METHODOLOGY ELEMENT ASSESSMENT REPORT

CAMPUS CLEAN ENERGY EFFICIENCY METHODOLOGY

Document Prepared By: DNV Climate Change Services AS

Methodology Element Title	Campus Clean Energy Efficiency Methodology Campus Clean Energy Efficiency Campus Wide Module Campus Clean Energy Efficiency LEED Certified Buildings Module	
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Summary:

The Campus Clean Energy Efficiency methodology is a *standardized methodology* developed for US schools of higher education to calculate and quantify reductions in greenhouse gas (GHG) emissions. The assessment was performed in accordance with the principles and the requirements for validation/verification bodies who are accredited for assessments under the VCS Standard.

The assessment consisted of the following three phases:

- A desk review of the new methodology.
- Follow-up interviews.
- Resolution of outstanding issues and the issuance of the final assessment report and opinion.

The criteria followed the guiding principles of clause 3 of ISO 14064-2 of relevance, completeness, consistency, accuracy, transparency and conservativeness.

The review of the methodology element documentation and the subsequent follow-up interviews has provided DNV with sufficient evidence to determine the proposed methodology “Campus Wide Energy Efficiency, Version 1.4 of October 2013, meets all requirements of the VCS criteria for methodology development.

DNV thus recommends that the approval of the methodology element as a VCS methodology element.

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LIST OF ABBREVIATIONS

ACUPCC	American College & University Presidents' Climate Commitment
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BAU	Business as usual
CACP	Clean Air Cool Planet
CAR	Climate Action Reserve
CBECS	Commercial Buildings Energy Consumption Survey
CDM	Clean Development Mechanism
CNBN	Climate Neutral Business Network
DNV	Det Norske Veritas
DOE	US Department of Energy
EB	Existing building
ENERGY STAR	Voluntary labeling program designed to identify and promote energy-efficient products introduced by US EPA
EPA	US Environmental Protection Agency
EPA PM	US EPA's Portfolio Manager Target Finder
EUI	Energy use intensity
GBIG	Green Building Information Gateway
GHG	Greenhouse gas
LEED	Leadership in Energy and Environmental Design
NC	New construction
SSR	Sources, sinks and reservoirs
USGBC	US Green Building Council
VCS	Verified Carbon Standard
VVB	Validation/Verification Body
WRI	World Resources Institute
WBCSD	World Business Council for Sustainable Development

1 INTRODUCTION

1.1 Objective

The purpose of the assessment is to determine if the proposed methodology (Campus Clean Energy Efficiency) meets the requirements of the VCS Standard, the Guidance for Standardized Methods and any other applicable requirements set out under the VCS Program. This assessment includes a discussion of how the methodology addresses: applicability conditions, the project boundary, the baseline determination, additionality, baseline emissions, project emissions, leakage, quantification of the GHG emissions reductions, monitoring, and data and parameters. The assessment also in particular included a review of whether the performance methods applied by the methodology comply with specific VCS Standard requirements for performance methods. The assessment also includes a review of the proposed methodologies adherence to VCS Program Principles', and the relationship to any other proposed, pending or approved methodologies. Finally, this methodology has two modules for use by the project developer. The modules were assessed to determine if they were used appropriately within the methodology.

Section 2-4 of this assessment report describe the process and the findings of DNV's assessment of the methodology and its modules prior to the 2nd assessment of the methodology and its modules by another Validation/Verification Body (VVB).

Section 6 of this assessment report describes DNV's opinion on the revisions made to the methodology and its modules during second assessment.

1.2 Scope and Criteria

The assessment scope is defined as an independent and objective review of the proposed methodology and modules. The proposed methodology is reviewed against the criteria in the VCS Standard, Program Guide and VCS Guidance for Standardized Methods. The assessment was performed in accordance with the principles and the requirements for validation/verification bodies who are accredited for assessments under the VCS Standard.

The scope of assessment includes an explanation of how the methodology addresses applicability of the project activity and the project boundary, and provides procedures for determining the baseline scenario, for demonstrating additionality, estimating baseline emissions, project emissions, project leakage, net GHG emissions reductions and monitoring of project parameters. The scope of the assessment in particular also included a review of the performance methods applied by the methodology and their compliance with VCS Standard requirements for performance methods. The assessment also includes a review of assumptions, values and procedures to assure conservative assumptions are used and net GHG emissions reductions are not overestimated.

1.3 Summary Description of the Methodology Element

The Campus Clean Energy Efficiency Methodology is a standardized methodology developed for US schools of higher education to calculate and quantify reductions in greenhouse gas (GHG) emissions. The Campus Clean Energy Efficiency Methodology document explains how the methodology can be applied to campuses. There are two ways to apply this methodology, and they are described in two separate modules:

- Campus Clean Energy Efficiency Campus-Wide Module describes an energy based method to calculation of GHG reductions across a campus, and

- Campus Clean Energy Efficiency LEED Certified Buildings Module describes a GHG reductions methodology based on LEED certified buildings, either new construction (NC) or existing buildings (EB).

2 ASSESSMENT APPROACH

2.1 Method and Criteria

The assessment consisted of the following three phases:

- A desk review of the new methodology.
- Follow-up interviews.
- Resolution of outstanding issues and the issuance of the final assessment report and opinion.

The criteria followed the guiding principles of clause 3 of ISO 14064-2 of relevance, completeness, consistency, accuracy, transparency and conservativeness.

The following sections outline each step in more detail.

2.2 Document Review

The following documents were reviewed during the assessment. Each document was reviewed for compliance with the appropriate VCS element. In addition all data and calculations were reviewed for appropriateness and accuracy.

Prior to formally commencing the methodology assessment process by publishing the Campus Clean Energy Efficiency Methodology and the two associated modules on the VCS website for public comments, DNV reviewed and commented on early drafts of the methodology. The first draft received and reviewed by DNV was a draft of December 2012.

Documents Reviewed

1. VCS Association, *VCS Standard*, Version 3.3, 4 October 2012
2. VCS Association, *VCS Program Guide*, Version 3.4, 4 October 2012
3. VCS Association, *VCS Program Definitions*, Version 3.4, 4 October 2012
4. VCS Association, *VCS Guidance for Standardized Methods*, Version 3.2, 4 October 2012
5. VCS Association ,*VCS Methodology Approval Process*, Version 3.4, 4 October 2012
6. Climate Neutral Business Network on behalf of General Motors, *Campus Clean Energy Efficiency Methodology*, Version 1.1 of 22 April 2013, version 1.2 of 20 June 2013, version 1.3 of 5 September 2013 and version 1.4 of October 2013
7. Climate Neutral Business Network on behalf of General Motors, *Campus Clean Energy Efficiency Campus Wide Module*, Version 1.1 of 22 April 2013, version 1.2 of 18 June 2013, version 1.3 of 5 September 2013 and version 1.4 of October 2013
8. Climate Neutral Business Network on behalf of General Motors, *Campus Clean Energy Efficiency LEED Certified Buildings Module*, Version 1.1 of 22 April 2013, version 1.2 of 21 June 2013, version 1.3 of 5 September 2013 and version 1.4 of October 2013
9. C. Pyke, *Existing building Energy Star scores for 2008 and 2009 from USGBC database* (EBOM.EAc1.pivot.for.Sue.xlsx)
10. C. Pyke, *Statistics on reductions in energy consumption for institutions of higher education and laboratory space, and K-12 institutions for the state of North Carolina*

(NC_Stats_Eac1_breakdown_for_Sue.xlsx)
11. C. Pyke, NC*Combined statistics on reductions in energy consumption for institutions of higher education and laboratory space, and K-12 institutions for the state of North Carolina* (Stats_Eac1_breakdown_for_Sue_1.xlsx)
12. S. Hall, *Energy Star leaders in buildings for 2005-2012 from Energy Star PM Tool.*
13. P. Nye, ACUPCC Data Stat1 Scope2 Curves Outliers Removed 21February2013.xlsx*, 2005-2011 data from ACUPCC database (scope 1, 2 emissions, building areas) and ; calculations for baselines and emissions reductions* (ES Leader profiles 20% improvement.xlsx)*.*
14. D. Tulauskas, *2012 Advisory meeting to discuss the priority sourcing partners, target sectors, priority projects and potential carbon reductions* (Chevy Advisory Meeting Minutes April 20 EXCERPTS DNV.docx)
15. S. Hall, *Strategy to engage on campus environmental students via innovative clean energy/energy efficiency projects. Pilot projects started at ~9 colleges/universities* (Advisor Meeting Dec 4 2012 Summary 2 DNV.docx)
16. S. Hall, *Advisory meeting notes: timing, target sectors, priority projects and potential carbon reductions projects were discussed* (Chevy Advisor Meeting-April 20 excerptDNV.doc)
17. D. Tulauskas, *Strategy discussion on how to engage on campus environmental students via innovative clean energy/energy efficiency projects. Pilot projects started at ~9 colleges/universities* (Chevy Advisor Meeting-Dec 4 vs. 5 SHORT Phase III DNV.pptx)
18. S. Hall, *2011-2013 log of calls with advisors and contributors to the methodology development* (Communications Log draft.docx)
19. S. Hall, *Documentation of discussion with First Advantage and Second Nature about the draft methodologies, and additional information on the EPA PM tool* (White Paper Summaries DRAFT May 9 2012 vs. 4[1].docx)
20. S. Hall, *July, 2012 summary of the methodological approach for LEED EB and NC using USGBC certified reporting data* (White Paper Summary LEED July 3[1].docx)
21. S. Hall, *Summary of the methodological approach for campus wide scope 1 stationary source emissions* (White Paper Summary Campus Wide Reductions July 11 2012[1].docx)
22. S. Hall, *2012 documentation of draft methodology including use of ACUPCC data and approach to stratification of institutions* (White Paper Summaries Oct 29 update Campus wide MAIN[1].docx)
23. S. Hall, *Summary of general approach and requirements for the methodology* (White Paper Summary LEED July 3 Upgrades vs. 1 Aug 2 Sept 11 vs. 3 post VCS oct 4 post chris oct 10 Oct 18 Oct 30 Nov 13 ADV[1].docx)
24. S. Hall, *Summary of the revised methodological approach for LEED EB and NC with further definition of segmentation and performance metrics* (White Paper Summary LEED Nov 2012[1].docx)
25. S. Hall, *Summary of the revised methodological approach for campus wide scope 1 stationary source emissions* (White Paper Summary Campus Wide Reductions Nov 2012[1].docx*)*
26. Pyke, C. Transparency for a project http://www.gbig.org/activities/leed-1000000117 Click on LEED Dashboard and Compare to show the distributions used in the methodology.
27. The Green Building Information Gateway, *Transparency for a building over time bridging new construction to operations* (http://www.gbig.org/buildings/2777%20Crystal%20Dr,%20Arlington,%20VA%2022202,%20USA)

28. The Green Building Information Gateway, Transparency for an existing building over time (http://www.gbig.org/buildings/320%20Park%20Ave,%20New%20York,%20NY%2010022,%20USA)
29. Chevy "Carbon Stories" web site http://www.chevrolet.com/environmental-projects/carbon-reduction/
30. C.Pyke to Sue Hall, *Climate Leadership Awards Recognize Sustainable Colleges* (http://planetforward.org/climate-leadership-awards/) 21 March 2012
31. S. Hall, Carbon Map Draft V 1.0, xls. 15 March, 2012, *Estimates of carbon reductions at example campuses based on data from Second Nature and ACUPCC*.
32. S. Hall, Chevy_Carbon_Credit_Data analysis 6 SN funds – PAT April30 SH May 3 Bottom 50%.xls, 7 May 2012, *Data from ACUPCC sorted according to degree granting type, and including emissions and building areas.*
33. R. Koester, rjk_tweaks_VCS Methodology Template v3-1 2 College Draft 9 Dec 10.doc. *Review of draft methodology by Dr. R. Koester, Ball State U.*
34. P. Nye, S. Muzzy and S. Hall, *Email on data analysis*, 27 March 2012
35. S. Hall, *Summary of the adjustment equations for increase/decrease of building area (sq. ft.) to be used in methodology* (SQ Ft Eq 2A (2).xls), 11 April 2013,.
36. EPA PM tool *https://www.energystar.gov/index.cfm?fuseaction=target_finder*
37. EPA Energy Star Target Finder https://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder
38. About Energy Star https://www.energystar.gov/index.cfm?c=about.ab_index
39. ACUPCC Reporting System http://rs.acupcc.org/stats/
40. USGBC data http://www.gbig.org/about/data
41. S. Hall, Stakeholder comments, 28 May 2013. *PDF of correspondence listing issues addressed.*
42. US, DOE, EIA Commercial Buildings Energy Consumption Survey (CBECs) : http://www.eia.gov/consumption/commercial/2012-cbecs-building-sampling.cfm Since 1979, *a national survey that collects information U.S. commercial buildings, their energy-related building characteristics,. Commercial buildings include all buildings in which at least half of the floor space is used for a purpose that is not residential, industrial, or agricultural,*
43. World Business Council for Sustainable Development (WBCSD) & World Resources Institute (WRI), *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*, March 2004
44. International Organization for Standardization, *ISO 14064-2:2006 – Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements*
45. TÜV Rheinland (China) Ltd., *Methodology Element Assessment Report for Campus Clean Energy Efficiency Methodology, Campus Clean Energy Efficiency Campus Wide Module and Campus Clean Energy Efficiency LEED Certified Buildings Module*, version 1.4 of 15 October 2013

2.3 Interviews

Over the course of development of the methodology 55 advisors were consulted. The advisors represented a variety of stakeholders from Chevy's Environmental Advisory Board, to non-

profits, the US Green Building Council (USGBC), and government agencies. Five key advisors were interviewed. The objective of the interviews was to confirm that these key advisors were consulted in the process of developing the Campus Clean Energy Efficiency Methodology and in particular the establishment of the performance benchmark.

One of the relevant sections of the VCS Guidance for Standardized Methods is 4.1.17. The experts consulted by the methodology developer, fulfill the requirements of the VCS. Section 4.1.17 states" In order to establish the level of the performance benchmark it is first necessary to develop an understanding of performance within the sector." Through interviews with the advisors listed below, DNV ascertained that the methodology developer had a robust understanding of the performance within this sector and used the data appropriately.

Date	**Contact**	**Role**
6 May 2013	Robert J. Koester AIA, LEED AP Professor of Architecture Director, Center for Energy Research/Education/Service Chair, Council on the Environment Ball State University	Reviewer of draft final methodology in December 2012. Pilot program participant.
10 May 2013	Chris Pyke, Ph.D. Vice President Research U.S. Green Building Council	Dr. Pyke was the key contributor to the data sets used to develop the benchmark. He contributed numerous data evaluations.
6 May 2013	Paul Rowland Executive Director Association for the Advancement of Sustainability in Higher Education	Advisor on the operations of institutions of higher education. Provide contacts and facilitated participation in the pilot program. Dr. Rowland provided a deep understanding of the STARS (sustainability tracking assessment and rating system).
15 May 2013	Bob Shepherd Consultant, formerly CACP	Mr. Shepherd was an advisor for the entire project and reviewer of drafts of the methodology. His role included advising on approaches, data sets to consider and reviews of datasets.
7 May 2013	Robert Wilkinson, Ph.D. Lecturer, Environmental Studies Adjunct Associate Professor, Bren School of Environmental Science and Management University of California, Santa Barbara	Member of Chevy's Environmental Advisory Board. Dr. Wilkinson was instrumental in providing information on the applicability to institutions of higher education and reviewer of drafts of the methodology. Pilot program participant.

2.4 Use of VCS-Approved Expert

Michael Lehmann is a VCS-approved standardized methods expert.

2.5 Resolution of Any Material Discrepancy

The assessment of the methodology did not raise any formal corrective actions, clarification requests or other findings.

Nonetheless, in addition to a desk review of the documents listed in section 2.22.3 and the interviews described in 2.3, the assessment of the methodology was carried out through about 30 telephone conferences between the DNV assessment team (Michael Lehmann and Barbara Tool O'Neil) and Sue Hall of Climate Neutral Business Network during the period from December 2012 to June 2013. Each of these telephone conferences focused on specific elements of the methodology and resulted in the methodology to be amended and/or revised (refer also to section 4).

The assessment was not meant to provide any advice to the methodology development. However, the comments made by DNV during the assessment process may have provided input for improvement of the methodology.

2.6 Internal Quality Control

This assessment report underwent a technical review before DNV approved the methodology element. The technical review was performed by a qualified technical reviewer in accordance with DNV's qualification scheme.

