BALL STATE UNIVERSITY CAMPUS-WIDE CLEAN ENERGY & EFFICIENCY PROJECT MONITORING REPORT

Document Prepared By:
Center for Energy research/Education/Service (CERES)

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This document format and the referenced resources and tools were developed initially with the financial support of Chevrolet to help campuses assess whether to pursue VCS certification of their GHG reductions. These referenced resources and tools are offered for assistance only and if a campus uses these, it does so at its sole expense and discretion. Alternatively, campuses are free to develop their own tools to generate the necessary information to give to VCS for possible certification. Use of these resources and tools does not guarantee certification by VCS.

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1 ..... PROJECT DETAILS

This Monitoring Report (MR) has been prepared and submitted by Ball State University ("Applicant") using data prepared and compiled by Applicant and reflects its best judgment. It includes the campus CNBN excel template, supplied separately to validators/verifiers, which contains all of the information and calculations the Applicant believes are needed to support validators/verifiers in performing their evaluation of the campus' project candidacy for certification. It is the Applicant's judgment that this MR and the excel template accurately set forth all relevant data and parameters, on a reproducible basis, necessary to establish the project's performance in these regards, indexing clearly to the numbered equations applicable in VMD0038.

Campus name/location: Ball State University
Muncie, IN USA

By submitting this MR and accompanying materials, does the above named University/College intend to affirm its agreement with the above statement? ☒ Yes ☐ No

1.1 Summary Description of the Implementation Status of the Project

This campus' activities include:

Behavior Change Campaign/Communications	☒ Yes	☐ No
CoGen & Fuel switching	☐ Yes	☒ No
Lighting Retrofits	☒ Yes	☐ No
On-Site Renewables	☐ Yes	☒ No
Boiler Retrofits/Central Heating/Cooling Upgrades	☒ Yes	☐ No
Building System Retro-Commissioning & Upgrades Including Automation	☒ Yes	☐ No
Weatherization Improvements	☒ Yes	☐ No
LEED Certification/Green Buildings	☒ Yes	☐ No
Innovative Strategies	☒ Yes	☐ No

Describe specifics of at least two of the measures undertaken:

Measure 1)

District-Scale Geothermal (Closed-Loop, Ground-Source) Heat Pump Chiller Heating and Cooling System; as above

Measure 2)

Weatherization of envelopes:

The university routinely upgrades insulation levels in roof decks when replacing worn-out roof surfaces with new systems; specifically rock-ballasted built-up roofing is replaced with cool-roof EPDM continuous membranes and/or green roofs. In addition, window replacement with high performance glazing and thermal-brake framing has been adopted as an operational standard.

Additional Measures as applicable

For detailed description of the full breadth of sustainability-related and energy conservation practices at Ball State University, see Appendix D in Project Description Document.

However in sum, the following describe more fully the line items checked above:

Behavioral change campaign/communications.

The university facilitates month-long energy conservation competitions within the nine residence hall complexes and among all academic buildings. These competitions occur in the fall and spring semesters and are promoted with campus-wide email exchange and web-based reporting of week-to-week performance.

Lighting retrofits.

The university continues to aggressively switch-out T12, halogen, incandescent, and high-pressure sodium lamps as part of its on-going maintenance and rehabilitation programs. In addition, for new construction and substantial facility renovation, specifications mandate the use of high-efficiency lamps, fixtures, and lighting controls.

Boiler retrofit/central heating/cooling upgrades.

This comprises the core activity by which the university is dialing-down its greenhouse gas emissions; having eliminated four coal-fired boilers, three centrifugal heat-pump-chillers, and five water-based cooling towers.

Building system retro-commissioning and upgrades including automation.

The university routinely switches-out dated equipment; installing variable-speed pumps and fan motors, CO_2 return-air sensors, sub-zoning of air-handling equipment where feasible, and use of digital sensors to control systems operation.

LEED Certification/LEED Buildings.

In both the 2007-12 and 2012-17 Strategic Plans, the university adopted LEED Silver as the standard for all new construction and renovations/upgrades. In some instances, the university has achieved LEED Gold ratings for some of its newer buildings.

Innovative Strategies.

The university has engaged in long-range planning for the future use of alternative energy sources on campus and on outlying properties owned by Ball State; including building-integrated photovoltaics, stand-alone-armature photovoltaics and wind energy conversion. In addition the university has expanded the involvement of students in immersive learning opportunities on campus (e.g. LEED Lab) wherein students under the mentorship of faculty evaluate building energy performance and provide actionable reports.

