9 MONITORING

For campus-wide activities, the monitoring procedures set out in the campus-wide module must be followed. For LEED-certified building activities, the monitoring procedures set out in the LEED-certified buildings module must be followed. Where both modules are applied, monitoring procedures from both modules must be followed to provide a single monitoring approach for the project.

10 REFERENCES

None

⁸ Given that LEED-certified building emission reductions will be small compared to a campus-wide emission reductions, this represents a reasonable estimation process, recognizing that the percent contribution of a given scope of energy emissions to the total is a reasonable proxy for the proportion of reductions that it contributed to a LEED-certified building emission reductions total.

APPENDIX 1: SIMILAR PROJECT METHODS

Standardized methods are designed to identify superior performance within a given sector and the performance benchmarks within the methodology have been developed to ensure such environmental integrity. Where project activities meet the applicability conditions of this methodology and its respective modules, such projects should apply the methodology in preference to project methods available for the same project activities. Project proponents should contact the VCSA at secretariat@v-c-s.org if additional guidance or clarification is necessary when selecting an appropriate methodology.

Table 1 below lists the identified approved and pending methodologies under VCS and approved GHG programs that target project activities that could be included under the *Campus Clean Energy and Energy Efficiency* methodology (ie, such methodologies may also be applicable to certain subsets of project activities covered by this methodology). Note that this is provided for indicative purposes only and does not necessarily represent an exhaustive list.

Table 1: Methodologies Targeting Similar Project Activities

Methodology	Title	GHG Program
AMS-I.A.	Electricity generation by the user	CDM
AMS-I.D.	Grid connected renewable electricity generation	CDM
AMS-I.F.	Renewable electricity generation for captive use and mini-grid	CDM
AMS-I.J.	Solar water heating systems (SWH)	CDM
AMS-II.C.	Demand-side energy efficiency activities for specific technologies	CDM
AMS-II.E.	Energy efficiency and fuel switching measures for buildings	CDM
AMS-II.J.	Demand-side activities for efficient lighting technologies	CDM
AMS-II.K.	Installation of co-generation or tri-generation systems supplying energy to commercial building	CDM
AMS-II.L.	Demand-side activities for efficient outdoor and street lighting technologies	CDM
AMS-II.M.	Demand-side energy efficiency activities for installation of low-flow hot water savings devices	CDM
AMS-II.N.	Demand-side energy efficiency activities for installation of energy efficient lighting and/or controls in buildings	CDM
AMS-II.Q.	Energy efficiency and/or energy supply projects in commercial buildings	CDM
AMS-II.R	Energy efficiency space heating measures for residential buildings	CDM
AMS-III.AC.	Electricity and/or heat generation using fuel cell	CDM

AMS-III.AE.	Energy efficiency and renewable energy measures in new residential buildings	CDM
AMS-III.AR.	Substituting fossil fuel based lighting with LED/CFL lighting systems	CDM

APPENDIX 2: STAKEHOLDER CONSULTATION SUMMARY

The development of the methodology was generously sponsored by Chevrolet. Chevrolet's Carbon Reduction Initiative Environmental Advisory Board was instrumental in developing a draft white paper outlining the core framing and assumptions which would become this methodology. As part of this advisory board, a diverse group of stakeholders were consulted to refine the white paper and develop the performance benchmarks. This extensive stakeholder group included a diverse group of experts including AASHE, campus experts, environmental experts, college-focused NGO's, college sustainability officers, college business officers, carbon experts, and energy efficiency experts. A list of the experts involved with the stakeholder consultation is provided at the end of this appendix.

During the stakeholder consultation process many detailed questions relating to the design of the modules were discussed. These contributed to the refinements in the white papers, which were updated throughout this period. All stakeholders who reviewed the white papers therefore were able to review the performance benchmark. Particularly, detailed discussions of the following topics took place with the Environmental Advisory Board and USGBC:

- Baseline designs
- Project boundary definitions
- Applicability tests/conditions needed
- Provisions to avoid double counting
- Performance benchmark update processes
- Stratifications
- Performance benchmarks detailed analyses, based on performance curves, relative to percentile equivalents across each segment
- Carbon contribution to incremental capital analyses
- Refinements needed to fine tune the modules (eg, business as usual gains, square foot variances, inclusions/exclusions needed)
- Tests relative to attributable activities undertaken

The stakeholder dialogue was particularly helpful in confirming assumptions for key details and parameters in the modules. Not all discussions have been referenced here but, drawing upon key topics from the final white paper drafts, the main highlights in this category include:

Both modules:

- Refine performance benchmarks every five years – not sooner – to provide project proponents with sensible planning horizons; rather provide updated data on an interim basis to describe performance benchmark trends. Five years is consistent with VCS minimum requirements.
- Utility sign offs and other measures (especially regarding campus reporting of GHG reductions to ACUPCC, STARS etc.) to address double counting/double claiming.
- Project boundaries are appropriately specified to preclude GHG emission reductions resulting from RECs, energy services supplied to neighboring institutions etc.