3 ASSESSMENT FINDINGS

This methodology, Campus Clean Energy Efficiency Methodology, uses a standardized approach, i.e. a performance method, for the determination of additionality. A project method is applied for the crediting baseline, with the exception of new buildings and existing buildings of type B which according to the Campus Clean Energy Efficiency LEED Certified Buildings Module also apply a performance method for the crediting baseline. VCS defines two types of standardized methods: performance methods and activity methods. The methodology uses the performance method approach. By applying performance methods a project applying this methodology will not need to determine additionality in a project specific approach and/or determine a project specific baseline but may instead apply the methodology's performance benchmark metrics for determining additionality and/or the crediting baseline, respectively. Projects that meet or exceed a pre-determined level of the performance benchmark metric may be deemed as additional and the same or a different level of the metric may serve as the crediting baseline.

Standardized methods help streamline individual project development by using a standard approach to the determination of additionality and/or the crediting baseline for a given class of project activity. Qualifying conditions and criteria are set out in the methodology for determining additionality and/or the crediting baseline. Individual projects need only meet the conditions and apply the pre-defined criteria eliminating the need for the lengthy project specific additionality and/or crediting baseline determination.

The methodology consists of three documents:

- Campus Clean Energy Efficiency Methodology
- Campus Clean Energy Efficiency Campus-Wide Module
- Campus Clean Energy Efficiency LEED Certified Buildings Module

The Campus Clean Energy Efficiency Methodology provides an overview of the methodology and guidance on methodology choices. The modules each provide a detailed discussion with the methods and procedures for completing a project.

Environmental integrity is important to any methodology including a methodology using a standardized approach. Section 4.10 of the VCS Standard requires that **"***Methodologies may use any combination of project, performance or activity methods for determining additionality and the crediting baseline. However, methodologies shall provide only one method (i.e., a project method or performance method) for determining the crediting baseline (i.e., methodologies shall not provide the option of using either a project method or a performance method for the crediting baseline).*"

For the Campus Clean Energy Efficiency LEED Certified Buildings Module the crediting baseline is defined by the status of the building. An historic baseline and thus project specific crediting baseline is used for existing buildings that are being retrofitted (EB-A). This is anchored on the requirements of LEED Pilot Credit 67 which itself requires the use of historical data. For the existing building (EB-B) and new construction (NC) category where historic data is not available, the Energy Star 50 performance level and thus a performance method is selected for the crediting baseline. Hence, although the Campus Clean Energy Efficiency LEED Certified Buildings Module applies both a project method and a performance method for the crediting baseline (while only a performance method is used for additionality determination), a specific

building may only apply either the project method or the performance method depending on whether the building is of category EB-A or EB-B or NC, respectively.

Section 3.14.1 of the VCS Guidance for Standardized Methods requires **"***Performance methods are designed such that the additionality benchmark works together with the crediting benchmark to ensure overall environmental integrity, which means projects are not permitted to use the additionality benchmark in isolation."*

In the Campus Clean Energy Efficiency Methodology document, clear guidance is provided on project choices and requirements for the performance methods. Appendix 4 of the Campus Clean Energy Efficiency Methodology document provides a detailed discussion of the stakeholder guidance on the development of appropriate benchmarks that would ensure environmental integrity. In Appendix 5 of each module there is a detailed discussion of the development of the benchmarks. The sections below on additionality and baseline crediting discuss the application in detail of the benchmarks and the methods and procedures to ensure environmental integrity. A brief discussion of the organizations that maintain the data used for the benchmarks is below.

The Campus Clean Energy Efficiency Campus-Wide Module uses the data from the American College & University Presidents' Climate Commitment (ACUPCC) database. ACUPCC consists of a network of colleges and universities that have made institutional commitments to eliminate net greenhouse gas emissions from specified campus operations, and to promote the research and educational efforts of higher education to equip society to re-stabilize the earth's climate. All data is peer reviewed and publicly available.

The Campus Clean Energy Efficiency Campus-Wide Module was developed to minimize any potential systematic over- or underestimation of emission reductions. In the development of the performance benchmark metrics proposed by the methodology the tradeoff between false positive and false negatives was evaluated. The ACUPCC data was carefully reviewed to assess whether the ACUPCC data stratification was appropriate for use in the methodology. Then applicability conditions were carefully designed using US based public data in the ACUPCC and STARS data systems. Likewise performance benchmark metrics were designed using ACUPCC and STARS data. Finally extensive stakeholder consultation was conducted over a year. Stakeholders included independent environmental experts, college NGO's, college sustainability officers, carbon experts.

The Campus Clean Energy Efficiency LEED Certified Buildings Module uses the Leadership in Energy and Environmental Design (LEED) approach for new construction and existing buildings. LEED was developed by US Green Building Council (USGBC). The USGBC, founded in 1993 is made up of a diverse group of builders and environmentalists, corporations and nonprofits, teachers and students, lawmakers and citizens. Today USGBC has 77 chapters, 13,000 member organizations and 196,000 LEED professionals. LEED is a program that provides third-party verification of green buildings. Building projects satisfy prerequisites and earn points to achieve different levels of certification. Prerequisites and credits differ for each rating system, and teams choose the best fit for the project. The number of points the project earns determines its level of LEED certification. The main categories are:

- Sustainable sites credits to encourage strategies that minimize the impact on ecosystems and water resources.
- Water efficiency credits to promote smarter use of water, and reduce potable water consumption.

- Energy & atmosphere credits to promote better building energy performance through innovative strategies.
- Materials & resources credits to encourage using sustainable building materials and reducing waste.
- Indoor environmental quality credits to promote better indoor air quality and access to daylight.

The Campus Clean Energy Efficiency LEED Certified Buildings Module also uses the US Environmental Protection Agency (EPA) Energy Star data through the EPA Portfolio Manager (PM) interface. Now in its 20th year, Energy Star is voluntary programs that helps businesses and individuals save money and reduce emissions through energy efficiency. To improve the oversight of Energy Star program, EPA uses third–party certification and testing. EPA introduced innovative performance benchmarks and a standardized measuring system based on actual energy use into the commercial and industrial market more than 10 years ago. In 2012, EPA developed US building energy benchmarks using the data from over 35,000 buildings from 2008 to 2011.

USGBC provided data and energy efficiency performance curves for aggregated data for LEED certifications segmented by building type, e.g. existing building or new construction. From those curves, further data analysis and stakeholder consultation a performance target was chosen at the 80th percentile of performance (note that the LEED 50th percentile performance level chosen for the performance benchmark metric in the Campus Clean Energy Efficiency LEED Certified Buildings Module for demonstrating additionality of buildings of the category NC correspond to a performance within the top 14% of buildings nationwide, thus corresponding to the 86th percentile level of performance). The performance benchmark levels were established through stakeholder consultation which reviewed a series of white papers which proposed, refined and finalized the performance benchmarks through a year-long consultation review process.

The detailed assessment of the Campus Clean Energy Methodology follows below.

3.1 Applicability Conditions

Relevant sections of the VCS Standard are 4.3.1. 4.3.2, 4.3.3, 4.3.4, 4.3.5, and 4.3.6. Relevant sections of the VCS Guidance for Standardized Methods are 4.3.2 and 4.3.4.

Section 4.3.2 of the VCS Standard states that **"**The methodology shall use applicability conditions to specify the project activities to which it applies and shall establish criteria that describe the conditions under which the methodology can (and cannot, if appropriate) be applied. Any applicability conditions set out in tools or modules used by the methodology shall also apply."

The Campus Clean Energy Efficiency Methodology defines the applicable conditions and project activities in each document on the following pages:

- Campus Clean Energy Efficiency Methodology: general applicability conditions are described on p. 20.
- Campus Clean Energy Efficiency Campus-Wide Module: required applicability conditions are described on p. 15-16 and strategies and technologies are described on p. 16-17.

- Campus Clean Energy Efficiency LEED Certified Buildings Module: required applicability conditions are described on p. 15-16 and strategies and technologies are described on p. 16.

The methodology and modules set specific applicability conditions. These applicability conditions specify the project activities to which the methodology and modules applies and establish criteria that describe the conditions under which the methodology can (and cannot) be applied. The methodology is applicable to US existing college campuses only, as segmented by Carnegie class, provided that they are reporting GHG reductions through ACUPCC, STARS or other credible third party GHG reporting program. The applicability of the methodology and the performance benchmarks are thus limited to the geographic area for which data was available and analyzed to determine the performance benchmark. The applicability conditions thus limit the applicability of the methodology to project activities whose performance can be described in terms of the performance benchmark metric set out in the methodology.

The methods used for each module require the project developer to evaluate strategies and technologies to substantially improve the on-campus energy efficiency. For each module this list has been derived to improve the GHG performance.

From the Campus Clean Energy Efficiency Campus-Wide Module at least two measures must be employed from the list of 9 categories. The list was developed from an analysis of the climate action plans submitted to ACUPCC from 2007-2011 and represents the list of measures undertaken by campus which have achieved reductions in emission levels which exceed the reductions in emissions set as the performance benchmark, (i.e. that achieved on average by pre-qualified campuses) while several campuses had in fact increased their emission levels. This list will also be updated every 5 years to ensure that it is remains current. As required for methodologies using a performance method for determining additionality, the methodology thus explicitly specifies technologies and/or measures. Moreover, given that the measures are drawn from the list of measures implemented by top performing campuses, these measures cause substantial performance improvement relative to the crediting baseline and what is achievable within the sector as required by the VCS Standard.

For the Campus Clean Energy Efficiency LEED Certified Buildings Module, the methodology requires the use of the LEED certified performances which must be at least in the top 50th percentile for building performance of LEED certified buildings, and the use of at least two measures from the list of eligible activities. This list will also be updated every 5 years to ensure that is remains current. The applicability conditions limit the applicability of the module to LEED certified buildings located on US college campuses or US K-12 schools only and thus ensure consistency with available data. The type of eligible buildings is defined by building designation of the Commercial Building Energy Consumption Survey (CBECS). For existing buildings, the methodology requires that EB-B buildings shall have started historically from a baseline performance level that would render the building eligible for LEED certification, while EB-A buildings shall have started historically from a baseline performance level that would not render the building eligible for LEED certification, which implies that the project year 0 (the last baseline year) must have delivered an energy performance at or below the LEED certification eligibility threshold (currently ES 69).

At least two technologies/strategies as specified by USGBC for the LEED certification basis applicable to the project building need to be identified. As required for methodologies using a performance method for determining additionality, the methodology thus explicitly specifies technologies and/or measures. The technologies/strategies that must be identified are the

technologies/strategies which are the pre-requisites for LEED certification. Given that LEED certified buildings represent 1% of all US buildings and their energy performance is within the top 14% of buildings nationally on average, implementing measures which are considered a pre-requisite for LEED certification thus represent technologies and/or measures that cause substantial performance improvement relative to the crediting baseline and what is achievable within the sector.

Emission reductions and performance levels must be determined and monitored through EPA's Portfolio Manager Target Finder (EPA PM), preferably integrated into LEED's GBIG reporting program. As a result, the applicability conditions ensure that regional, climatic, occupational, computer loads, square footage and other salient EPA PM performance factors are taken into account in the determination of emission reductions and performance-based eligibility factors.

DNV assessed that the defined applicability conditions are appropriate, adequate and in compliance with the VCS Standard.

3.2 Project Boundary

Relevant sections of the VCS Standard are 4.4.1. 4.4.2, and 4.4.3.

The Campus Clean Energy Efficiency Methodology defines the project boundary in each document on the following pages:

- Campus Clean Energy Efficiency Methodology reference is made to each module.
- Campus Clean Energy Efficiency Campus-Wide Module: the definition of the project boundary and included sources, sinks and reservoirs are described on p. 17-21.
- Campus Clean Energy Efficiency LEED Certified Buildings Module: the definition of the project boundary and included sources, sinks and reservoirs (SSRs) are described on p. 17-18.

The Campus Clean Energy Efficiency Methodology provides an analysis of SSRs for this kind of project by outlining a route map in Table 6 and 7 (p. 18, 19) of the document, and Appendix 5 of the document. The VCS Standard requires a comparison of sources, sinks and reservoirs for the project with the baseline scenario. The sources and descriptions of what is included are provided in each module to assure consistency.

The module requires to at least considering the CO_2 emissions from scope 1 stationary on-site energy generation / combustion systems and the CO_2 emissions related to scope 2 electricity consumption. The module also provides the option to consider CH_4 and N_2O emissions from scope 1 stationary on-site energy generation / combustion systems and related to scope 2 electricity consumption. Both the emissions from stationary on-site energy generation / combustion systems and the emissions related to scope 2 electricity consumption need to be quantified when applying test 1 of the additionality test, i.e. the campus' annual average change in the project's total GHG emissions must be equal to or less than zero as calculated over the additionality eligibility period (refer to section 3.4). The project boundary thus includes the emissions that are targeted by the measures/technologies implemented on campus and that are within the control of a campus project proponent.

One of the applicability conditions requires that the campus must demonstrate ownership of the GHG reductions and therefore control over the SSRs for the project. The campus is defined as one or more adjacent, contiguous or separate properties and facilities (buildings, stadiums, sports arenas, etc.) under the control of the institution of higher education. If there are other

buildings on campus, such as research institutes that are separately funded they are still included within the boundary of the campus and the related SSRs.

The GHG sources to be considered are consistent with those used to report to GHG reporting framework (e.g. ACUPCC, ENERGY STARS and LEED NC or EB certification). The methodology thus builds on established practices for defining project boundaries and selecting relevant GHG sources. Given that emission reductions are determined as the difference of the emission inventory of a campus or building before and after the implementation of a VCS project activity using the same tool to determine CO_2 emission levels, these GHG reporting frameworks are also appropriate for GHG project accounting. Furthermore, the discussions with relevant experts revealed that the tools need to be applied in particular ways to ensure consistency with best GHG project accounting practices. This has thus been specified in the methodology (e.g. the use of the EPA Target Finder tool under ES 50 baseline when stipulating the application of regional default fuel mixes for LEED NC and EB-B baseline emission calculations).

The Campus Clean Energy Efficiency LEED Certified Buildings Module requires that the selected project boundary must comprise the same boundary as specified in the LEED NC or EB certification and requires considering both scope 1 and scope 2 energy based emissions. The methodology requires excluding energy generation systems located within the project boundary in case these energy generation systems provide services beyond the project certified building. Through these provisions, the Campus Clean Energy Efficiency LEED Certified Buildings Module ensures that project proponents also correctly report the emission reductions resulting from the technologies/strategies implemented for specified buildings.

In conclusion, DNV assessed that the defined project boundary is appropriate, adequate and in compliance with the VCS Standard.

3.3 Procedure for Determining the Baseline Scenario

Relevant sections of the VCS Standard are 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.5.5, 4.5.6, and 4.5.7. Relevant sections of the VCS Guidance for Standardized Methods are 4.5.3 and 4.5.5.

The Campus Clean Energy Efficiency Methodology defines the baseline scenario and procedures and calculations in each document on the following pages:

- Campus Clean Energy Efficiency Methodology: reference is made to each module.
- Campus Clean Energy Efficiency Campus-Wide Module: the definition and procedures for determining of the baseline scenario are described on p. 22 and specific adjustments that may be needed due to increase/decrease of campus buildings is in Appendix 3.
- Campus Clean Energy Efficiency LEED Certified Buildings Module: the definition and procedures for determining of the baseline scenario are described on p. 19-20.

The Campus Clean Energy Efficiency Methodology provides a listing of where baseline scenarios should be applied for particular options within the module in Table 6 and 7 (p. 18, 19) of the document.

The baseline scenario represents the conditions most likely to occur in the absence of the Project.

For campus-wide and LEED EB-A, in line with other approved baseline methodologies for energy efficiency measures, including the VCS methodology VM0008, the selected baseline

scenario represents the historical emissions that occurred prior to the energy efficiency measures being implemented. The selection of this baseline scenario in combination with adjusting baseline emissions by a business as usual (BAU) energy efficiency improvement factor of 1.3%/year to reflect BAU energy efficiency gains (refer to section 3.5) is in DNV's opinion appropriate for a methodology for energy efficiency measures on US campus.

For LEED NC and EB-B the baseline comprises the scope 1 and 2 energy-based GHG emissions for a comparable building at the Energy Star 50 performance level, using EPA's Energy Star PM. The baseline scenario is thus that the energy performance of an existing building would be the same as the average performance of similar buildings in the US. The selection of this baseline scenario is in DNV's opinion adequate,

For each module the baseline scenarios are summarized in the table below.