For stat 1 reduction projects, describe the stationary 1 facilities being backed down

Four Coal-Fired Chain-Grate Boilers were taken Off Line

Do any of these activities differ from those already described during validation or during a prior monitoring period? ☐ Yes ☒ No

If so, consistent with the new activities described in section 2.1, please provide brief implementation timelines for these new activities: N/A

Credits are sought in:

Stationary 1 combustion reductions	☒ Yes	☐ No
Scope 2 electricity based reductions	☐ Yes	☒ No

First project year implementation date 07-01-2011, (FY 2012)

The baseline scenario as prescribed in VMD0038 is the campus' historical emissions (as further described in sections 2.4 and 3.1). Since CACP (now SIMAP) periodically updates its calculator and the most applicable, contemporaneous version is to be used to calculate each year's GHG inventory, as of this submission we again are using SIMAP. And for more recent validation we have been using CY reporting.

Per equations 12 or 23: [BE Per equations 12 or 23 tCO2e/year]

Average baseline emissions = BE

For	FY 2012	66,241	tCO2e	using	CACP v 9.9
For	FY 2013	65,380	tCO2e	using	CACP v 9.9
For	FY 2014	64,530	tCO2e	using	CACP v 9.0
For	FY 2015	63,691	tCO2e	using	CACP v 9.0
For	FY 2016	62,863	tCO2e	using	CACP v 9.0
For	FY 2017	62,046	tCO2e	using	SIMAP v 1.0
For	FY 2018	61,239	tCO2e	using	SIMAP v Tier 2 Feb 2020
For	FY 2019	60,443	tCO2e	using	SIMAP v Tier 2 Feb 2020
For	FY 2020	59,657	tCO2e	using	SIMAP v Tier 2 Feb 2020

As an example for the project emissions/reductions profile for project year 1:
Project emissions for year 1 45,960 [PE_1 For year 1, per Eq 14 or 25 tCO2e/yr]
Do applied EE technologies require PE Emissions Adjustments?
☒ Yes ☐ No
If yes, PE Adjustment test applied f [Enter applied test name a) – j) from 8.1.3 / 8.2.3]
Resulting PE Adjustment, $PE\Delta_y$: 5,293 [$PE\Delta_1$ For year 1, per Eq15-22, 26-8 tCO2e/year]
Thus, year 1 emission reductions: 14,988 [ER_1 For year 1, per Eq 29 tCO2e/year]

Total emission reductions for the project's current monitoring period; after accounting for conversion from FY to CY using half-year blocks in the accompanying Excel sheet calculation: CY 2018 = 26,342**
and CY 2019 = 29,754**

** (CY 2018 … Last ½ FY 2018 & First ½ FY 2019)
** (CY 2019 … Last ½ FY 2019 & First ½ FY 2020)

[Summing for 7th and 8th year ER_y per Eq 29 tCO2e/year]
Consistent with tables in sections 4.4
Do campus sq footage variances apply during project period such that SFΔy is not equal to 1 for some project year y? ☐ Yes ☒ No

1.2 Sectoral Scope and Project Type

Sector scope
☒ 1 Energy industries (renewable / non-renewable sources)
☒ 3 Energy demand

1.3 Project Proponent

Organization name	Ball State University
Contact person	Jim Lowe, PE
Title	Associate Vice President for Facilities Planning and Management
Address	2000 University Avenue Muncie IN 47306
Telephone	765.285.2805
Email	jlowe@bsu.edu

Organization name	Ball State University
Role in the project	Secretariat
Contact person	Robert J. Koester, AIA LEED AP
Title	Professor and Director
Address	2000 University Avenue Muncie IN 47306
Telephone	765.285.1135
Email	rkoester@bsu.edu

1.4 Other Entities Involved in the Project

Not Applicable

1.5 Project Start Date

Project start date: 07/1/2011

1.6 Project Crediting Period

Project Crediting Period Start Date: 07/1/2011
Project Crediting Period End Date: 07/1/2021
Project Crediting Period: 10 years

1.7 Project Location

2000 University Avenue Muncie, IN [See Appendix A for Campus Map]
40.1933^0 N
85.3881^0 W

1.8 Title and Reference of Methodology

Campus Clean Energy and Energy Efficiency Methodology VM0025: v 1.0
Campus Clean Energy and Energy Efficiency Module VMD0038: v 1.0
For current version, see:
https://verra.org/methodology/vm0025-campus-clean-energy-and-energy-efficiency-v1-0/

1.9 Participation under other GHG Programs

Is there an applicable GHG program under which the campus is registering its credits?
☐ Yes ☒ No

1.10 Other Forms of Credit

Include the following information, as applicable:

- Emission Trading Programs and Other Binding Limits:
  Is there an applicable carbon cap or binding limit in the campus region?
  ☐ Yes ☒ No
- Other Forms of Environmental Credit:
  Is there an applicable GHG reporting system under which the campus is publicly reporting its emissions? ☒ Yes ☐ No
  Please indicate which one:
  ☒ ACUPCC (now CLC)
  ☒ STARS
  ☒ GRI
  Has or will the campus ensure(d) that project reductions have not been double reported to this entity for project years in which reductions have been sold?
  ☒ Yes ☐ No

1.11 Sustainable Development

This project contributes to the sustainable development of the United States and specifically to the UN Sustainable Development Goals 7) Affordable and Clean Energy, 9) Industry, Innovation, and Infrastructure, 11) Sustainable Cities and Communities, and 13) Climate Action.

Through research and investments in clean energy on campus, this project drives progress towards affordable and clean energy for the students, faculty, and staff at Ball State University. Student engagement on campus also drives innovation, and the University's leadership creates a model for clean energy infrastructure.

Ball State University is a signatory of the Presidents Climate Commitment, which commits the school to increasing climate resilience with the local community and achieving carbon neutrality on campus. In this way the University is driving action on climate change, both in terms of mitigation and preparedness with its off-campus community.

2 SAFEGUARDS

2.1 No Net Harm

There are no known negative environmental or socio-economic impacts of this project.

2.2 Local Stakeholder Consultation

Not Applicable to this Project

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

For performance methodologies, updates on the overall project performance is required and provided below.

Years for which verification is sought during this reporting cycle:

Project Year 1	FY 2012	☐ Yes	☒ No
Project Year 2	FY 2013	☐ Yes	☒ No
Project Year 3	FY 2014	☐ Yes	☒ No
Project Year 4	CY 2015	☐ Yes	☒ No
Project Year 5	CY 2016	☐ Yes	☒ No
Project Year 6	CY 2017	☐ Yes	☒ No
Project Year 7	CY 2018	☒ Yes **	☐ No
Project Year 8	CY 2019	☒ Yes **	☐ No
Project Year 9	CY 2020	☐ Yes	☒ No
Project Year 10	CY 2021	☐ Yes	☒ No

On an annual reporting basis (adopted last cycle) of: ☐ Fiscal ☒ Calendar

If fiscal, does fiscal year commence July 1? ☐ Yes ☐ *No* ☒ N/A

Campus square footage for years where verification is sought

** (CY 2018 … Last ½ FY 2018 & First ½ FY 2019) = 7,166,210 sq. ft.

** (CY 2019 … Last ½ FY 2019 & First ½ FY 2020) = 7,314,210 sq. ft.

Are sq. ft. figures consistent with ACUPCC/STARS/ public GHG reporting? ☒ Yes ☐ No

NOTE:
This is the first time that the SF numbers have increased but that increase is below the 5% threshold, wherein the methodology offers the option to exclude new site areas from the emissions reductions calculations; so no such areas have been deducted in the ER calculations for CY2019. Nonetheless, the methodology incorporates changes in SF as part of its accounting in the additionally test per Equation 9; so the BSU new SF 2019 figure is appropriately applied to this test in line 308 of the excel sheet.

Per equation 8/9 (for stationary 1 credits) and/or 10/11 (for scope 2 electricity credits), which evaluate whether the GHG emissions in project year 1 and y respectively were below the permissible threshold per Test 4a/b-S and/or Test a/b-E:

Equation 8:
$$\sum_i \frac{F_{b=1,i} - F_{p=1,i}}{F_{p=1,i}} \geq PBS_c * SCAP$$

Equation 9:
$$\sum_i \frac{F_{b=1,i}}{F_{p=y,i}} \geq (PBS_c * SCAP + 1) * \frac{SF_{p=1}}{SF_{p=y}}$$

Equation 10:
$$\frac{E_{b=1} - E_{p=1}}{E_{p=1}} \geq PBE * E2AP$$

Equation 11:
$$\frac{E_{b=1}}{E_{p=y}} \geq (PBE_c * E2AP + 1) * \frac{SF_{p=1}}{SF_{p=y}}$$

For stationary 1 credits:
Has Test 4a/b-S been met:

i.e. Did the project achieve or exceed the annual average percentage reduction rate specified in the methodology as the performance benchmark (PBS) appropriate to the campus' Carnegie classification given the scope of GHG's (for stationary 1) for which credits are here sought?
For project year 1:
Indicate whether the principle PBS % reduction threshold for project eligibility has therefore been met (that is the campus reduction rate exceeded the PBS required minimum):