Campus-wide module:

- The core foundation requires absolute reductions in both scope 1 and scope 2 electricity-based emissions.
- Selection of additionality benchmark as annual percentage improvement in stationary combustion emissions is appropriate. It conforms to VCS requirements, it closely aligns to campuses' ACUPCC reporting structures (which are over historical baselines) and thus encourages leadership capacity building in the sector, and it is consistent with precedent set by other performance methods under VCS.
- Stratify by Carnegie class, consistent with ACUPCC practice.
- Base the level of each additionality benchmark on the average annual percentage reduction by Carnegie class, not just a single percentile (eg, 85th), to most accurately reflect superior performance achievement and minimize false positive/negatives.
- This approach generates performance benchmarks that are credible (around the 85th percentile) relative to UNFCCC parameters and other VCS performance method precedents.
- Financial analysis of the carbon contributions was considered meaningful and providing leverage to deliver superior performance.
- Including a "positive" style test to document the steps taken to achieve the performances, based on leading campuses' ACUPCC Climate Action Reports, is credible and goes beyond other VCS performance method approaches.
- Screening for other potential drivers of performance has been thorough.
- Historical baselines are sound to use and well framed relative to variances for weather etc. Including variances to accommodate for weather changes makes sense if the historical reference period is short; otherwise, these variances are addressed by averaging over a longer historical reference period.
- It would be best to provide avenues in the module to accommodate variances for square footage outside reasonable parameters (declining or increasing more than 5 percent) rather than use an intensity style metric to determine additionality or quantify emission reductions. The latter introduces another orthogonal variable which then needs to be considered for variances relative to false positives and false negatives.
- Baseline adjustments reflecting US average energy efficiency gains should be made, not adjustments reflecting a five percent annual energy efficiency gain. The latter would assume that campuses could go climate neutral very rapidly on a business as usual basis.

LEED-certified buildings module:

- Segmentations based on LEED proposed data is appropriate, using LEED overall averages where they feel the sample sets are otherwise too small.
- The average LEED-certified building Energy Star score is credible and the baselines selected make sense since the module then reflects a step-wise increase from national average ES score to average LEED-certified building Energy Star score.

- This approach generates performance benchmarks that are credible (around 86th percentile) relative to UNFCCC parameters and other VCS performance methodology precedents.
- Where EPA Portfolio Manager is not yet sufficiently robust for reporting/benchmarking purposes, it is appropriate to exclude campus laboratories from project consideration when comparisons need to be made to national benchmarks. However internal performance comparisons over time to an individual lab's performance improvements are appropriate. As a result, labs were excluded from EB-B pathway since ES 86 is a national benchmark, while labs are eligible to use EB-A (which compares the lab's EUI performance over time) and NC (where the building's EUI percent improvement over code has been independently assessed in detail through LEED certification). The exclusion of labs from the EB-B route may be reviewed again in year five when the performance parameters need to be updated.
- Including a "positive" style test to document the steps taken to achieve the performances, based on LEED's certification system, is credible and goes beyond other VCS performance method approaches.
- LEED Commercial Interior certifications could be included at a later stage but are too few and limited in energy efficiency scope to include at this stage.
- Baselines are well-defined and measurement approaches outlined in EPA Portfolio Manager are appropriate. Variances for many potential drivers are well-accommodated through Portfolio Manager's reporting system which accounts for such potential variances.
- Although EB-B could use the historical baseline for each building, since LEED does not collect this information for its certification system, it is appropriate to use ES 50 as the baseline.
- A one percent energy efficiency improvement factor is not needed as an adjustment for NC or EB-B to the baseline since EPA Portfolio Manager revises the ES 50 baseline each year to reflect current updated practices. It is only needed for EB-A which uses the project's historical baseline (but not needed for eligibility testing since the metric is EUI-based and thus already anchored on a per square foot basis).

The stakeholders consulted compromise the list of individuals acknowledged above in this methodology. Areas of expertise represented in this stakeholder group were as follows:

- Campus sustainability/energy/climate leadership (CSEC), 32 participants
- Campus financial leadership (CF), 30 participants
- Carbon methodology/project development (C), 23 participants
- Energy efficiency best practices (EE), 17 participants
- Business (B), 40 participants
- NGO (NGO), 6 participants
- Government/policy (G), 10 participants

DOCUMENT HISTORY

Version	Date	Comment
v1.0	12 Feb 2014	Initial version released