Campus Clean Energy Efficiency Campus-Wide Module	**Campus Clean Energy Efficiency: LEED Certified Buildings Module**
The baseline scenario is the historical campus-wide Scope 1 (stationary) GHG emissions and the historical campus wide Scope 2 electricity based GHG emissions prior to project start date. The baseline period B must extend for at least 3 and up to 5 years prior to the first project year. Baseline years must include at least one ACUPCC/STARS or third party GHG public reporting period. The selection of the baseline period (from 3 to 5 years) will have to be justified relative to data availability and quality. The baseline period of 3 to 5 years is consistent with the period typically stipulated by other methodologies. A baseline period of 3-5 years is also considered adequate for determining the historical baseline emissions of a campus. Average emissions over a period of 3-5 are considered representative for historical emissions of a campus and the average is not sensitive to any possible extreme situations that may occur in a specific year. The module has in appendix 3 also provisions for adjusting the historic emissions in case during the baseline period the campus area has declined or has increased by more than 5% per year. The approach in appendix 3 is consistent with the approach stipulated by the WBCSD/WRI GHG Protocol.	For new construction (NC), the baseline scenario comprises the scope 1 and 2 energy-based GHG emissions for a comparable building at the Energy Star 50 (ES 50) performance level, using EPA's Energy Star PM (which ensures comparable region, size, occupancy, weather and other salient factors). The baseline scenario is thus that a newly constructed building's energy performance which would be the same as the average performance of similar buildings in the US. The selection of this baseline scenario is in DNV's opinion adequate and in line with other approved baseline methodologies for energy efficiency measures and can best reflect the significant improvement in performance between average performance levels on a national and LEED certified basis without introducing distortions due to a change in percentile levels. Moreover, this baseline scenario was confirmed by the stakeholders consulted in the process of developing this methodology (refer to section 3.4.2 for further details).
	For Existing buildings (EB-A), the baseline scenario comprises the project building's historical Scope 1 and 2 energy based GHG emissions prior to project start date. This is anchored on the requirements of LEED Pilot Credit 67 which itself requires the use of historical data and is consistent with VM0008. The baseline period of 3 to 5 years is consistent with the period typically stipulated by other methodologies and by LEED. A

	baseline period of 3-5 years is also considered adequate for determining the historical baseline emissions of a building. Average emissions over a period of 3-5 are considered representative for historical emissions of a campus and the average is not sensitive to any possible extreme situations that may occur in a specific year.
	For Existing buildings (EB-B), the baseline comprises the scope 1 and 2 energy-based GHG emissions for a comparable building at the Energy Star 50 performance level, using EPA's Energy Star PM. The baseline scenario is thus that the energy performance of an existing building would be the same as the average performance of similar buildings in the US. The selection of this baseline scenario is in DNV's opinion adequate and in line with many other approved baseline methodologies for energy efficiency measures and can best reflect the significant improvement in performance between average performance levels on a national and LEED certified basis without introducing distortions due to a change in percentile levels. Moreover, this baseline scenario was confirmed by the stakeholders consulted in the process of developing this methodology (refer to section 3.4.2 for further details).

DNV assessed that the defined baseline scenario and procedures and calculations are appropriate, adequate and in compliance with the VCS Standard.

3.4 Procedure for Demonstrating Additionality

Relevant sections of the VCS standard are 4.6.1, 4.6.2, 4.6.3, 4.6.4 and 4.6.7. Relevant sections of the VCS Guidance, Standardized Methods are 3.14.1, 4.6 and 4.6.7.

The Campus Clean Energy Efficiency Methodology procedures for the demonstration of additionality are discussed in each document on the following pages:

- Campus Clean Energy Efficiency Methodology: reference is made to each module.
- Campus Clean Energy Efficiency Campus-Wide Module: the definition and procedures for determining additionality are described on p. 23-35.
- Campus Clean Energy Efficiency LEED Certified Buildings Module: the definition and procedures for determining additionality are described on p. 21-25.

The Campus Clean Energy Efficiency Methodology provides more information on additionality choices and tests for particular options within each module in Table 6 and 7 (p. 18, 19) of the document.

This methodology uses performance methods for the determination of additionality and in the case for Campus Clean Energy Efficiency and LEED Certified Building Module options NC and EB-B also for the crediting of baselines. By applying a performance method a project applying the methodology will not need to determine project specific additionality, but must instead demonstrate that it meets the performance benchmark metrics for determining additionality.

For the Campus Clean Energy Efficiency Campus-Wide Module the performance benchmark metrics for determining additionality were developed using the ACUPCC data base, a peer reviewed database of information on GHG emissions from specified campus operations.

ACUPCC developed stratification for reporting purposes by segmenting institutions of higher education by Carnegie class. These include:

- Doctoral colleges
- Baccalaureate colleges
- Masters colleges
- Associate (2 year) colleges
- Specialist colleges

ACUPCC is the first US-wide stakeholder endorsed GHG reporting system for colleges. Its segmentation approach also earned the support of its extensive network of highly qualified expert college and non-profit stakeholders. This data was used to develop performance curves. The performance curves are used to develop the baseline scenario.

For the Campus Clean Energy Efficiency LEED Module the performance benchmark metrics for determining additionality were developed using the USGBC database, an independent third party certified database. And for performance baselines for LEED NC and EB, the EPA Energy Star Portfolio Manager database was used. EPA has been gathering data in the Energy Star program for 20 years, and all data is independently certified.

The additionality tests summarized in the table below were developed during extensive consultation with the key stakeholders at the USGBC, CACP and ACUPCC. The additionality text comprises of a pre-test, i.e. pre-tests A and B for Campus Clean Energy Efficiency Campus-Wide Module and a pre-test for Campus Clean Energy Efficiency LEED Module. These tests are termed pre-tests as they are carried out prior to a project having to undergo the main additionality tests.

For the Campus Clean Energy Efficiency Campus-Wide Module the main additionality test comprises of two steps with step 2 being divided into two sub-steps: one related to the technologies/measures for reducing emissions from scope 1 stationary on-site energy generation / combustion systems (test 2S) and one related to the technologies/measures for reducing emissions from scope 2 electricity consumption (test 2E).

Project developers may select an appropriate additionality eligibility period which can be from 1 to 5 years. The methodology stipulates that the additionality eligibility period should preferably be at least two years due to the averaging effect that a longer additionality eligibility period has, thus addressing possible weather effects. Nonetheless, in order to not exclude any campus, the methodology also permits to use one year's data. However, if only one year prior performance data is available, weather adjustments must be made as one year's data is sensitive to possible

extremes in a specific year. Hence, both tests 1 and 2 must be applied on a weather-adjusted basis (test 1B and 2S-B, 2E-B) if the additionality eligibility period comprises a year. Otherwise, the averaging effect over longer additionality eligibility periods adequately addresses weather effects, and test 1A, 2S-A and 2E-A can be applied.

Allowing a project proponent to select an appropriate additionality eligibility period at their discretion is in DNV's opinion appropriate. Allowing this flexibility is deemed necessary for a campus to demonstrate that beyond business as usual energy efficiency measures have been implemented. Campus will have different emission profiles and will have had different energy efficiency strategies prior to implementing these beyond business as usual energy efficiency measures, so that a campus needs to be able to select an appropriate additionality eligibility period. DNV has reviewed data on pilot projects presented by the methodology developer to demonstrate that allowing a project proponent to select an appropriate additionality eligibility period does represent a risk of gaming. It must also be noted that emission reductions of a project will be based on actual emissions during at least 3 years prior to project year 1 (refer to section 3.5). Moreover, the selection of the appropriate additionality eligibility period will also be subject to validation by a VVB.

For the Campus Clean Energy Efficiency LEED Module the main additionality tests depend on the type of building, i.e. NC, EB-A or EB-B. It should be noted that the tool used to establish CO_2 emission levels, the EPA Target Finder, already makes adjustments for weather considerations so further sub-stratifications of the LEED tests are not required.

	Campus Clean Energy Efficiency Campus-Wide Module
Pre -Test	
A	Regulatory Surplus
B	Area (square foot) variance
Test	
1	The project campus' annual average change in the project's total GHG emissions must be equal to or less than zero as calculated over the additionality eligibility period.
2S	The campus' annual average reduction in Scope 1 (stationary) GHG emissions must be equal to or greater than the performance benchmark, PBS_c. The performance benchmark, $PBS_{c,}$ will be the annual average reduction on campuses of equivalent ACUPCC Carnegie class as the project.
2E	The campus' annual average reduction in Scope 2 (electricity) GHG emissions must be equal to or greater than the performance benchmark, PBE_c. The performance benchmark, PBE_c, will be the annual average reduction on campuses of equivalent ACUPCC Carnegie class as the project.

	Campus Clean Energy Efficiency LEED Certified Buildings Module
Pre -Test	
	Regulatory Surplus
Test	

NC	For new construction (NC), the project LEED certified building's energy saving (EUI) over regulatory code (ASHRAE 2004, 2007) must be equal to or greater than the performance benchmark. The performance benchmark will be the equivalent energy (EUI) savings over code achieved at the 50th percentile performance level relative to the same regulatory code (as used in the Project building's LEED certification (ASHRAE 2004, 2007)) for all LEED buildings which belong to the same category as the Project building.
EB-A	For Existing buildings (EB-A), the percent improvement within a single year of the EUI for the Project building must be equal to or greater than the performance benchmark. The performance benchmark will be the LEED Credit 67 qualifying improvement requirement which is currently 20%.
EB-B	For Existing buildings (EB-B), the EPA Energy Star (ES) performance rating for the Project building, using the EPA PM on line must be equal to or greater than the performance benchmark. The performance benchmark will be the LEED average ES rating for all its certified buildings which is currently ES86.

Projects applying the Campus Clean Energy Efficiency Campus-Wide Module must satisfy both Test 1 and Test 2S and/or both Test 1 and Test 2E to be eligible. The methodology also takes into account all key adjustments factors such as weather variations, and increase or decrease in building areas. The adjustment factors are tailored to each test or calculation and the data sets to which the adjustments are to be applied.

For Campus Clean Energy Efficiency LEED Module the additionality metrics use the intensity metrics energy use intensity (EUI) which accounts changes in energy as a function of building area. The Campus Clean Energy Efficiency LEED Certified Buildings Module uses distinct performance benchmarks for NC and EB LEED certified buildings, since new construction and existing buildings have different performance metrics. Projects can only pick the NC or EB option. Within LEED EB, there are two options that are limited to two mutually exclusive sectors of existing buildings: one that would not have been eligible for LEED certification in year 0; the other would have been eligible for LEED certification in project year 0. Only buildings which were not LEED certifiable prior to their 20% EUI improvement in a single year are eligible for avenues EB-A. EB buildings which are eligible to be LEED certified and achieve a performance level of ES 86 are eligible under EB-B. These are two mutually exclusive EB groups. This applies to additionality testing and baseline crediting and prevents any gaming of the system.

DNV assessed that the defined procedures for the demonstration of additionality are appropriate, adequate and in compliance with the VCS Standard. As required by the VCS Standard, the procedure for the demonstration and assessment of additionality includes a step for demonstrating and assessing regulatory surplus. Moreover, the performance benchmark metrics for the demonstration and assessment of additionality were determined through a process as required by the VCS standard (refer to section 3.4.13.4.2 below).

Finally, the tests to be applied for demonstrating additionality are well described and supported with detailed route maps. The methodology thus adequately facilitates the demonstration of additionality of proposed projects.

3.4.1 *Campus Clean Energy Efficiency Campus-Wide Module*

Relevant sections of the VCS standard for determining a performance benchmark for demonstrating additionality are sections 4.1.16, 4.1.17 and 4.1.18. The table below summarizes DNV's assessment of the Campus Clean Energy Efficiency Campus-Wide Module's compliance with these VCS requirements. Further details provided by the methodology developer, Climate Neutral Business Network, are included in Appendix A to this assessment report.

VCS requirement	**DNV's assessment of the modules compliance with VCS requirement**
4.1.16 The performance benchmark metric shall be specified in terms of tonnes of CO2e per unit of output (ie, GHG emissions per unit of product or service), tonnes of CO2e per unit of input (eg, GHG emissions per unit of input per unit of land area) or as a sequestration metric (eg, carbon stock per unit of land area), as appropriate to the project activity applicable under the methodology. This may represent tonnes of CO2e reduced or tonnes of CO2e sequestered. An input metric shall only be used where an output metric is not practicable (eg, the corresponding output metric is subject to influences outside the control of the project proponent) and leakage shall be addressed. The unit shall be unambiguously defined to allow a consistent comparison of project performance with the performance benchmark.	The performance benchmark metric is an annual % improvement in stationary 1 emissions and/or scope 2 electricity-based emissions. Discussions with stakeholders also considered alternative metrics (such as CO_2 per square foot) but these were found to introduce a further independent variable (campus square footage, which itself varies), in ways that were inconsistent with the historical baseline/carbon crediting approach that this module and ACUPCC reporting uses (namely carbon reductions over historical performance rather than an intensity metric for crediting purposes). The performance benchmark metric is in DNV's opinion adequate due to the following: • The metric refers to % improvement compared to a campus' historical emissions and is thus the closest to a project based additionality testing approach • VCS methodology VM0008 uses the same metric • The methodology developer also evaluated a metric of % improvement annually in CO_2/square foot. However, such a metric was not found to be beneficial because a) it introduces another variable, i.e. square foot area of the campus, b) when applying this metric to the data for doctoral ACUPCC campuses using the % improvement in CO2/square foot metric, it was found that the same campuses qualified (though via a more complex process) so that the approach did not give any improvement in outcomes, c) the stakeholders consulted

	expressed the opinion that it was better to apply variances for square foot changes only when they were significant (an increase in more than 5%/yr or a decrease (refer to appendix 3 of the module) and d) the CO_2/square foot performances of campuses is fundamentally correlated to the CO_2 intensity of the applicable electricity grid and thus not found to be a credible metric as it simply reflects the CO_2 intensity of the applicable regional grid.
4.1.17 The methodology shall provide a description and analysis of the current distribution of performance within the sector as such performance relates to the applicability of the methodology or each performance benchmark.	The methodology analyses data for all ACUPCC reporting campuses, as segmented by ACUPCC reporting categories.
4.1.17 The methodology shall also provide an overview of the technologies and/or measures available for improving performance within the sector, though an exhaustive list is not required recognizing that performance methods may be somewhat agnostic with respect to the technologies and/or measures implemented by projects.	The module requires that at least two measures must be employed from the list of 9 categories. The list was developed from an analysis of the climate action plans submitted to ACUPCC from 2007-2011.
4.1.17 The methodology shall discuss and evaluate the tradeoff between false negatives and false positives and shall describe objectively and transparently the evidence used (including reference to primary and secondary data sources), experts consulted, assumptions made, and analysis (including numerical analysis) and process undertaken in determining the selected level(s) of the performance benchmark metric (noting that expert consultation is a key part of this process, as set out below). The selected level(s) shall not systematically overestimate GHG emission reductions or removals.	The methodology minimizes the occurrence of false negatives and false positives through i) stratification of the data and a performance benchmark metric for each ACUPCC Carnegie class, ii) applicability conditions and iii) the stakeholder consultation process. Moreover, false positives are in particular excluded by having provisions for situations where campuses square footage is either declining or expanding and adjustments to the performance metric must be carried out as per Appendix 3. Similarly, situations in which activities reducing stationary 1 emissions could increase scope 2 electricity-based emissions are addressed as adjustments to project emissions. Data for all ACUPCC reporting campuses and data from pilot projects were used to evaluate tradeoff between false negatives and false positives. The levels of the performance benchmark metrics were eventually selected through an extensive expert consultation process resulting in performance benchmark

	metrics that, in the view of the consulted experts, do not systematically overestimate GHG emission reductions.
4.1.17 The process of determining the level(s) of the performance benchmark metric shall include and be informed by an expert consultation process, undertaken by the methodology developer	Over the course of development of the methodology 55 advisors were consulted. Extensive discussions took place with relevant experts in a combination of bilateral communications and several conference call meetings. These consultations initially began in 2011 and took place extensively throughout 2012. The results of these discussions were summarized in draft white papers which outlined the methodology's core logic and assumptions. Iterations of these white papers were updated and exchanged throughout 2012 as refinements were made as a result of the experts' feedback. DNV reviewed several versions of these white papers (refer to section 2.22.3).
4.1.17 The methodology developer shall ensure that a representative group of experts participates in the consultation, including, but not limited to, representation from industry, environmental non-governmental organizations, and government or other regulatory bodies.	The advisors represented a variety of stakeholders from Chevy's Environmental Advisory Board, to non-profits, the US Green Building Council (USGBC), and government agencies. Five key advisors were interviewed by DNV as part of the methodology assessment (refer to section 2.3)
4.1.17 A report on the expert consultation process and outcome shall be prepared and submitted to the VCSA when the methodology is submitted under the methodology approval process.	The stakeholder consultation report forms Appendix 4 of the module. The summary of the stakeholder consultation in Appendix 4 provides a summary of expert views and demonstrates that the group of experts was representative and comprised experts of all relevant fields. Appendix 4 also describes how expert views were taken due account of. The methodology developer provided DNV with further details on the stakeholder consultations, such as the e-mail communications with selected experts and a log of calls with advisors and contributors to the methodology development (refer to section 2.2).
4.1.18 Where there is heterogeneity of performance (measured in terms of the performance benchmark metric) that may be practicably achieved by individual projects, multiple benchmarks or correction factors may be required. • *technologies and/or measures which may be implemented at both greenfield and*	ACUPCC data which is segmented by the size of the institution was used to develop the performance benchmark.

brownfield sites • *larger and smaller scale project activities* *Any other circumstances related to the baseline scenario or project activity, such as plant age, raw material quality and climatic circumstances, that lead to heterogeneity of performance*	

3.4.2 *Campus Clean Energy Efficiency LEED Module*

Relevant sections of the VCS standard for determining a performance benchmark for demonstrating additionality are sections 4.1.16, 4.1.17 and 4.1.18. The below table summarizes DNV's assessment of the Campus Clean Energy Efficiency LEED Module's compliance with these VCS requirements. Further details provided by the methodology developer, Climate Neutral Business Network, are included in Appendix A to this assessment report.