☒ *Yes* ☐ *No*

Such that the principle % reduction threshold for project eligibility has been met in year 1:
Indicate the PBS required reduction rate 5.86 % per annum
Indicate the campus project's actual annual average percentage reduction rate achieved in stationary 1 emissions between the first year of the additionality eligibility period and project year 1 19.27 % per annum
For project year y, the stationary 1 emissions may not exceed the threshold value of GHG emissions from project year 1 required to pass test 4 in equation 8 above, (once adjusted, on a square foot adjusted basis, to reflect the new size of the campus). This value of adjusted GHG emissions each year serves as the applicable maximum threshold for project year y stationary 1 emissions whose compliance is assessed in equation 9

For project year y:
Such that the maximum threshold has not been exceeded for stat 1 emissions in subsequent years – since emissions may not exceed this threshold if credits are to be issued in that specific year
(CHECK ONLY THOSE YEARS WHICH HAVE PASSED BASED ON ACTUAL GHG REPORTED DATA FOR YEARS INCLUDED IN THIS MONITORING PERIOD)

CY Basis ☐ *2* ☐ *3* ☐ *4* ☐ *5* ☐ *6* ☒ *7* ☒ *8* ☐ *9* ☐ *10*

Were simple weather adjusted factors applied in Eq 8 and 9? ☐ Yes ☒ No
(using weather adjusted emissions per equations 6 and 7)

NOTE:
Consistent with the methodology deviation which VCS approved for BSU in its Monitoring Report 13 for CY2015 (when BSU switched from FY to CY based ER issuance), BSU applies conservative procedures in its ER calculations and project year y additionality testing (Eq 9) for the current CY2018/19 crediting periods -- as were applied and approved by for the earlier CY crediting periods. More specifically, when BSU previously sought emission reductions for a half-year period (FY2015), it took the step voluntarily to pressure test its additionality testing for that FY, to ensure that the results were conservative and more accurate. BSU therefore applied measurement and monitoring refinements to take into account any potential seasonal variances arising from energy consumption averages in the first vs. second half of that calendar year. Those refinements were designed to ensure more accurate and conservative monitoring of the metered data for that half-year period when applied to the additionality project year y testing given seasonal variances that could arise. The same additionality equation for project year y was applied (namely equation 9).

Specifically, to examine potential seasonal variations, BSU evaluated, based on historical data, the extent to which the first six months of energy consumption/GHG emissions might vary compared to the last six months; and refined the half year's PE GHG emission estimates (normalizing for any such seasonal variance) which was then entered as the foundation for that project year y additionality testing. Again using equation 9, the project passed project year y additionality testing readily using both the metered and the seasonally adjusted measurement basis.

For scope 2 electricity credits: N/A

For both credit scopes:
Were the campus-wide energy efficiency and clean energy measures undertaken as described in section 1.1 prior to or during this period? ☒ Yes ☐ No
Were there any unexpected events that impacted GHG emission reductions removals or monitoring? ☐ Yes ☒ No
Leakage is set at zero per the VMD0038 module.
Are there any other changes to report for this monitoring period compared to the status in the last monitoring period? ☐ Yes ☒ No
Changes which arose in previous verifications are reported in those respective reports.
Are there any further activities/measures EE/clean energy undertaken beyond those described in 1.1? ☐ Yes ☒ No
If yes, please describe:

3.2 Deviations

3.2.1 Methodology Deviations

Were any deviations from the methodology applied? ☒ Yes ☐ No

For this monitoring period, consistent with the approvals VCS provided during Monitoring Report 13 (see 3.1 above), we followed the same practice for calculating our CY ER from our FY-based excel spread sheet; using the half-year FY data from FY 2020, FY 2019 and FY 2018 to assemble full-year 2018 and 2019 CY data.

** (CY 2018 … Last ½ FY 2018 & First ½ FY 2019)
** (CY 2019 … Last ½ FY 2019 & First ½ FY 2020)

The VCS methodology allows for ER calculations to be on either a FY or CY basis.

VCS accepted during an earlier monitoring period, a methodology deviation to allow BSU to accommodate the generation of VCU's for a separate 6 month basis in order to move VCU issuance from our original FY to the new CY basis.

3.2.2 Project Description Deviations

Are any project description deviations sought? ☐ Yes ☒ No

3.2.3 Grouped Project

Grouped project: ☐ Yes ☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

As described in sections 9.1 and 9.2 of the Campus-wide Clean Energy & Energy Efficiency Module:

Have all parameters for validation (as now applied for project monitoring/verification purposes) been adopted from and applied as described in these sections? ☒ *Yes* ☐ *No*

Check all applicable parameters used in the pdd for validation purposes (see methodology for definitions):

At validation		
	Confirm	
PBS_c	☒ Yes	☐ No
PBE_c	☐ Yes	☒ No
B	☒ Yes	☐ No
$HDD_{p=y}$	☐ Yes	☒ No
$CDD_{p=y}$	☐ Yes	☒ No
SCAP	☒ Yes	☐ No
E2AP	☐ Yes	☒ No

For source of parameter definitions, see:
https://verra.org/methodology/vm0025-campus-clean-energy-and-energy-efficiency-v1-0/

For completeness sake, all the methodology definitions for the parameters applicable to this project validation are found below:

Data Unit / Parameter	PBS_c
Data unit	Percent
Description	Stationary combustion additionality performance benchmark for Carnegie class c. The level of the additionality benchmark is set at the annual percent reduction in campus-wide stationary combustion emissions achieved by campuses of equivalent Carnegie class which also achieve annual average reductions in total energy-based emissions.
Equations	8 and 9, VMD00038
Source of data	ACUPCC (now The Climate Leadership Commitment)
Value applied	5.68%
Justification of choice of data or description of measurement methods and procedures applied	Justification for the benchmark is provided in Appendix 1 VMD00038
Purpose of data	Determination of additionality
Comment	

Data Unit / Parameter	B
Data unit	Number
Description	Baseline period
Equations	2, 12 and 23, VMD00038
Source of data	Determined based on emissions data reported to third party GHG reporting program.
Value applied	5
Justification of choice of data or description of measurement methods and procedures applied	The baseline period must meet the following conditions: I. The baseline period must include project year 0 and three to five consecutive years prior to the project start date. II. For at least one of the baseline years, data must be publicly-available through ACUPCC (now Climate Leadership Commitment) or a third-party GHG reporting program. The baseline period must be justified relative to the data that most accurately reflects historical emissions that are comparable to the campus conditions during project crediting period (e.g., similar square footage and attendance). The baseline period must be calculated by subtracting the

	calendar year for the first year of the baseline period from the calendar year of project year 1.
Purpose of data	Calculation of baseline emissions
Any comment	

Data Unit / Parameter	SCAP
Data unit	Number
Description	Stationary combustion additionality eligibility period
Equations	8 and 9, VMD00038
Source of data	
Value applied	2
Justification of choice of data or description of measurement methods and procedures applied	This period must include project year 0 and one to five consecutive years prior to the project start date. This period must be calculated by subtracting the calendar year for the additionality testing year, used for stationary combustion additionality benchmark testing, from the calendar year for project year 1.
Purpose of data	Determination of additionality
Comment	In some cases, the additionality eligibility period is not the same as the baseline period or the scope 2 electricity additionality eligibility period.

4.2 Data and Parameters Monitored

As described in section 9.1 and 9.2 of the Campus-wide Clean Energy and Energy Efficiency Module.

Have all parameters for verification/monitoring been adopted from and applied as described in these sections? ☒ Yes ☐ No

Which applicable public GHG reporting system has the campus used for this applicable monitoring period (including baseline and current project years)?

Please indicate which one:
☒ ACUPCC (now Climate Leadership C)
☒ STARS
☒ GRI

Are the GHG emissions and square foot data applied to this project in this monitoring period consistent with these public reports?

☒ Yes ☐ No

Has the CACP (now SIMAP) calculator been used to develop these GHG emissions?

☒ Yes ☐ No

If not, explain how the GHG calculation approach used is consistent with the CACP (now SIMAP) calculator

Check all applicable parameters used in this monitoring report for verification purposes (see methodology for definitions):

Monitored	
	Confirm Y or N
$SF_{b=x}$	☒ Yes ☐ No
$SF_{p=y}$	☒ Yes ☐ No
$F_{b=x, i}$	☒ Yes ☐ No
$F_{p=y, i}$	☒ Yes ☐ No
$E_{b=x}$	☒ Yes ☐ No
$E_{p=y}$	☒ Yes ☐ No
y	☒ Yes ☐ No
ΔEy	☒ Yes ☐ No
$AT_{y,i}$	☐ Yes ☒ No
$PSH_{b=x}$	☐ Yes ☐ No
$PSH_{p=y}$	☐ Yes ☐ No
$PC_{b=x}$	☐ Yes ☐ No
$PC_{p=y}$	☐ Yes ☐ No
$\Delta F_{y,i}$	☐ Yes ☒ No

NOTE:
BSU does not purchase steam heat or cooling and so the PSH and PC parameters are not checked.