VCS requirement	**DNV's assessment of the modules compliance with VCS requirement**
4.1.16 The performance benchmark metric shall be specified in terms of tonnes of CO2e per unit of output (ie, GHG emissions per unit of product or service), tonnes of CO2e per unit of input (eg, GHG emissions per unit of input per unit of land area) or as a sequestration metric (eg, carbon stock per unit of land area), as appropriate to the project activity applicable under the methodology. This may represent tonnes of CO2e reduced or tonnes of CO2e sequestered. An input metric shall only be used where an output metric is not practicable (eg, the corresponding output metric is subject to influences outside the control of the project proponent) and leakage shall be addressed. The unit shall be unambiguously defined to allow a consistent comparison of project performance with the performance benchmark.	The module applies the following performance benchmark metrics: NC: The LEED certified building's energy percent saving over regulatory standard (ASHRAE 2004, 2007), based on EUI (BTU/sq ft); EB-A: The percent improvement within a single year of the EUI (BTU/sq ft); EB-B: The EPA Energy Star (ES) performance rating for the Project building, as determined by entering data from the building's LEED certification documents into the EPA PM on line tool. The performance benchmark metrics for NC and EB-A are output metrics in the form of % improvement in energy use per square foot (and the CO_2 emissions are calculated considering the CO_2 intensity of the energy used). A metric of CO_2 emissions per square foot was not considered suitable as such a metric would be fundamentally correlated to the CO_2 intensity of the applicable electricity grid and thus not found to be a credible metric as it simply reflects the CO_2 intensity of the applicable regional grid. Given that the performance benchmark metric is applied for additionality testing only and not as a crediting baseline, the performance benchmark metric for EB-A buildings are in

	DNV's opinion also adequate, since they are based on historical emissions as a baseline which is credible for existing buildings. The performance benchmark metrics for EB-B is the average ES rating for all LEED certified buildings (currently ES86) and thus represents an output metrics based again on energy performances (which lack potential distortions) which is then converted into CO_2 emissions (as determined by entering data from the building's LEED certification documents into the EPA PM on line tool)
4.1.17 The methodology shall provide a description and analysis of the current distribution of performance within the sector as such performance relates to the applicability of the methodology or each performance benchmark.	Data that USGBC have compiled for all LEED certifications has been analyzed together with US EPA Energy Star performance data.
4.1.17 The methodology shall also provide an overview of the technologies and/or measures available for improving performance within the sector, though an exhaustive list is not required recognizing that performance methods may be somewhat agnostic with respect to the technologies and/or measures implemented by projects.	USGBC has provided an overview of technologies and measures relative to each building's certification status outlining the achievements to which the certified building can attest. The module requires that at least two technologies/strategies as specified by USGBC for the LEED certification basis applicable to the project building need to be identified.
4.1.17 The methodology shall discuss and evaluate the tradeoff between false negatives and false positives and shall describe objectively and transparently the evidence used (including reference to primary and secondary data sources), experts consulted, assumptions made, and analysis (including numerical analysis) and process undertaken in determining the selected level(s) of the performance benchmark metric (noting that expert consultation is a key part of this process, as set out below). The selected level(s) shall not systematically overestimate GHG emission reductions or removals.	The methodology minimizes the occurrence of false negatives and false positives through i) stratification of the data (see below), ii) applicability conditions and iii) the stakeholder consultation process. Further details are provided by the methodology developer in Appendix A to this assessment report
4.1.17 The process of determining the level(s) of the performance benchmark metric shall include and be informed by an expert consultation process, undertaken by the methodology developer	Over the course of development of the methodology 55 advisors were consulted. Extensive discussions took place with relevant experts in a combination of bilateral communications and several conference call meetings. These consultations initially began in 2011 and took place extensively throughout 2012. The results of these discussions were summarized in draft white papers which

	outlined the methodology's core logic and assumptions, particularly relative to the performance benchmarks. Iterations of these white papers were updated and exchanged throughout 2012 as refinements were made as a result of the experts' feedback. DNV reviewed several versions of these white papers (refer to section 2.22.3).
4.1.17 The methodology developer shall ensure that a representative group of experts participates in the consultation, including, but not limited to, representation from industry, environmental non-governmental organizations, and government or other regulatory bodies.	The advisors represented a variety of stakeholders from Chevy's Environmental Advisory Board, to non-profits, the US Green Building Council (USGBC), and government agencies. Five key advisors were interviewed by DNV as part of the methodology assessment (refer to section 2.3)
4.1.17 A report on the expert consultation process and outcome shall be prepared and submitted to the VCSA when the methodology is submitted under the methodology approval process.	The stakeholder consultation report forms Appendix 4 of the module. The summary of the stakeholder consultation in Appendix 4 provides a summary of expert views and demonstrates that the group of experts was representative and comprised experts of all relevant fields. Appendix 4 also describes how expert views were taken due account of. The methodology developer provided DNV with further details on the stakeholder consultations, such as the e-mail communications with selected experts and a log of calls with advisors and contributors to the methodology development (refer to section 2.2).
4.1.18 Where there is heterogeneity of performance (measured in terms of the performance benchmark metric) that may be practicably achieved by individual projects, multiple benchmarks or correction factors may be required. • *technologies and/or measures which may be implemented at both greenfield and brownfield sites* • *larger and smaller scale project activities* *Any other circumstances related to the baseline scenario or project activity, such as plant age, raw material quality and climatic circumstances, that lead to heterogeneity of performance*	The module follows the guidance of USGBC LEED and developed benchmarks for Existing Buildings (EB) and New Construction (NC). The data is further stratified based on the type of building, e.g. classrooms/offices or laboratories and benchmarks were developed using USGBC LEED and US DOE CBECS data. A further stratification into different regions within the US was considered. However, the analysis showed insignificant variances amongst different US regions. Hence, no stratification into different US regions is made (except for considering regional fuel mix as the basis for determining CO_2 emissions). This also results in a larger dataset to be the basis for each performance benchmark compared to having region-specific performance benchmarks.

3.5 Baseline Emissions

Relevant sections of the VCS standard are 4.7.1, 4.7.2, and 4.7.3

The Campus Clean Energy Efficiency Methodology and procedures for the calculation of baseline emissions are discussed in each document on the following pages:

- Campus Clean Energy Efficiency Methodology: procedures and definitions applicable to both modules are described on p. 16-17 and in Table 6 and 7 on p. 18 and 19.
- Campus Clean Energy Efficiency Campus-Wide Module: the definition and procedures for the calculation of baseline emissions are described on p. 36-37.
- Campus Clean Energy Efficiency LEED Certified Buildings Module: the definition and procedures for the calculation of baseline emissions are described on p. 25-29.

Baseline emissions (BE) are determined based on historical emissions of the specific campus or building (average annual emissions determined based on actual emissions during the 3-5 years prior to project year 1). The exception are the baseline emissions for NC and EB-B buildings in Campus Clean Energy Efficiency LEED Certified Buildings Module which uses the CO_2 emissions from ENERGY STAR 50 rated comparable buildings. As discussed in section 3.3, the supporting rationale behind the baseline scenario for NC/EB-B is that a building's energy performance, absent the substantial improvement in efficiencies due to LEED certification to at least LEED average levels, would be the same as the average national performance of similar buildings in the US. The selection of this baseline scenario is in DNV's opinion adequate and in line with other approved baseline methodologies for energy efficiency measures, including for campus-wide and LEED EB-A the VCS methodology VM0008. For LEED NC and EB-B, the ES 50 baseline best reflects the significant improvement in performance between average performance levels on a national and LEED certified basis without introducing distortions due to a change in percentile levels. Moreover, these baseline scenarios were confirmed by the stakeholders consulted in the process of developing this methodology (refer to section 3.4.2 for further details).

Emission reductions are determined as the difference between these baseline emissions and the actual emissions of the campus or building in the project scenario.

Baseline emissions are for both modules adjusted by a business as usual (BAU) energy efficiency improvement factor of 1.3%/year to reflect BAU energy efficiency gains. The improvement factor of 1.3%/year represents the average energy efficiency improvements in the US based on data published by the US DOE. Considering data reported by campuses to ACUPCC and data compiled by USGBC for LEED certified buildings, average energy efficiency improvements at campus have been less than 1.3%/year. Applying an US average energy efficiency improvement factor of 1.3%/year is thus appropriate and rather conservative.

The business as usual energy efficiency gains will already be reflected in the ENERGY STAR 50 rated comparable buildings emission baseline which is updated every year using the EPA PM tool. As a result, the 1.3% energy efficiency improvement factor will not need to be applied to NC and EB-B buildings applying the Campus Clean Energy Efficiency LEED Certified Buildings Module.

Baseline emissions calculations for the Campus-Wide Module are straightforward and clear, based on calculations of GHGs emitted or those associated with supplied electricity. The module considers:

- GHGs emissions resulting from the combustion of fossil fuels on the campus (stationary 1 emissions) and/or
- GHG emissions associated with supplied electricity (scope 2 electricity-based emissions).

For the LEED module, baseline emissions are calculated using the EPA PM tool and specific building information including square footage, occupancy, computers, and percent of the building heated/cooled. The EPA PM tool is discussed in Section 3.10.

DNV assessed that the calculation of baseline emissions are appropriate, adequate and in compliance with the VCS Standard

3.6 Project Emissions

Relevant sections of the VCS standard are 4.7.1, 4.7.2, and 4.7.3

The Campus Clean Energy Efficiency Methodology procedures and calculations for the determination of project emissions are discussed in each document on the following pages:

- Campus Clean Energy Efficiency Methodology: procedures and definitions applicable to both modules are described on p. 16-17 and in Table 6 and 7 on p. 18 and 19.
- Campus Clean Energy Efficiency Campus-Wide Module: the definition and procedures for the calculation of project emissions are described on p. 37.
- Campus Clean Energy Efficiency: LEED Certified Buildings Module: the definition and procedures for the calculation of project emissions are described on p. 25-19.

Project emissions calculations for the Campus-Wide Module are straightforward and clear, based on calculations of GHGs emitted via combustion or those associated with supplied electricity. For the LEED module, project emissions are calculated using the EPA PM tool and specific building information including square footage, occupancy, computers, and percent of the building heated/cooled. The EPA PM tool will be discussed in Section 3.10.

DNV assessed that the procedures and calculations for the determination of project emissions are appropriate, adequate and in compliance with the VCS Standard.

Although compliance with test 1 of the additionality test requires projects to quantify both the emissions from stationary on-site energy generation / combustion systems and the emissions related to scope 2 electricity consumption, the Campus Clean Energy Efficiency Campus-Wide Module permits a project proponent to target and report emission reductions of either campus-wide scope 1 (stationary) GHG emissions or campus wide scope 2 electricity based GHG emissions only (as an alternative to targeting and reporting reductions of both emissions).

Permitting this choice is in DNV's opinion appropriate as it allows a campus to target either scope 1 (stationary) GHG emissions or scope 2 electricity based GHG emissions, as applicable. The methodology developer argues that methodologies using a performance method should not be prescriptive relative to how emission reductions are to be achieved, but to focus instead on whether the required beyond business as usual performance levels have been achieved.

Furthermore, the option to focus reductions on either scope 1 (stationary) GHG emissions or scope 2 electricity based GHG emissions recognizes that campuses do indeed focus different kinds of clean energy efficiency measures/technologies to achieve reductions in each scope: accordingly. Test 1 of the additionality test ensures that there is no undue displacement of emission reductions between scope 1 (stationary) GHG emissions or scope 2 electricity based GHG emissions.

In case a project proponent selects to target either scope 1 (stationary) GHG emissions or scope 2 electricity based GHG emissions only, the methodology then also adopts further measures, beyond test 1 of the additionality test, in order to ensure that potential project emissions in scope 2 electricity based GHG emissions resulting from scope 1 (stationary) GHG emission reduction measures and vice versa are identified and addressed. Such adjustments to the project emissions are identified as $PE\Delta_y$.

The Campus Clean Energy Efficiency Campus-Wide Module thus includes adequate provisions and tests that ensure that a project proponent can not claim scope 1 (stationary) GHG emission reductions if the measures / technologies implemented to reduce these emissions result in an increase of scope 2 electricity based GHG emissions. Project proponents must therefore assess whether any of the activities undertaken to reduce stationary 1 emissions required more electricity use. If no measures to reduce stationary 1 emissions result in increased scope 2 electricity based GHG emissions or in case the increase of scope 2 electricity based GHG emissions is less than 10% of the stationary 1 emissions emission reductions, no adjustment to project emissions are necessary. DNV considers the de minimis threshold of 10% appropriate. This is because activities undertaken to reduce stationary 1 emissions represent substantial changes to campus energy generation systems. In case these activities were merely displacing scope 1 energy generation by consuming more electricity, they would thus result in a significant increase of scope 2 electricity based GHG emissions which would be more than 10%.

Similarly, the Campus Clean Energy Efficiency Campus-Wide Module includes adequate provisions and tests that ensure that a project proponent can not claim scope 2 electricity based GHG emission reductions if the measures / technologies implemented to reduce these emissions result in an increase of scope 1 (stationary) GHG emissions.

3.7 Leakage

Relevant sections of the VCS standard are 4.1.16, 4.4.2 and 4.7.1

It is demonstrated that the measures implemented under the Campus Clean Energy Efficiency Methodology do not result in leakage in terms of changes of anthropogenic emissions by GHG sources that occur outside the campus (i.e. project boundary) and that are attributable to the project.

DNV assessed that the justification provided to demonstrate that no leakage adjustments are needed are appropriate, adequate and in compliance with the VCS Standard.

3.8 Quantification of Net GHG Emission Reductions and/or Removals

Relevant sections of the VCS standard are 4.7.1, 4.7.2, and 4.7.3. The relevant section of the VCS Guidance, Standardized Methods is 4.7.3.

The Campus Clean Energy Efficiency Methodology procedures and calculations for the determination of the net GHG emissions reductions are discussed in each document on the following pages:

- Campus Clean Energy Efficiency Methodology: procedures and calculations for the determination of the net GHG emissions reductions for a combined project are described on p. 21.
- Campus Clean Energy Efficiency Campus-Wide Module: procedures and calculations for the determination of the net GHG emissions reductions for a combined project are described on p. 45-48.
- Campus Clean Energy Efficiency LEED Certified Buildings Module: procedures and calculations for the determination of the net GHG emissions reductions for a combined project are described on p. 25-29.

The net GHG emissions reductions calculations for the Campus Wide Module are straightforward and clear, based on calculations of GHGs emitted via combustion or those associated with supplied electricity, any project emission adjustment if needed and an adjustment for changes in building space over time if needed. The net GHG emissions reductions calculations for the LEED Certified Buildings Module are calculated using the EPA PM tool and are building specific. For a campus system, each building's reductions within the project boundary will have to be summed for a total reduction.

The methodology requires projects to exclude GHG reductions in stationary 1 and/or scope 2 electricity based emissions which arise from the installation of renewable energy systems within campus locations, which energy services or which CO_2 emission reductions or renewable attributes have already been sold (e.g. as carbon credits or renewable energy credits) to other third parties.

DNV assessed that the procedures and calculations for the determination of the net GHG emissions reductions are appropriate, adequate and in compliance with the VCS Standard.

3.9 Monitoring

Relevant sections of the VCS standard are 4.8.1, 4.8.2, 4.8.3, and 4.8.4.