For source of parameter definitions, see:
https://verra.org/methodology/vm0025-campus-clean-energy-and-energy-efficiency-v1-0/
For completeness sake, all the methodology definitions for the parameters applicable to this project verification are found below:

Data Unit / Parameter	$SF_{b=x}$, $SF_{p=y}$
Data unit	ft^2
Description	Total campus-wide square footage in the applicable year
Equations	1, 2, 3, 4, 9, 11, 30 and 31, VD00038
Source of data	The campus' historical GHG inventory reporting to relevant third-party GHG reporting program (e.g., ACUPCC; now CLC). Primary data from internal financial and facilities operational reviews.
Description of measurement methods and procedures to be applied	Measured according to the reporting framework of the relevant third-party GHG reporting program.
Frequency of monitoring/recording	Annual
QA/QC procedures to be applied	The primary data is checked during internal financial and facilities operational reviews. The primary data is used to calculate the project and ACUPCC (now CLC) reports and is checked during the calculation review and report preparations.
Purpose of data	Determination of additionality Calculation of baseline emissions

	Calculation of project emissions
Comment	Campus square footage data is typically reported to ACUPCC (now Climate Leadership Commitment)
Value monitored	The values for each year are provided in section 2.1 above
Calculation method	Follows the protocols set out in the relevant third party reporting program
Monitoring Equipment	The data is calculated using common area calculations

Data Unit / Parameter	$F_{b=x,i}$, $F_{p=y,i}$
Data unit	tCO_2e
Description	Stationary combustion emissions in the applicable year from fuel type i, in the applicable year
Equations	3, 5, 6, 8, 9, 12, 14 and 28, VMD00038
Source of data	GHG reports submitted to third-party GHG reporting programs such as ACUPCC (now Climate Leadership Commitment), as generated through credible GHG reporting tools such as the CAPC calculator or The Climate Registry reporting protocols. Primary data from internal financial and facilities operational reviews.
Description of measurement methods and procedures to be applied	GHG emissions must be calculated by multiplying the quantity of fuel type i used campus-wide by the appropriate emissions factor for fuel type i, for the applicable year. Emissions factors for fuels must be consistent with those permitted under the third-party GHG reporting program.
Frequency of monitoring/recording	Annual
QA/QC procedures to be applied	The primary data is checked during internal financial and facilities operational reviews. The primary data is used to calculate the project and ACUPCC (now CLC) reports and is checked during the calculation review and report preparations.
Purpose of data	Determination of additionality Calculation of baseline emissions Calculation of project emissions
Comment	The parameter $F_{b=1,i}$ is referenced in both Section 7, VMD00038 where it applies to the additionality testing year and Section 8, VMD00038, where it applies to the first year of the baseline period. In some cases, the additionality testing year is not the same as the first year of the baseline period.
Value monitored:	The values for each year are provided in section 4 below

Calculation method	Follows the protocols set out in the relevant third party reporting program
Monitoring Equipment	The underlying primary data for fuel consumption is measured using standard industrial measures and equipment. The natural gas, for example, is measured using an industrial standardized dry gas meter provided by the utility.

Data Unit / Parameter	$E_{b=x}$ or $E_{p=y}$
Data unit	tCO_2e
Description	Scope 2 electricity emissions in the applicable year
Equations	4, 5, 7, 19, 11, 29, 23 and 25, VMD00038
Source of data	GHG reports submitted to third-party GHG reporting programs such as ACUPCC (now Climate Leadership Commitment), or generated through credible GHG reporting tools such as the CAPC calculator or The Climate Registry reporting protocols. Primary data from internal financial and facilities operational reviews.
Description of measurement methods and procedures to be applied	$E_{b=1}$ must be calculated by multiplying the total electricity consumed campus-wide by the appropriate grid emissions factor, for the applicable baseline year. Emission factors must be consistent with those permitted under the third-party GHG reporting program, preferably consistent with those permitted under the CACP (now SIMAP) calculator. The default emissions factor is the regional eGRID combined margin. Other GHG emission factors should only be used if justification is provided that they are reasonable and conservative (eg, factors tailored to the specific utilities from which campuses' electricity is sourced). In such cases, the factors must have been published by the utilities in year y or, if published previously, must be used for no more than three years of emission reductions (i.e., years y, y+1 and y+2, where y can be either a project year or a baseline year).
Frequency of monitoring/recording	Annual
QA/QC procedures to be applied	The primary data is checked during internal financial and facilities operational reviews. The primary data is used to calculate the project and ACUPCC reports and is checked during the calculation review and report preparations.