The Campus Clean Energy Efficiency Methodology procedures for project monitoring are discussed in each document on the following pages:

- Campus Clean Energy Efficiency Methodology: reference is made to each module.
- Campus Clean Energy Efficiency Campus-Wide Module: the definition and procedures for monitoring are described on p. 48-74.
- Campus Clean Energy Efficiency LEED Certified Buildings Module: the definition and procedures for monitoring are described on p. 30-46

For each entry appropriate units of measurement are provided. The monitoring frequency is stated. For all calculations the emissions reductions/removals and net emissions are calculated in tonnes of CO_2 equivalents. Much of the data is already supplied to other organizations, e.g. ACUPCC and STARS. These organizations have existing procedures for managing data quality, including additional approaches for measurement procedures. In addition, the data supplied to USGBC undergoes an independent review and certification for quality. That assessment provides an additional cross-check of the data. ACUPCC data is peer reviewed before being

published. Data to be monitored and reported under this methodology thus builds on existing reporting framework and benefits from the data quality assurance processes of these reporting frameworks.

DNV assessed that the methodology procedures for project monitoring are appropriate, adequate and in compliance with the VCS Standard.

3.10 Data and Parameters

Relevant sections of the VCS standard are 4.1.6, 4.1.7, and 4.5.6. Relevant sections of the VCS Guidance, Standardized Methods are 4.1.18, 4.3.5, 4.3.6, 4.5.6 and 4.5.7.

For project based methodology assessments this section would only contain an assessment of the project data and parameters that are specified to be monitored and those to be estimated or not monitored. An assessment of the data to be monitored and estimated was completed. The data to be monitored or estimated is appropriate for any typical building energy efficiency or inventory project based on the monitoring requirements of WRI/ WBCSD, USGBC, The Climate Registry and the California Air Resources Board.

However, this methodology uses the new standardized approach for the determination of additionality and crediting of baselines. By applying performance methods a new project will not need to determine additionality requirements but instead will need to meet the performance benchmark metrics. Any performance benchmark metric is only as robust as the underlying data. As a matter of completeness, it is therefore appropriate to assess the appropriate VCS requirements and the data used for determining the performance benchmark metrics in addition to the data and parameters to be monitored.

Standardized methods help streamline individual project development by using a standard approach to the determination of additionality and/or the crediting baseline for a given class of project activity. Individual projects need only meet the conditions and apply the pre-defined criteria eliminating the need for the lengthy project specific additionality and/or crediting baseline determination. After a thorough review of the relevant sections of the VCS Standard and the VCS Guidance for Standardized Approaches, it was determined that if the data meets the requirements of Section 4.5.6 of the VCS Standard, the requirements of all other relevant sections of the VCS Standard and VCS Guidance for Standardized Approaches, are met and the standardized performance method can be assessed as meeting the requirements of the VCS Standard.

To address the requirements of the VCS standard section 4.1.18 appropriately, which requires stratification and establish multiple performance benchmarks as necessary, multiple benchmarks were implemented in this methodology. Benchmarks were developed for the Campus Clean Energy Efficiency Campus-Wide Module, and multiple benchmarks were developed for the Campus Clean Energy Efficiency LEED Certified Buildings Module depending on the status of the construction (existing or new construction). For the Campus Clean Energy Efficiency Campus-Wide Module, ACUPCC data which is segmented by the size of the institution was used to develop the performance benchmark. Further screening resulted in adjustment factors being developed for weather variations and increases/decreases in building area (square footage).

For the Campus Clean Energy Efficiency LEED Certified Buildings Module follows the guidance of USGBC LEED and developed benchmarks for Existing Buildings (EB) and New Construction

(NC). The data is further stratified based on the type of building, e.g. classrooms/offices or laboratories and benchmarks were developed using USGBC LEED and USDOE CBECS data.

Section 4.5.6 of the VCS Standard states: "*Appropriate data sources for developing performance methods include economic and engineering analyses and models, peer-reviewed scientific literature, case studies, empirical data, and common practice data. The data and dataset derived from such data sources shall meet the requirements below.*" In the table below the nine criteria are listed, and the assessment on the applicability of each database used noted. The data used for the Campus Clean Energy Efficiency Methodology and the development of the performance benchmarks comes from three sources, ACUPCC, USGBC and EPA. A brief description of each dataset is below.

- The ACUPCC data is a peer reviewed publicly available data set of GHG emissions from institutions of higher education
- The USGBC and LEED has over 10 years of independent third party certified data of green buildings environmental footprints including GHG emissions LEED project data is refreshed approximately once per month.
- EPA STARS and PM interface contains over 20 years of data on environmental performance of buildings to specific equipment or appliances. EPA has implemented third–party certification requirements and testing, and introduced innovative performance benchmarks and a standardized measuring system based on actual energy use more than 10 years ago. In 2012 EPA reported on a study from 2008-2011 that examined over 35,000 buildings which showed an average of 7% energy savings and 6% GHG emissions reductions.

VCS Standard Section 4.5.6	**Assessment**
1. Data collected directly from primary sources shall comply with relevant and appropriate standards, where available, for data collection and analysis, and be audited at an appropriate frequency by an appropriately qualified, independent organization.	The primary data for the EPA ENERGY STAR, USGBC and ACUPCC data come from campuses directly. The data is either peer reviewed or certified depending on the organization. The data complies with this requirement.
2. Data collected from secondary sources shall be available from a recognized, credible source and must be reviewed for publication by an appropriately qualified, independent organization or appropriate peer review group, or be published by a government agency.	These data bases EPA ENERGY STAR, USGBC and ACUPCC would be considered as primary or secondary sources depending on the data. The data sources comply with this requirement.
3. Data shall be from a time period that accurately reflects available technologies and/or current practice, and trends, within the sector. Selection of the appropriate temporal range shall be determined based on the guidance provided in the *GHG Protocol for Project Accounting*, Chapter 7 (WRI-WBCSD).	EPA ENERGY STAR, USGBC and ACUPCC data comply. All of the data can be accessed and then used for development of the benchmarks. The technology lists in the modules will also be updated each 5 years.

	Although ASHRAE 2010 is the latest standard available, only few buildings are so far certified against ASHRAE 2010, resulting in insufficient data to perform an analysis of the current distribution of performance for defining a performance benchmark. The data sources comply with this requirement
4. Where sampling is applied in data collection, the requirements set out in Section 4.1.4 shall be adhered to. The methodology developer shall demonstrate that sampling results provide an unbiased and reliable estimate of the true mean value (ie, the sampling does not systematically underestimate or overestimate the true mean value).	EPA ENERGY STAR, USGBC and ACUPCC data comply Appendix 5 shows the data evaluation method. All available sector data from USGBC and ACUPCC were used. The data sources comply with this requirement
5. Data shall be publicly available or made publicly available. Proprietary data (eg, data pertaining to individual facilities) may be aggregated, and therefore not made publicly available, where there are demonstrable confidentiality considerations. However, sufficient data shall be publicly available to provide transparency and credibility to the dataset.	EPA ENERGY STAR, USGBC and ACUPCC data comply Source data is publicly available from EPA and ACUPCC; aggregated data is publicly available at USGBC. The data sources comply with this requirement
6. All data shall be made available, under appropriate confidentiality agreements as necessary, to the VCSA and each of the validation/verification bodies assessing the proposed performance benchmark methodology, to allow them to reproduce the determination of the performance benchmark. Data shall be presented in a manner that enables them to independently assess the presented data.	All data from EPA ENERGY STAR, USGBC and ACUPCC data is publicly available. Source data can be made available with appropriate agreements. The data sources comply with this requirement
7. Data shall be appropriate to the methodology's geographic scope and the project activities applicable under it.	The data is for the US and applicable. The data sources comply with this requirement
8. All reasonable efforts shall be undertaken to collect sufficient data and the use of expert judgment as a substitute for data shall only be permitted where it can be demonstrated that there is a paucity of data. Expert judgment may be applied in interpreting data. Where expert judgment is used, good practice methods for eliciting expert	The data represents over 20 years of information on thousands of buildings. USGBC has new inquiry applications in place for LEED buildings analysis. ACUPCC data is the largest l set of data on universities' GHG reduction performance representing more than

judgment shall be used (eg, *IPCC 2006 Guidelines for National GHG Inventories*).	600 campuses: The data sources comply with this requirement
9. Where data must be maintained in a central repository on an on-going basis (eg, in a database that holds sector data for use by project proponents in establishing specific performance benchmarks for their projects), there shall be clear and robust custody arrangements for the data and defined roles and responsibilities with respect to the central repository.	EPA ENERGY STAR, USGBC and ACUPCC data comply. Each organization has custody arrangements for the data in an ongoing arrangement. Data analysis for the updates of the methodology will be done periodically and included in updates. The data sources comply with this requirement

DNV assessed that the data and data sets are appropriate, adequate and in compliance with the VCS Standard.

Moreover, the Clean Air Cool Planet Campus GHG calculator tool is applied to calculate project and baseline emissions. This model to calculate emissions complies with VCS Standard requirements as:

1) the model is publicly available from a reputable and recognized source, i.e. Clean Air-Cool Planet;
2) the model parameters were determined based upon studies by appropriately qualified experts;
3) The model has been appropriately reviewed and has been tested and used by more than 2,000 U.S. campuses;

3.11 Use of Tools/Modules

The relevant section of the VCS Standard is 4.1.3.

Methodologies may employ a modular approach in which a framework document provides the structure of the methodology and separate modules and/or tools are used to perform specific methodological tasks. Such methodologies shall use the VCS Methodology Template for the framework document and the VCS Module Template for the modules and tools. The framework document shall clearly state how the modules and/or tools are to be used within the context of the methodology.

The methodology developer used a modular approach to developing the methodology to more easily identify the options available to project developers. The appropriate VCS templates were used to develop the three documents:

- Campus Clean Energy Efficiency Methodology
- Campus Clean Energy Efficiency Campus-Wide Module
- Campus Clean Energy Efficiency LEED Certified Buildings Module

DNV assessed that the defined applicability conditions are appropriate, adequate and in compliance with the VCS Standard.

3.12 Adherence to the Project Principles of the VCS Program

Relevant sections of the VCS Standard are 4.1.4, 4.1.12

The proposed methodology development was guided by clause 3 of ISO 14064-2 of relevance, completeness, consistency, accuracy, transparency and conservativeness. The methodology clearly states the assumptions for use of the methodology in the Campus Clean Energy Efficiency Methodology document. The procedures for each module and the parameters to be monitored are included in the appropriate sections of each module Campus Clean Energy Efficiency: Campus-Wide Module and Campus Clean Energy Efficiency: LEED Certified Buildings Module. The Appendix 5 in each module document provides sufficient information on the development of the performance benchmark such that the same assessment conclusion would be reached. Uncertainty is also addressed in the discussion to ensure a conservative evaluation and result in calculating net GHG reductions.

DNV assessed that the methodology adheres to the VCS project principles and are appropriate, adequate and in compliance with the VCS Standard.

3.13 Relationship to Approved or Pending Methodologies

There are no existing methodologies that could be revised to serve the same purpose under Sectoral scopes 1 Energy (Renewable/non-renewable) and 3 Energy Demand. VCS methodologies VM0002, VM0008, VM00013, VM00014, and VM00020 were reviewed and are not suitable. CDM and CAR methodologies were reviewed and none found suitable for revision that would serve the same purpose.

There are no pending methodologies that would serve the same purpose.

3.14 Stakeholder Comments

No stakeholder comments were received through the VCS public stakeholder process which closed on 21 May 2013. The methodology developer received comments from advisors and pilot project participants via conversations and email through 25 May 2013. The input from the stakeholders included suggested refinements to the methodology module: Campus Clean Energy Efficiency: LEED Certified Buildings Module.

4 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

As stated in section 2.5, the assessment of the methodology included about 30 telephone conferences between the DNV assessment team (Michael Lehmann and Barbara Tool O'Neil) and Sue Hall of Climate Neutral Business Network during the period from December 2012 to June 2013. Each of these telephone conferences focused on specific elements of the methodology.

DNV raised the following clarification requests which resulted in the methodology to be amended and/or revised.

Clarification request by DNV	Summary of how the methodology developer addressed the clarification request and DNV's assessment of the response
The Campus Clean Energy Efficiency Campus-Wide Module permits a project proponent to reduce and report either campus-wide scope 1 (stationary) GHG emissions or the campus wide scope 2 electricity based GHG emissions or both emissions. It needs to be clarified how the methodology ensures that a project proponent can not claim scope 1 (stationary) GHG emission reductions if the measures / technologies implemented to reduce these emissions result in an increase of scope 2 electricity based GHG emissions. (*Note that this clarification request was raised following the review of an early draft version of the Campus Clean Energy Efficiency Methodology and the response to this clarification request was already incorporated in version 1.1 of the methodology documents*)	The Campus Clean Energy Efficiency Campus-Wide Module was revised to include adequate provisions and tests in section 8.2.1 that ensure that a project proponent can not claim scope 1 (stationary) GHG emission reductions if the measures / technologies implemented to reduce these emissions result in an increase of scope 2 electricity based GHG emissions. The module now requires that project proponents must assess whether any of the activities undertaken to reduce stationary 1 emissions required more electricity use and if so make adjustments to project emissions by an appropriate $PE\Delta_y$ term. Similarly, section 8.2.2 of the Campus Clean Energy Efficiency Campus-Wide Module includes adequate provisions and tests that ensure that a project proponent can not claim scope 2 electricity based GHG emission reductions if the measures / technologies implemented to reduce these emissions result in an increase of scope 1 (stationary) GHG emissions. Provisions have again been included to adjust project emissions on a conservative basis to by an appropriate $PE\Delta_y$ term.
The approach and equations used to consider square footage growth rates of campuses during the baseline period Appendix 3 of the Campus Clean Energy Efficiency Campus-Wide Module need further clarifications as the approach and equation does not appear to be based on a peer reviewed and generally accepted approach.	The approach to consider square footage growth rates of campuses during the baseline period which are either negative or exceed 5%/year in Appendix 3 of the Campus Clean Energy Efficiency Campus-Wide Module was revised. The approach in appendix 3 is now consistent with the approach stipulated by the WBCSD/WRI GHG Protocol.
The Campus Clean Energy Efficiency LEED Certified Buildings Module defines performance benchmark metrics for different building types. However, further clarifications are requested with regard to how the relevant building category is to be identified.	Section 6 of the Campus Clean Energy Efficiency LEED Certified Buildings Module was revised to clarify that EPA's Portfolio Manager Target Finder tool shall be used to select the appropriate building type drawing upon its eligibility criteria. The EPA's Portfolio Manager Target Finder tool draws upon data from the Commercial Building Energy Consumption Survey (CBECS), and the type of eligible buildings is defined by building designation of CBECS. Further clarity was provided in the

	module in these regards.

The discussions between DNV and Climate Neutral Business Network also resulted in the methodology to be further elaborated in specific areas, and at DNV's request "step wise" diagrams were added to ease reading and understanding of the methodology and its associated modules.

Moreover, Climate Neutral Business Network made further revisions to the methodology during the methodology assessment period considering input received from pilot projects applying the proposed methodology and further input from experts that were earlier consulted as part of the expert consultation process. As a result, the explicit requirement was introduced that Renewable Energy Certificates (RECs), which have been generated from off-site renewable installations and purchased by the campus, will have to be excluded from the project boundary.

5 ASSESSMENT CONCLUSIONS

DNV Climate Change Services AS (DNV) has completed an assessment of the proposed Verified Carbon Standard (VCS) modular methodology elements:

- Campus Clean Energy Efficiency Methodology
- Campus Clean Energy Efficiency Campus-Wide Module
- Campus Clean Energy Efficiency LEED Certified Buildings Module

The methodology element belongs to the Sectoral Scopes 1 energy (renewable/non-renewable) and 3 energy demand. .

The assessment was performed on the basis of VCS criteria for methodology development. The methodology was prepared based on the requirements of the

- VCS Standard V.3.3, 4 October 2012
- VCS Program Guide V. 3.4, 4 October 2012
- VCS Program Definitions V. 3.4, 4 October 2012,
- VCS Guidance for Standardized Methods V. 3.2, 4 October 2012, and
- VCS Methodology Approval Process V3.4, 4 October 2012

The review of the methodology element documentation and the subsequent follow-up interviews has provided DNV with sufficient evidence to determine the proposed methodology "Campus Wide Energy Efficiency" meets all requirements of the VCS criteria for methodology development.

In summary, it is DNV's opinion that the modular methodology elements:

- Campus Clean Energy Efficiency Methodology
- Campus Clean Energy Efficiency Campus-Wide Module

- Campus Clean Energy Efficiency LEED Certified Buildings Module

as described in the methodology element documentation, version 1.3 of 5 September 2013, meets all relevant VCS requirements for VCS methodology elements. DNV thus recommends the approval of the methodology element as a VCS methodology element.

6 REPORT RECONCILIATION

During the second assessment by the VVB TÜV Rheinland (China) Ltd., the methodology and its modules were further revised to version 1.4 of October 2013. The main revisions made to the methodology and its modules compared to version 1.3 of 5 September 2013, which was the basis for DNV's assessment as described in sections 2-5 of this assessment report, are as follows:

Campus Clean Energy Efficiency Methodology

The revisions made to the methodology framework document were of editorial nature only. The term "stationary 1" emissions was changed to "stationary combustion" emissions and "PreTest A" was renamed to "Regulatory Surplus test".

Campus Clean Energy Efficiency Campus-Wide Module

In addition to revisions of editorial nature, including the revisions mentioned above, an explicit requirement was introduced that the minimum threshold of emission reduction performance required in project year 1 must also be met in a future project year y (after adjusting for any change in campus square footage). This requirement and the equations introduced in the module ensure that there is an annual re-confirmation that the emission levels of a campus remain at a level so that emission reductions can be considered additional.

Moreover, the module was revised to require that also potential emissions arising from increases in scope 2 purchased heating, cooling or steam are considered, as necessary. While such emissions are not included the project scope, which focuses upon energy efficiency measures that campuses make through direct investments on campus (in stationary combustion or scope 2 electricity measures), any potential emissions from scope 2 purchased energy increases are addressed through the adjustments to the project emissions $PE\Delta_y$.

Finally, the module was elaborated to include further information on

- how ACUPCC complies with VCS requirements for data sources used for developing performance methods, and

- the data that is typically entered into the calculation tools of ACUPCC/STARS for determining a campus' emissions, and thus the primary data documentation that will have to be made available to a VVB

Campus Clean Energy Efficiency LEED Certified Buildings Module

In addition to the revisions of editorial nature, including the revisions mentioned above, an explicit requirement was introduced that the minimum threshold of emission reduction performance required in project year 1 must also be met in a future project year y. This requirement and the equations introduced in the module ensure that there is an annual re-confirmation that the emission levels of building remain at a level which was used to demonstrate that emission reductions can be considered additional.

Finally, the module was elaborated to include further information on:

- how LEED complies with VCS requirements for data sources used for developing performance methods
- emission sources, which consistent with the LEED energy reporting protocols, are not included in the project boundary, and
- the data that is typically entered into the EPA Target Finder tool, and thus the primary data documentation that will have to be made available to a VVB

DNV has reviewed the amendments made to the methodology and its modules as a result of the second assessment by the VVB TÜV Rheinland (China) Ltd. DNV concurs with the revisions made to the methodology and its modules, and it is DNV's opinion that the modular methodology elements:

- Campus Clean Energy Efficiency Methodology
- Campus Clean Energy Efficiency Campus-Wide Module
- Campus Clean Energy Efficiency LEED Certified Buildings Module

as described in the methodology element documentation, version 1.4 of October 2013, meets all relevant VCS requirements for VCS methodology elements. DNV thus recommends the approval of the methodology element as a VCS methodology element.

7 EVIDENCE OF FULFILMENT OF VVB ELIGIBILITY REQUIREMENTS

DNV Climate Change Services AS (DNV) is an accredited Designated Operational Entity for the CDM, accredited for sectoral scopes 1-15, and thus an eligible validation/verification body under the VCS program for the sectoral Scopes 1 and 3 applicable to this assessment of the new methodology, Campus Clean Energy Efficiency. As reported by DNV in its most recent annual report to the CDM Executive Board, DNV has completed more than 200 CDM validations in sectoral scope 1 in the period July 2011 to June 2012 and more than 10 CDM validations in sectoral scope 3. DNV has also performed the methodology element assessments of the approved VCS methodologies VM0008 (sectoral scope 3).

8 SIGNATURE

Signed for and on behalf of:

Name of entity: DNV Climate Change Services AS

Signature: 

Name of signatory: Michael Lehmann (Team Leader) Hendrik Brinks (Approver)

Date: 11 November 2013

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Appendix A

Compliance of Methodology and Modules with VCS Requirements for Methodologies Applying Performance Methods

Campus Clean Energy Efficiency Campus-Wide Module

VCS methodology requirement	Assertion provided by Climate Neutral Business Network (CNBN) on how methodology complies with requirement	Validation of compliance with requirements by DNV
4.1.14 In case the level of the performance benchmark metric for determining additionality and for the crediting baseline are different, how is this difference justified?	The meth uses a project-based historical baseline so there isn't a difference between the performance benchmark metric for additionality and the crediting baseline. Project-based baselines are allowed per 4.1.7 and 4.1.13. Meth precedents also support this (e.g.0008).	References 12, 13 and 39 validated this assertion
4.1.17 The methodology shall provide a description and analysis of the current distribution of performance within the sector as such performance relates to the applicability of the methodology or each performance benchmark.	The methodology provides the "normal curve" distribution for the stat 1 (and linked stat 1/scope 2 reductions) and corresponding scope 2 electricity based reductions for all ACUPCC reporting campuses, as segmented by ACUPCC reporting categories (doctoral, masters, BACC, Associate).	References 12, 13,32, 34 and 39 validated this assertion
4.1.17 The methodology shall also provide an overview of the technologies and/or measures available for improving performance within the sector, though an exhaustive list is not required recognizing that performance methods may be somewhat agnostic with respect to the technologies and/or measures implemented by projects.	An overview of the "leading best practice" techs/measures was provided, based on the most highly qualified colleges' Climate Action Plans as submitted to ACUPCC representing the "leading best practices" from those campuses which achieve performance outcomes above the PBc. The methodology requires that the qualifying performance be attributable to these measures. The module also requires that campuses demonstrate that at least two categories of strategy have been adopted. The list of required measures will be updated each 5 years to ensure it reflects current "leading best practices".	References 21, 22 and 25 validated this assertion
4.1.17 The methodology shall discuss and evaluate the tradeoff between false negatives and false positives and shall describe	We have carefully screened VCS requirements to minimize systematic over/under estimation of ERs or "False positive/negative" outcomes. As a result, we firstly address these concerns through the VCS stratification requirements (e.g. per 4.1.18) in Guidance and other sections. The	References 13, 21, 22, 25, 34, and 39 validated this assertion

objectively and transparently the evidence used (including reference to primary and secondary data sources), experts consulted, assumptions made, and analysis (including numerical analysis) and process undertaken in determining the selected level(s) of the performance benchmark metric (noting that expert consultation is a key part of this process, as set out below). The selected level(s) shall not systematically overestimate GHG emission reductions or removals.	complete set of foundations for environmental integrity are stratification; applicability conditions (see below); and the stakeholder consultation process (see below) to ensure that the performance parameters selected are credible. Stratification for Campus-wide is achieved by segmenting colleges by Carnegie class, according to the classifications which ACUPCC has itself developed for reporting purposes. These include: - Doctoral colleges - Baccalaureate colleges - Masters colleges - Associate (2 year) colleges - Specialist colleges Sensible stratification is an essential foundation to help minimize the potential for false positives and negatives which can arise from overly generalized application of performance criteria in the first instance. Applicability conditions then further constrain and refine both eligibility and crediting parameters. The methodologies are extensive (including US based; public reporting to ACUPCC or STARs (another NGO coordinated climate reporting program) required; existing campuses only. Evaluation of the setting of the performance requirements is anchored on the third party reported data to ACUPCC/STARs – which, given its public transparency and peer review-ability, can be expected to have more integrity than most self-audited reports. Some campuses report this data third party audited. This provides credible secondary data for the analysis and stakeholder consultation. Extensive stakeholder consultation (see below) has already taken place in establishing the performance benchmarks including across AASHE, independent environmental experts, college NGO's, college sustainability officers, carbon experts, etc. The suitability of the performance levels have been assessed – including through this stakeholder dialogue -- relative to several parameters including: - Exhaustive analysis regarding the relative stat 1, stat 1 + scope 2 and	

	square foot performance statistics for each of the five Carnegie campus population groups -- which themselves comprise the most aggressive US campuses in terms of their desire to proactively address their climate change impacts - The average % annual reduction achieved by those doctoral colleges (or colleges in other Carnegie classes) which deliver an absolute reduction in stat 1 emissions is also consistent with the performances delivered at the 85th percentile threshold – and thus conservative - Performance benchmark levels for determining additionality (comparable to the top 15% performance levels) have then been set at levels typically seen in methodologies drawing upon ALL entities in any given region – i.e. all colleges in the US – not from data for a subset of campuses whose performances are above national average. Precedents here include the VCS Low Income Housing Meth that sets the performance percentile at 10% of all homes in a region. The module is therefore again more conservative in its approach - Financial contributions that carbon revenues would typically make to performance improvements to ensure their salience. It must be noted that the diligence of this assessment is above and beyond the VCS requirements for performance methodologies. As a project-based additionality test, it was nonetheless applied to the performance benchmarks resulting from the module development/stakeholder consultation in order to further confirm that the levels established were credible and conservative. Nonetheless, it must be noted that - per VCS requirements for performance methods - a financial analysis does not drive the development of the performance benchmark. Only out of an interest to be particularly thorough and rigorous, this evaluation was applied to the benchmark in order to further pressure test its foundations. - The metric also aligns so closely to the improvement in CO_2 over baseline that there are, effectively, in terms of the substantial GHG ”beyond business as usual” improvement which additionality testing requires, a far smaller probability of false positives or negatives: this is the benefit of designing this metric so carefully In particular, the significant false positive/negative problem that would arise from a CO_2/sq ft metric have been avoided (see below). Nonetheless, further scrutiny has been paid to variances that could result in false positive/negatives from other considerations(see below)	

	- The metric conforms to the requirements for a performance metrics as outlined in the IPMVP (e.g. energy per residential building) which VCS meth 18 endorses as an acceptable source for defining performance metrics for EE projects. These benchmark levels have also been pressure tested across pilot project consultations with 1-3 doctoral colleges – a reasonable sample considering probably only a couple of dozen colleges in the US would qualify under these eligibility requirements. The module, nonetheless, pays particularly careful attention minimize undue GHG crediting through a careful consideration of potential false positive/negatives. . In particular: a) broadly speaking, the module avoided using overly generalized additionality benchmarks by stipulating PBs for each Carnegie code category of campus. Thus, instances of false positives and negatives were minimized since there were salient differences in the PB's arising for each Carnegie category. (Had one single aggregate PB been calculated for all campuses, this would have resulted in false positives for sectors which had higher sector-based PB percentages and false negatives for sectors which had lower sector-based PB percentages) b) The module also avoided using metrics such as CO_2/sq ft whose outcomes essentially reflected the (regionally arbitrary) performance of the campus' local electric utility's CO_2/kWh in ways that would be introduced a significant false negative/positive problem (see App 5 analysis). (Campuses' CO_2/sq ft performance outcomes were correlated to the regional utility CO_2/kWh levels: performance metrics set upon these foundations would therefore have strongly reflected the arbitrary CO2/kWh performance factors arising in the campus' region rather than beyond business as usual improvements in GHG reductions that they achieved over their historical performance levels.) c) Particularly careful attention was paid to potential false positive/negative outcomes relative in situations where campuses square footage was either declining or expanding too rapidly: adjustments to both baseline and	

	additionality metrics must be calculated per Appendix 3 to avoid qualifying false positives (additionality) or over crediting (baseline adjustments required). The approach that the methodology used, consistent with stakeholder input, also assumed that some level of square foot expansion campus-wide was business as usual (which the project would not want to credit which would have been the case had a CO_2/sq ft annual % improvement metric had been selected). This careful consideration of how best to integrate the square foot metric for campuses is essential to conservative GHG crediting: unlike low income homes (whose area is unlike to be expanding), it is well recognized that US campuses are both expanding, often significantly. Thus the module seeks to avoid crediting GHG reductions for business as usual expansion, while accommodating baselines for campuses' whose growth is exceptional and ensuring campuses whose area was shrinking would not be over credited. In this sense the square footage of the campus is still incorporated into the module but in ways that are more carefully and conservatively applied than would have been the case had other simpler metrics been used. d) Similarly, further attention was paid to the potential for over crediting in (typically rare) situations in which activities reducing one GHG SSR (e.g. stat 1's) could increase SSR's in other domains (e.g. scope 2). Defined as project emission adjustment $PE\Delta_y$, the module establishes extensive requirements to ensure GHG crediting remains conservative and accurate. e) Similarly, weather based variations, when they cannot be addressed through averaging historical emissions, were also addressed through far more rigorous approaches than has been applied to earlier VCS methodologies (e.g. 0008) whose approach was confirmed, through pilot project testing, to be only roughly approximate to a first order evaluation. Conservative ER estimates therefore again result in terms of project eligibility (since the weather adjusted tests are required including the regression approach in Appendix 6 if over a one year additionality eligibility period). Baseline estimates which must be averaged over a 3-5 year window, address weather variations through historical averaging.	

	f) analysis was also undertaken to determine the range of specific EE measures adopted by qualifying doctoral colleges from a close reading of their Climate Action Plan reports (as submitted to ACUPCC). This analysis determined that the depth and range of measures that campuses had needed to adopt to reach the PB threshold clearly relied upon EE measures and investments that went beyond business as usual both in terms of breadth and depth. These findings are corroborated by the fact that the PB annual percent improvement thresholds are 5-7 times the US national average EE improvement defaults. They were also corroborated through a financial analysis of the CO_2 revenues' contribution to incremental capital requirements – an approach more typically used in project-based additionality assessments. g) There were also extensive stakeholder discussions regarding whether the PB should be fixed at the 85th percentile of ACUPCC performance or anchored upon the qualified campuses' average performance. The latter was selected through discussions in order to avoid the scenarios in which a campus which was in the top 50% of its peers would either be or not be eligible because, for this particular Carnegie category, the 85th percentile did not match the average qualified campus performance levels. Thus false positives and negatives were again minimized. Thus VCS's focus upon false positive/negative considerations as a means of ensuring conservative ER qualification and estimations have been ensured through a rigorous and well-structured set of procedures.	
4.1.17 The process of determining the level(s) of the performance benchmark metric shall include and be informed by an expert consultation process, undertaken by the methodology developer	Extensive stakeholder consultation was undertaken over a period of more than a year in the original framing, design and refinement of the methodology -- as outlined above and below. Appendix 4 summarizes the process and findings; successive white papers through which the module was developed and refined form the basis for its development; App 4 summarizes the expert views heard and how these were reflected in the final methodology adopted via refinements made to the original 1.0 draft to create the vs. 1.1 that was submitted to VCS for public stakeholder	References 14 - 25 and personal interviews validated this assertion

	comment. This input was provided via the circulation of a series of white papers which examined and refined the performance benchmark metrics which were ultimately incorporated into the VCS methodology. Further stakeholder inputs then continued to refine the methodology draft (v 1.0) to create the v 1.1 which VCS posted for public stakeholder comment on its web site. Furthermore, even though no stakeholder comments were posted to VCS, the stakeholder development network continued to suggest further refinements to v 1.1 directly which were adopted to develop v 1.2. The stakeholder consultation itself complies with all VCS's guidelines as summarized in App 5 of the methodology, including, for example (via App 4) clear delineations of the numbers of stakeholder consulted in each category that VCS identified etc. Thus Chevy's Environmental Advisory Board which provided consistent oversight, and individual consultations, including those with potential pilot projects and experts, ensured practical, detailed feedback and refinements were incorporated not only into the PB white papers but drove all the refinements in the methodologies v 1.0 draft, 1.1 and 1.2 developed to date.	
4.1.17 The methodology developer shall ensure that a representative group of experts participates in the consultation, including, but not limited to, representation from industry, environmental non-governmental organizations, and government or other regulatory bodies.	Again see box above: note that campus experts are the "industry" reps in this case. - A representative list of consulted stakeholders is included in the module's appendix, categorized by sector. Diversity was ensured and the consultation process unusually extensive. Represented groups included: - ACUPCC experts - Independent environmental experts – six of them from NGO/campus backgrounds on Chevy's Environmental Advisory Board - college NGO non profits specializing in campus GHG reduction/reporting such as AASHE - College sustainability officers from leading campuses, not just those within the pilot project program - Carbon/energy experts from performance contracting firms, EE experts - Pilot project candidate stakeholders, spanning EE/GHG experts,	References 14 - 25 and personal interviews validated this assertion