Purpose of data	Determination of additionality Calculation of baseline emissions Calculation of project emissions
Comment	The parameter $E_{b=1}$ is referenced in both Section 7 VMD00038 where it applies to the additionality testing year and Section 8 VMD0038 where it applies to the first year of the baseline period. In some cases, the additionality testing year is not the same as the first year of the baseline period.
Value monitored	The $E_{p=y}$ values (tons CO2e) were applied to calculate PE Adjustment only: they were: $E_{p=1}$ 75,109 $E_{p=6}$ 74,587 $E_{p=2}$ 81,448 $E_{p=7}$ 73,347 $E_{p=3}$ 78,557 $E_{p=8}$ 77,808 $E_{p=4}$ 76,710 $E_{p=9}$ 36,089 **(1/2 year)** $E_{p=5}$ 75,731
Calculation method	Follows the protocols set out in the relevant third party reporting program
Monitoring Equipment	The underlying primary data for fuel consumption is measured using standard industrial measures and equipment. Electricity, for example, is measured using a standard electric meter measuring current (kWh) provided by the utility.

Data Unit / Parameter	y
Data unit	number
Description	Project year
Equations	13 and 24, VMD00038
Source of data	Primary data from internal financial and facilities operational reviews.
Description of measurement methods and procedures to be applied	y is the project year determined by counting the number of years since the project start date (i.e., the first project year = 1, the second project year = 2, etc.)
Frequency of monitoring/recording	Annually
QA/QC procedures to be applied	Project year y takes values 1,2,3,4 in this verification. Consistency between ACUPCC (now CLC) annual reporting periods and project annual reports periods were assured (e.g. fiscal or calendar years applied consistently throughout)
Purpose of data	Calculation of baseline emissions
Comments	
Value monitored	CY 2018 + 2019… Last ½ FY 2018 through the First ½ FY 2020
Calculation method	Follows the protocols set out in the relevant third party reporting

	program
Monitoring Equipment	Calendar

Data Unit / Parameter	ΔE_y
Data unit	tCO_2e
Description	Incremental scope 2 electricity emissions and scope 2 heat emissions, scope 2 cooling emissions and/or scope 2 steam emissions in project year y due to stationary combustion adjustment technologies
Equations	15, 16, and 22, VMD00038
Source of data	GHG reports submitted to third-party GHG reporting programs such as ACUPCC (now CLC), or generated through credible GHG reporting tools such as the CAPC calculator or The Climate Registry reporting protocols. Primary data from internal financial and facilities operational reviews, from which this parameter is calculated.
Description of measurement methods and procedures to be applied	Credible estimation approaches are allowed and sub-metering is not required. ΔE_y must be calculated consistent with calculations above for $E_{p=y}$ ΔE_y must be calculated by multiplying the incremental electricity consumed due to stationary combustion adjustment technologies in project year y by the appropriate grid emissions factor in project year y, then adding the incremental units of purchased heat, cooling and/or steam consumed due to stationary combustion adjustment technologies in project year y multiplied by an appropriate emissions factor. Emission factors must be consistent with those permitted under the third-party GHG reporting program, preferably consistent with those permitted under the CACP (now SIMAP) calculator. The default emissions factor is the regional eGRID combined margin. Other GHG emission factors should only be used if justification is provided that they are reasonable and conservative (e.g., factors tailored to the specific utilities from which campuses' electricity is sourced). In such cases, the factors must have been published by the utilities in year y or, if published previously, must be used for no more than three years of emission reductions (i.e., years y, y+1 and y+2, where y can be either a project year or a baseline year). Emissions factors for fuels must be consistent with those permitted under the third-party GHG reporting program.

Frequency of monitoring/recording	Annually
QA/QC procedures to be applied	The primary data is checked during internal financial and facilities operational reviews. The primary data is used to calculate the project and ACUPCC reports and is checked during the calculation review and report preparations.
Purpose of data	Calculation of project emissions
Comment	
Value monitored:	The values for each year are provided in the calculations of $PE\Delta_y$ found in section 4.2 below and whose calculation basis is detailed in the excel project template.
Calculation method	Follows the protocols set out in VMD0038
Monitoring Equipment	Calculated value derived from E_y consistent with estimations and sub-metering allowed under VMD0038. See excel template.

Data Unit / Parameter	$PSH_{b=x,}$ $PSH_{p=y}$
Data unit	tCO_2e
Description	Scope 2 emissions from purchased steam and/or heat emissions in the applicable year
Equations	16, 17 and 27, VMD00038
Source of data	GHG reports submitted to third-party GHG reporting programs such as ACUPCC (now CLC), or generated through credible GHG reporting tools such as the CAPC calculator or The Climate Registry reporting protocols. Primary data from financial and facilities operational reviews.
Description of measurement methods and procedures to be applied	$PSH_{b=x}$ or $PSH_{p=y}$ must be calculated by multiplying scope 2 emissions from purchased steam and/or heat in the relevant year by an appropriate grid emissions factor or emission factor for fuels used. Emission factors must be consistent with those permitted under the third-party GHG reporting program, preferably consistent with those permitted under the CACP (now SIMAP) calculator.
Frequency of monitoring/recording	Once per project crediting period
QA/QC procedures to be	The primary data is checked during financial and facilities