	business officers, associate deans etc.	
4.1.17 A report on the expert consultation process and outcome shall be prepared and submitted to the VCSA when the methodology is submitted under the methodology approval process.	The Stakeholder Consultation Report forms Appendix 4 of the Module (see the detailed discussion above).	Appendix 4, references 14 - 25 and personal interviews validated this assertion
4.1.18 Where there is heterogeneity of performance (measured in terms of the performance benchmark metric) that may be practicably achieved by individual projects, multiple benchmarks or correction factors may be required. • *technologies and/or measures which may be implemented at both greenfield and brownfield sites* • *larger and smaller scale project activities* • *Any other circumstances related to the baseline scenario or project activity, such as plant age, raw material quality and climatic circumstances, that lead to heterogeneity of performance*	The ACUPCC meth applies to existing campuses only. ACUPCC Carnegie classes already segment by approximate size of colleges already (differentiating between Doctoral, BACC and Associate 2 year campuses, for example). This segmentation was adopted for all performance benchmarking purposes. Furthermore, the size and growth rates of campuses are not correlated to the stat 1 performance, based on analysis of the ACUPCC doctoral data. Nonetheless, refinements to the project CO_2 emissions were made (consistent with guidance in WRI's GHG Protocol) if square footage increases/decreases take place beyond prescribed parameters in order to address shifts in campus size (for both additionality and the crediting baseline). Other potential performance drivers were also screened to assess their influence on stat 1 reduction performance; - CO_2/kWh was not indicative of stat 1 superior performance reductions - Geographic location was not correlated Further screens, consistent with best practice and VCS VM0008 precedents, were applied in the meth including: - HDD/CDD weather variations where not adequately addressed through historical averaging - Any reductions in square footage will result in adjustments made to the eligibility tests and baseline setting to ensure no leakage impacts; - These adjustments will also incorporate occupancy changes in the situation where GHG reductions have been achieved through more	References 13, 35, and 39 validated this assertion

	efficient delivery of services per student through reduced footprint	
4.3.4 Where the methodology uses a performance method for determining additionality, the applicability conditions shall ensure that the project implements technologies and/or measures that cause substantial performance improvement relative to the crediting baseline and what is achievable within the sector, and the methodology shall explicitly specify such technologies and/or measures (or examples thereof).	Applicability conditions reference the types of ”leading best practice” measures from ACUPCC leading colleges that have delivered their exemplary performance improvement; These measures are consistent with those identified in pilot project studies we’ve undertaken (some may be under NDA). The module specifies that two of these approaches will need to have been adopted. More specifically, an overview of the ”leading best practice” techs/measures was developed, based on the most highly qualified colleges’ Climate Action Plans as submitted to ACUPCC representing the ”leading best practices” from those campuses which achieve performance outcomes above the PBc. The module then requires that the qualifying performance be attributable to these measures. The module also requires that campuses demonstrate that at least two categories of strategy have been adopted. The list of required measures will be updated each 5 years to ensure it reflects current ”leading best practices”. Broader applicability conditions then also apply as referenced in other sections including: - US based only - ACUPCC/STARs reporting campuses only - Existing campuses only - Adjustments for square footage/occupancy - Ditto for HDD/CDD - Etc	References 13, and 39 validated this assertion
4.3.5 The applicability conditions shall establish the scope of validity of the methodology, and where multiple benchmarks are established, each performance benchmark, including the geographic scope. In establishing the scope of validity of the	4.3.5 is addressed through careful stratification, the development of tailored multiple benchmarks for each strata and careful baseline designs – not only in the applicability conditions but throughout the module. The module’s applicability conditions clearly establish the scope of validity for the methodology, consistent with the ACUPCC data from which performance data was derived: these include; - US based campuses only	References 12, 13 37, 38, and 39 validated this assertion

methodology or each performance benchmark, the methodology shall clearly demonstrate that there is similarity across the sub-areas of the geographic scope in factors such as socio-economic conditions, climatic conditions, energy prices, raw material availability and electricity grid emission factors, as such factors relate to the baseline scenario and additionality, noting that variation is permitted where correction factors address such variation as set out in Section 4.1.18. *It may be necessary to stratify and establish multiple performance benchmarks, or to limit the applicability of the methodology, to comply with this requirement*	- ACUPCC/STARs reporting campuses only - Existing campuses only However, 4.3.5 considerations regarding the consistency within easy sub-segmentation are primarily addressed by adopting ACUPCC's own Carnegie stratification: the Campus-wide module then stratifies carefully by ACUPCC Carnegie code, so that each sector has its own performance metric for the average annual % stationary 1 and/or scope 2 electricity improvement thresholds. It should be emphasized that the module follows ACUPCC's own segmentations since, as the first ever US-wide stakeholder endorsed GHG reporting system for colleges, it has not adopted performance/certification parameters with any other further or significant sub-segmentations. Its segmentation approach also earned the support of its extensive network of highly qualified expert college and non-profit stakeholders. In particular the ACUPCC stratification already takes into account, to the extent that universities serve populations where this varies, the socioeconomic status of its clients/alumni, which, as a group nationwide, have been demonstrated to be relatively advantaged (e.g. in terms of final income levels). Using ACUPCC's stratification represents the best stakeholder-endorsed approach in this regard. Other potential performance drivers were also screened in depth against the ACUPCC doctoral college complete data set (since these comprise the largest portion of total ACUPCC GHG emissions (46%)) to assess their influence on stat 1 reduction performance, including: - Geographic location was not correlated - CO_2/kWh which was not indicative of stat 1 superior performance reductions Since CO_2/kWh was not a performance driver, access to low carbon/lower cost fuels would not be a driver either: low CO_2/kWh eGRID factors are driven by accessibility within a region of such lower cost low carbon fuels for the electricity generating companies.	

	Weather-based variances were also taken into account in the module; while initially paralleling the precedent and approach followed in the VCS VM0008, ultimately the approach in VM0008 was found (through pilot studies) to be only approximately adequate. Hence, a further regression analysis (Appendix 6) was therefore added to this Campus Clean Energy Efficiency Campus-Wide Module to ensure accuracy in compliance with additionality test and baselines.	
4.3.6 The applicability of the methodology or a performance benchmark shall be limited to the geographic area for which data are available, or it shall be demonstrated that data from one geographic area are representative of another or that it is conservative to apply data from one geographic area to another.	ACUPCC's data includes all US reporting campuses in its analysis. Only US-based campuses are eligible under the module. No transfer of performance benchmarks from US campuses to other non-US regions in contemplated in the meth -- and is precluded under applicability conditions. Crediting will be against the campus' historical baseline, consistent with the focus on existing campuses and the retrofit upgrades to existing systems that is required to improve GHG performance. Consistency with the VCS VM0008 low income housing methodology is also noted. Thus the US regional basis for the crediting baseline is assured and representative. Analyses of the ACUPCC doctoral college complete data set have also demonstrated that: - Geographic location was not correlated to stat 1 performance - CO_2/kWh (which can vary regionally reflecting fuel/energy/pricing/C intensities) was also not indicative of stat 1 superior performance reduction It should also be noted that neither ACUPCC (nor USGBC), through their extensive stakeholder process, set different criteria or award LEED certification points differently by US sub-region. This confirms that in terms of eligibility criteria a US-wide geographic basis is appropriate.	Reference 39 validated this assertion
4.5.4 The methodology shall identify alternative baseline scenarios and determine either the most plausible baseline scenario or an aggregate baseline scenario for	Consistent with the VCS Standard under 4.1.14 and 3.1.6, project baseline setting approaches will be followed. Consistent with the VCS VM0008 low housing methodology, campus' existing historical baselines will be used for crediting purposes, consistent with the retrofit framework we use which limits crediting to existing	References 12, 13, and 39 validated this assertion

the project activity. Aggregate baseline scenarios shall be determined by combining likely scenarios on a probabilistic (ie, likelihood) basis.	campuses. Historical baselines are the most probable baselines for existing campuses: no other baselines were recommended to be adopted during the stakeholder consultations. This is entirely consistent with expectations for projects applied to existing buildings on existing campuses. However, stakeholders did recommend the adjustments for the 1.3% EE annually US average improvements and that adjustments be made for any new campus areas that were incorporated beyond the business as usual expansion rate of 5%/year. For campuses which thus expanded particularly rapidly, the baseline that was most plausible would no longer be simply the existing baseline and thus conservative adjustments were made, per stakeholder inputs, in Appendix 3, to adjust for this BBAU square footage expansion. The final project baseline in this case then reflects a combined scenario incorporating both existing and new campus area baselines (equivalent to a pro rata square foot basis) on an aggregate basis.	
4.5.5 The performance benchmark shall be established based upon available technologies and/or current practices, and trends, within the sector. Where the analysis of trends shows a clear trend of improvement in the baseline scenario over time, the performance benchmark shall take account of the trend. This means that where the performance benchmark does not use a dataset that is updated at least annually, an autonomous improvement factor shall be used that provides a performance benchmark that tightens annually.	ACUPCC data will be used to publish updated performance requirements every 5 years. VCS asked that the data not be updated every other year and applied to the meth on a dynamic basis in order to give project developers certainty. Instead, VCS may publish this data biannually to give project developers an indication of the direction of the trend.	References 12, 13, 22, 25 and 39 validated this assertion

4.5.6 Appropriate data sources for developing performance methods include economic and engineering analyses and models, peer-reviewed scientific literature, case studies, empirical data, and common practice data.	The meth uses the ACUPCC extensive, US-wide database from which aggregate data can be furnished (based on the entire ACUPCC data set which is publicly available, by college, for public viewing), by relevant sub-segment for the college category (doctoral, BACC etc.). This data has been publicly reported through a credible third party non-profit group and is subject to peer review scrutiny and ultimately public commentary. Some campuses also volunteer to third party validate their reported data. Case study materials from pilot projects were also referenced and consistency established. Every section of VCS's Guidance regarding data sources and management were carefully scrutinized; practices adopted were consistent with these requirements.	References 12, 13, and 39 validated this assertion

Campus Clean Energy Efficiency LEED Certified Buildings Module

VCS methodology requirement	Assertion provided by Climate Neutral Business Network (CNBN) on how methodology complies with requirement	Validation of compliance with requirements by DNV
4.1.14 In case the level of the performance benchmark metric for determining additionality and for the crediting baseline are different, how is this difference justified?	For EB-A projects, as retrofits, the meth uses a project-based historical baseline so there isn't a difference between the performance threshold for additionality and the crediting metric. Project-based baselines are allowed per 4.1.7 and 4.1.13. VCS methodology precedents also support this approach (e.g. VM0008). For performance baselines/additionality assessments (in NC and EB-B), the same 50th percentile achievement level is selected for the performance benchmark metric for the crediting baseline (national average performance ES50) and the performance benchmark metric for determining additionality which requires "beyond business as usual performance" through LEED certification at the LEED 50th percentile or better. Thus there is consistency suited to reflecting the jump in "substantial performance improvement" (the shift from US average to average LEED level certified performance) while ensuring that both performance benchmark metrics are defined in mutually consistent ways (50th percentile levels). To be clear: the same percentile threshold is used for determining additionality as for the crediting baseline– the 50th percentile – set for additionality demonstration purposes at the LEED 50th percentile (which corresponds to ES 86 performance levels per LEED analysis) and for the crediting baseline purposes which also use the 50th percentile requirement, which is drawn from the national 50th EPA ES percentile. The difference here therefore represents the substantial improvement in GHG performance that a project makes due to the superior LEED certifiable measures to be taken but does not reflect a fundamental change in the percentile ranking required under each benchmark parameter. Thus no difference in the selection of parameters arises from different percentile choices (as has been the case with other performance methodologies).	References 9, 12, 26, 36, and 40 validated this assertion
4.1.17 The methodology shall	USGBC provided the "normal curve" distribution with the EE % performance	References 9, 12, and 26

provide a description and analysis of the current distribution of performance within the sector as such performance relates to the applicability of the methodology or each performance benchmark.	thresholds at appropriate percentiles from the aggregated data that they have compiled for all LEED certifications from the specific sectors applicable to this meth – and for NC against each of the specific code baselines which LEED certified buildings can choose. For NC, USGBC provides the "normal curve" for LEED average performances from which the % improvement over code parameter is taken at the 50th percentile level. For EB-A, whose performance benchmark is a 20% improvement in EUI within a single year, the performance analysis is accomplished using the EPA Energy Star performance partner data which demonstrates that a 20% improvement or better is achieved by only 10% of campuses/schools to date For EB-B, USGBC again provides the "normal curve" for LEED average performances from which the ES performance parameter is taken at the 50th percentile level	validated this assertion
4.1.17 The methodology shall also provide an overview of the technologies and/or measures available for improving performance within the sector, though an exhaustive list is not required recognizing that performance methods may be somewhat agnostic with respect to the technologies and/or measures implemented by projects.	USGBC has provided an overview of technologies and measures relative to each building's certification status outlining the achievements to which the certified building can attest. These measures are consistent with the relevant LEED certification building measures for energy and GHG's. Description of these measures is contained in section 4.2 and Appendix 2 in the module. These measures, two of which are required to have been adopted by projects, will also be updated every 5 years to ensure that they remain current.	References 18, 20, 23, 24 and 27 validated this assertion
4.1.17 The methodology shall discuss and evaluate the tradeoff between false negatives and false positives and shall describe objectively and transparently the evidence used (including reference	We have carefully screened VCS requirements to minimize any potential systematic over/under estimation of ERs or "False positive/negative" outcomes. As a result, we firstly address this through the stratification requirements (e.g. per 4.1.18) in Guidance and other sections. (FYI, 4.1.17 in the main doc only applies to activity methods.) The foundations for environmental integrity are stratification; applicability	References 9, 12,14 – 25, 32, 34, 40 and 41

to primary and secondary data sources), experts consulted, assumptions made, and analysis (including numerical analysis) and process undertaken in determining the selected level(s) of the performance benchmark metric (noting that expert consultation is a key part of this process, as set out below). The selected level(s) shall not systematically overestimate GHG emission reductions or removals.	conditions (see below); and the stakeholder consultation process (see below). Stratification for LEED is achieved by segmenting schools from colleges (distinct from all other LEED certified buildings), segmenting certified buildings as NC or EB; separating out campus labs performance requirements; precluding other LEED categories (such as CI, CS, ID). This process is particularly important to avoid false positive or negative outcomes: had, for example, the aggregate NC PB % improvement over code been adopted (at 24%), the labs would have experienced a series of false negative outcomes (since its PB was 21%) and higher education buildings some false positives (since its PB was 25%). The stratification adopted thus minimized the probability of false positive/negative outcomes. Furthermore, in the estimation of ER where performance approaches are used (NC and EB-B) the same stratification guidance as EPA advocates for the use of its EPA PM tool are to be used. Sensible stratification is an essential foundation to help minimize the potential for false positives and negatives which can arise from overly generalized application of performance criteria in the first instance. Sound rigorous approaches have therefore been followed in this module using LEED and US EPA best practices. Applicability conditions then further constrain and refine both eligibility and crediting parameters. Ours are extensive (including US based; LEED certification required; and via EPA PM, adjustments for square footage, HDD/CDD, occupancy, region etc.). Evaluation of the setting of the performance requirements is anchored on the third party certified data from USGBC. This provides credible secondary data for the analysis and stakeholder consultation. Extensive stakeholder consultation has already taken place in establishing the performance benchmarks including across USGBC, independent environmental experts, college NGO's, college sustainability officers, carbon experts, EPA PM program etc. (See comments below re App 4) The suitability of the performance levels have been assessed relative to	

	several parameters including: - where this would place buildings relative to the EPA Energy Star national performance metrics, assuming design performance is achieved – ensuring that the percentile parameters selected under the LEED certification translate into appropriate percentiles of all buildings nationally. In this case, for example, for NC, the 50th percentile for LEED designs correlates to LEED average building performance of ES 86. - Financial contribution that carbon revenues would make to performance improvements to ensure saliency. It must be noted that the diligence of this assessment is above and beyond the VCS requirements for performance methodologies. As a project-based additionality test, it was nonetheless applied to the performance benchmarks resulting from the module development/stakeholder consultation in order to further confirm that the levels established were credible and conservative. Nonetheless, it must be noted that - per VCS requirements for performance methods - a financial analysis does not drive the development of the performance benchmark. Only out of an interest to be particularly thorough and rigorous, this evaluation was applied to the benchmark in order to further pressure test its foundations. - Structure of credit incentives to place emphasis on closing the gap between design and performance of LEED certified buildings – which is where the carbon meth brings new incentives - Note: additionality benchmark levels in the LEED normal curve have been set at levels that typically correspond to the top 10-15% of ALL buildings in any given region – i.e. all college buildings in the US. Precedents here include the VCS Low Income Housing Meth that sets the performance percentile at 10% of all homes in a region. The corresponding LEED average ES 86 performance confirms that 50th percentile LEED thresholds would correspond to a similar "top 15%" of building performances nationally. - All these LEED performance benchmarks were discussed, reviewed and refined through the stakeholder consultation process, including the circulation and refinement of a series of white papers from which the module's performance benchmarks and other key assumptions were defined (see below). The module's final parameters continued to be refined through the stakeholder network input through the module draft (1.0), v 1.1 and v 1.2 even though no comments were	

	received from the VCS public posting. These benchmark levels have also been pressure tested across pilot project consultations with 3-4 colleges with hundreds of LEED certified buildings between them. The module also pays particularly careful attention to minimize potential false positive/negative outcomes through a well designed performance structure. In particular this is addressed via the EPA PM tool which makes adjustments for square foot variances (rare for individual buildings), weather, occupational and other influential factors (as determined through EPA's own regression analyses). Analyses were also undertaken to determine, based on the range of EE measures adopted by qualifying LEED buildings, to evaluate whether an average project's CO_2 revenues' contribution to the incremental capital requirements required to achieve LEED certification – per USGBC's own benchmarks of $3-5/sq ft – formed a credible contribution to the project's development trajectory: although this is an approach more typically used in project-based additionality assessments, it nonetheless confirmed that the performance benchmarks set (for additionality and crediting baseline) were indeed credible. As a final nuance, the careful design of performance metrics again helps address over/under crediting on the margin. More specifically, for NC and EB-B, which anchor off of the EPA ES 50 baseline, the module will not be using an estimation metric to quantify emission reductions (e.g. CO_2 per ton clinker). Rather, it will use a more project-oriented approach, crediting only the actual reductions that a project delivers over and above the selected baseline (as monitored through EPA PM system). Thus the probability of false positives or negatives arising is again dramatically reduced as a result of the choice and design of the metric selected. Our baseline approach is also consistent with the follow up measurements that USGBC is encouraging of its certified buildings – to measure their actual delivered performance. Above all, the determination of the performance benchmarks arose as a	

	result of an exhaustive consultation with more than 55 stakeholders, which reviewed more than half a dozen white papers outlining and then refining these parameters, in order to reach a consensus regarding where credible PB levels should be set. It should be noted that this process took over a year to complete: it was therefore perhaps not surprising to learn that there were no further stakeholder comments whatsoever submitted during VCS's open stakeholder comment period on these PBs (or any element of the methodology). It can therefore be concluded that the PB levels have been considered as robust. Thus VCS's focus upon false positive/negative considerations as a means of ensuring conservative ER qualification and estimations have been ensured through a rigorous and well structured set of procedures.	
4.1.17 The process of determining the level(s) of the performance benchmark metric shall include and be informed by an expert consultation process, undertaken by the methodology developer	Extensive stakeholder consultation was undertaken over a period of more than a year in the original framing, design and refinement of the methodology -- as outlined above and below. Appendix 4 summarizes the process and findings; successive white papers through which the module was developed and refined form the basis for its development. App 4 summarizes the expert views heard and how these were reflected in the final methodology adopted and refinements made to the original 1.0 draft to create the version 1.1 that was submitted to VCS for public stakeholder comment. This input was provided via the circulation of a series of white papers which examined and refined the performance benchmark metrics which were ultimately incorporated into the VCS methodology. Further stakeholder inputs then continued to refine the methodology draft (v 1.0) to create the v 1.1 which VCS posted for public stakeholder comment on its web site. Furthermore, even though no stakeholder comments were posted to VCS, the stakeholder development network continued to suggest further refinements to v 1.1 directly which were adopted to develop v 1.2. The stakeholder consultation itself complies with all VCS's guidelines as summarized in App 5 of the methodology, including, for example (via App 4) clear delineations of the numbers of stakeholder consulted in each category	References 14 – 25, 33 and personal interviews validated this assertion

	that VCS identified etc. Thus Chevy's Environmental Advisory Board which provided consistent oversight, and individual consultations, including those with potential pilot projects and experts, ensured practical, detailed feedback and refinements were incorporated not only into the PB white papers but drove all the refinements in the methodologies v 1.0 draft, 1.1 and 1.2 developed to date.	
4.1.17 The methodology developer shall ensure that a representative group of experts participates in the consultation, including, but not limited to, representation from industry, environmental non-governmental organizations, and government or other regulatory bodies.	Again see box above: note that campus experts are the "industry" reps in this case. - A representative list of consulted stakeholders is included in the module's appendix, categorized by sector. Diversity was ensured and the consultation process unusually extensive. Represented groups included: - USGBC - Independent environmental experts – six of them from NGO/campus backgrounds on Chevy's Environmental Advisory Board - college NGO non profits specializing in campus GHG reduction/reporting such as AASHE - College sustainability officers from leading campuses, not just those within the pilot project program - Carbon/energy experts from performance contracting firms, EE experts - EPA PM program experts – their appointed consultants who have consulted with EPA PM/ES managers on all technical queries - Pilot project candidate stakeholders, spanning EE/GHG experts, business officers, associate deans etc.	References 14 – 25, 33 and personal interviews validated this assertion
4.1.17 A report on the expert consultation process and outcome shall be prepared and submitted to the VCSA when the methodology is submitted under the methodology approval process.	The Stakeholder Consultation Report forms Appendix 4 of the Module. (see also above comments)	Appendix 4, references 14 – 25, 33 and personal interviews validated this assertion

4.1.18 Where there is heterogeneity of performance (measured in terms of the performance benchmark metric) that may be practicably achieved by individual projects, multiple benchmarks or correction factors may be required. • *technologies and/or measures which may be implemented at both greenfield and brownfield sites* • *larger and smaller scale project activities* • *Any other circumstances related to the baseline scenario or project activity, such as plant age, raw material quality and climatic circumstances, that lead to heterogeneity of performance*	Stratification is essential. LEED meth stratifies by existing and new buildings (NC and EB). Given the size of typical LEED buildings, all projects would be considered small scale under VCS. Indeed, grouped projects are really the only logical way to get projects validated/verified under VCS for LEED buildings. However, larger and smaller projects are also screened by square footage such that the baseline via EPA PM is developed by making comparisons to buildings of precisely comparable sizes. Further screens applied through EPA PM also include: - HDD/CDD - Occupancy - Regional location etc. These are the only factors that EPA's Energy Star program has found to constitute drivers in their statistical analysis of these US buildings' energy performance. Other eligibility stratifications we make involve school, campus and campus lab building segmentations each of which have their own performance metric under the NC meth where variances and sample sizes can reasonably be confirmed. (Note: variances are still small). USGBC's own stakeholder consultation for credit 67 determined that no stratification was needed for the applicability of 20% improvement in a single year for EB-A. EPA analysis of the schools attaining a 20% improvement in a single year confirms this finding. Variances for EB-B were not deemed by USGBC to be significant. Particularly given how similar the performance thresholds proved to be across sub-sectors (e.g. for NC), LEED determined that no further segmentation was required for additionality testing purposes. However, for baseline and ER estimation purposes, the EPA PM tool has provided further guidance regarding which sector a given building should adopt for baseline and project emission estimation purposes. The EPA PM tool introduce further layers of stratification that tailor the baseline emissions for different building types within the campus sector – while also adjusting	References 9, 12, 36, 37 38, and 40 validated this assertion

	for all significant factors (e.g. HDD/CDD, square footage, occupancy etc.) that would impact baselines and crediting levels. The module therefore applies and relies upon EPA's credible guidance to ensure appropriate stratifications in support of more tailored estimations of the resulting ER's from qualified projects. Any and all relevant variances, as determined through EPA's regression analyses, are then also applied to the ER estimates. *Well stratified, tailored results addressing specific circumstances material to the baseline and crediting are therefore ensured.*	
4.3.4 Where the methodology uses a performance method for determining additionality, the applicability conditions shall ensure that the project implements technologies and/or measures that cause substantial performance improvement relative to the crediting baseline and what is achievable within the sector, and the methodology shall explicitly specify such technologies and/or measures (or examples thereof).	Applicability conditions reference the types of "best practice" measures from LEED certified buildings that have delivered their exemplary performance improvement; these measures are consistent with those identified in pilot project studies we've undertaken (some may be under NDA). The module specifies that at least two of these approaches will need to have been adopted. More specifically, an overview of the "best practice" techs/measures was developed, based LEED NC and EB certified buildings energy and GHG practices, drawing upon the criteria that USGBC itself developed. These therefore represent the "leading practices" from those campuses whose LEED buildings achieve performance outcomes above the PBc. The module then requires that the qualifying performance be attributable to these measures. The module also requires that campuses demonstrate that at least two categories of strategy have been adopted. The list of required measures will be updated each 5 years to ensure it reflects current "leading best practices". Broader applicability conditions then also apply as referenced in other sections including: - US based only - LEED certified buildings only - Adjustments for square footage through EPA PM - Ditto for HDD/CDD, occupancy, regional variations - Scope 2 (and scope 1 in CA) sign offs relative to ownership of	References 26, 27, 28 and 40, validated this assertion

	reductions are required relative to potential local utility claims - LEED CI projects are excluded since these can apply to a subset of the building space	
4.3.5 The applicability conditions shall establish the scope of validity of the methodology, and where multiple benchmarks are established, each performance benchmark, including the geographic scope. In establishing the scope of validity of the methodology or each performance benchmark, the methodology shall clearly demonstrate that there is similarity across the sub-areas of the geographic scope in factors such as socio-economic conditions, climatic conditions, energy prices, raw material availability and electricity grid emission factors, as such factors relate to the baseline scenario and additionality, noting that variation is permitted where correction factors address such variation as set out in Section 4.1.18. *It may be necessary to stratify and establish multiple performance benchmarks, or to limit the applicability of the methodology, to comply with this requirement*	4.3.5 is addressed through careful stratification, the development of tailored multiple benchmarks for each strata and careful baseline designs – not only in the applicability conditions but throughout the module.. The module's applicability conditions clearly establish the scope of validity for the methodology, consistent with the LEED data from which performance data was derived: these include: - US based buildings only - LEED certified buildings only However, 4.3.5 considerations regarding the consistency within each sub-segmentation are primarily addressed by adopting USGBC's own LEED stratification: the LEED module then stratifies carefully by NC and EB, so that each sector has its own performance consistent with the USGBC historical performance curves analyzed As the LEED module then stratifies carefully by existing and new buildings (NC and EB), the module also makes other key eligibility stratifications (by school, campus and campus lab buildings) each of which have their own performance metric under the NC meth, segmented again relative to the compliance code they use to certify (e.g. ASHRAE 2004 or 2007) (since this was where our analysis indicate some slight variances and sample sizes were large enough to reasonably confirm these. Note: variances were still small). USGBC's own stakeholder consultation for credit 67 determined that no finer grained stratification was needed for the applicability of 20% improvement in a single year for EB-A. EPA analysis confirms this finding Variances for EB-B were not deemed significant by USGBC so no further performance benchmarks were needed by geography or other segmentation. It should be noted that the meth follows LEED's own segmentations since, as the pre-eminent stakeholder endorsed energy building certification	References 9, 12, 32, and 40 validated this assertion

	system, it has not adopted performance/certification parameters with any other further or significant subsegmentations. Baseline and crediting mechanics are then implemented through EPA's PM which adjusts for other drivers which EPA has identified as salient in these sectors – including climate (HDD/CDD). In EPA's own analysis, socioeconomics were not found to be a driver; nor were energy prices, raw material availability or CO_2 grid emission factors (extensive regressions conducted under public consultation process by EPA). However, these last three components (e.g. access to affordable low carbon fuels in a region) are nonetheless incorporated into the baseline we have selected which uses, (selecting EPA's ES 50 default baseline) on a regional basis, the regional default fuel mix. This therefore benchmarks the target building's CO_2 reduction performance against those fuels (given their pricing and low/high carbon profile) which are available and typically used in the specific region in which the target building is located. These factors are therefore also expressly accommodated in the meth design. It should also be noted that for baseline and ER estimation purposes, the EPA PM tool provides further guidance regarding which sector a given building should adopt to baseline and project emission estimation purposes. The module therefore applies and relies upon EPA's own credible guidance to ensure appropriate, tailored estimations of the resulting ER's from qualified projects. Any and all relevant variances, as determined through EPA's regression analyses, are then also applied to the ER estimates.	
4.3.6 The applicability of the methodology or a performance benchmark shall be limited to the geographic area for which data are available, or it shall be demonstrated that data from one geographic area are representative of another or that it is conservative to apply data from one geographic	USGBC's data includes all US buildings in its analysis. Only US-based campuses are eligible under the module. No transfer of performance benchmarks from US buildings to other regions in contemplated in the meth -- and is precluded under applicability conditions. To be representative crediting against the baseline is conducted through EPA PM which develops baselines for buildings in the same region (of same size, occupancy etc.), using a regional default fuel mix to also accommodate geographic variations by region. The use of regional baseline data for a given building is understood to yield more appropriate	References 26, 27, 28, 36, 37 and 38, validated this assertion

area to another.	results than a national figure since it will reflect the most appropriate, regional default assumptions which the project would otherwise be forced to consider. Separate analysis of other college GHG performance data also confirms that there are few correlations between geographic location and CO_2/kWh and energy efficiency improvement performance. USGBC, through its extensive stakeholder process, does not set different criteria or award certification points differently by US sub-region, confirming again that in terms of eligibility criteria a US-wide basis is appropriate.	
4.5.4 The methodology shall identify alternative baseline scenarios and determine either the most plausible baseline scenario or an aggregate baseline scenario for the project activity. Aggregate baseline scenarios shall be determined by combining likely scenarios on a probabilistic (ie, likelihood) basis.	EB-A, as a retrofit project, uses historical baseline for the building, consistent with the VCS Standard under 4.1.14 and 3.1.6 since an existing baseline is most plausible for existing building retrofits and represents the same baseline that USGBC uses for consideration of the award of its pilot credit 67. The approach is thus doubly endorsed both through LEED and the project development's stakeholder consultation processes. For performance baselines/additionality assessments (in NC and EB-B), the same 50th percentile achievement level is selected in the base case (national average performance ES 50) and the "beyond business as usual performance" project additionality performance requirements (LEED certified at at least the 50th percentile level). There is thus consistency suited to reflecting the jump in "substantial performance improvement", (to top 50% of the LEED level certified performance) while ensuring that both pre/post performance benchmarks are defined in mutually consistent ways (50th percentile levels). Stakeholder consultations supported this approach through the white paper discussions which reviewed the kind of baseline performance levels that might best be appropriate to reflect this "substantial" leap: stakeholders did not want to change the percentile level across baseline and project additionality requirements so that this "leap" between US average and LEED certified performance outcomes could best be reflected. To be clear: for NC and EB-B, which anchor off of the EPA ES 50 baseline, the same percentile threshold is used– the 50th percentile – both for	References 9, 10, 11, and 12 validated this assertion

	additionality eligibility purposes at the LEED 50th percentile and for baseline purposes at the national 50th EPA ES percentile. The difference here represents the improvement in GHG performance that a project makes due to the superior LEED certifiable measures taken but does not reflect a fundamental change in the percentile ranking required under each benchmark parameter. Thus no difference in the selection of parameters arises from different percentile choices (as has been the case with other meth precedents). Thus, consistent with the expectations for performance methodologies, the baseline selected reflected the consensus input from the stakeholders consulted.	
4.5.5 The performance benchmark shall be established based upon available technologies and/or current practices, and trends, within the sector. Where the analysis of trends shows a clear trend of improvement in the baseline scenario over time, the performance benchmark shall take account of the trend. This means that where the performance benchmark does not use a dataset that is updated at least annually, an autonomous improvement factor shall be used that provides a performance benchmark that tightens annually.	USGBC can publish updated performance requirements each year – and certainly every 5 years. VCS asked that the data not be updated every other year and applied to the meth on a dynamic basis in order to give project developers certainty. Instead, VCS will just publish this data biannually to give project developers an indication of the direction of the trend.	References 9, 10, 11, and 40 validated this assertion
4.5.6 Appropriate data sources for developing performance methods include economic and engineering analyses and models, peer-	The meth uses the USGBC extensive, US-wide database from which aggregate data can be furnished, by relevant sub-sector/segment, for the EE% improvements over code (for NC), the ES performance (for NC and EB-B). USGBC published reports are also referenced and consistency	References 10, 11, 12, 26, 27, 28, 36, 37 38, and 40 validated this assertion

reviewed scientific literature, case studies, empirical data, and common practice data.	noted. This data has been reported to USGBC through a credible third party certification system and centrally collated by USGBC as non-profit group to form its data base: much of the individual data in this data base is open to public scrutiny through the GBIG data portal that USGBC has now brought on line and is thus also subject to peer review scrutiny and ultimately public commentary. EPAs Energy Star program statistics are used for EB-A. This data source is credible and trusted. Case study materials from pilot projects are referenced and found to be consistent. Every section of VCS's Guidance regarding data sources and management were carefully scrutinized; practices adopted were consistent with these requirements.	

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