applied	operational reviews. The primary data is used to calculate the project and ACUPCC reports and is checked during the calculation review and report preparations.
Purpose of data	Calculation of project emissions
Comment	
Value monitored:	The values for each year are provided in the calculations of PE∆y found in section 4.2 below and whose calculation basis is detailed in the excel project template. BSU purchased no heat/steam during this monitoring period so values $PSH_{b=x,}$ $PSH_{p=y}$ are also zero.
Calculation method	Follows the protocols set out in the relevant third party reporting program
Monitoring Equipment	The underlying primary data for purchased heat and/or steam consumption is measured using standard industrial measures and equipment applied at the source of generation (offsite) consistent with supplied and invoiced energy services.

Data Unit / Parameter	$PC_{b=x,}$ $PC_{p=y}$
Data unit	tCO_2e
Description	Scope 2 emissions from purchased cooling in the applicable year
Equations	16, 18 and 27, VMD00038
Source of data	GHG reports submitted to third-party GHG reporting programs such as ACUPCC (now CLC), or generated through credible GHG reporting tools such as the CAPC calculator or The Climate Registry reporting protocols. Primary data from financial and facilities operational reviews.
Description of measurement methods and procedures to be applied	$PC_{b=x,}$ or $PC_{p=y}$ must be calculated by multiplying scope 2 emissions from purchased cooling in the relevant year by an appropriate grid emissions factor. Emission factors must be consistent with those permitted under the third-party GHG reporting program, preferably consistent with those permitted under the CACP (now SIMAP) calculator.

Frequency of monitoring/recording	Once per project crediting period
QA/QC procedures to be applied	The primary data is checked during internal financial and facilities operational reviews. The primary data is used to calculate the project and ACUPCC (now CLC) reports and is checked during the calculation review and report preparations.
Purpose of data	Calculation of project emissions
Comment	
Value monitored:	The values for each year are provided in the calculations of $PE\Delta y$ found in section 4.2 below and whose calculation basis is detailed in the excel project template BSU purchased no cooling during this monitoring period so values $PC_{b=x,}$ $PC_{p=y}$ are also zero.
Calculation method	Follows the protocols set out in the relevant third-party reporting program
Monitoring Equipment	The underlying primary data for purchased cooling consumption is measured using standard industrial measures and equipment applied at the source of generation (offsite) consistent with supplied and invoiced energy services.

4.3 Monitoring Plan

I. QC/QA STRUCTURE:

Business Affairs Oversight

As Associate Vice President for Facilities Planning and Management, Mr. Jim Lowe, PE is the responsible party for operations of the entire campus infrastructure including the High Voltage Electrical Substations, the Boiler Plant, the District Energy Stations, the Utility Distribution Systems and the import of Combustible Fuels and Grid-based Electricity.

Reporting to Mr. Lowe was a position titled Utility Engineer. That individual and Mr. Lowe are licensed professional engineers in Indiana. The Utility Engineer is responsible for the management of the supervisors of the Boiler Plant and Energy Stations noted above. Prior to the March 2014 shut down of the steam-producing coal-fired boilers, the Boiler Plant combusted coal and natural gas; and only on an emergency basis, fuel oil. The supervisor of the Boiler Plant routinely provides day-to-day reports on fuel use in each and every boiler.

In addition, Mr. Lowe has a group of three engineers, two of whom are licensed professional engineers in Indiana. This group is responsible for maintaining the main electrical meters at each substation, maintaining the (47) individual building electrical meters, and providing the weekly, monthly and annual reports on electricity consumption.

In addition Mr. Lowe has a staff person who receives invoices from our utility providers, I&M Electric, Vectren Energy, and Peabody Energy. This individual compares the invoices to the

data in the monthly energy reports compiled by the engineering group. *This checks-and-balances practice enables us to flag and resolve erroneous meter readings.*

Academic Affairs Oversight:
As Director of the Center for Energy Research, Education, Service, Mr. Robert J. Koester, AIA, LEED AP is a registered architect and the institutional liaison charged with filing of public reports on university sustainability activities with the American College and University Presidents Climate Commitment (ACUPCC) – *[newly rebranded as the Climate Leadership Commitment]* and the Sustainability Tracking Assessment Rating System (STARS) as well as the Carbon Credit Transaction Reporting to Second Nature as agent for the transaction of our carbon reductions in the Voluntary Carbon Market.

This latter protocol involves production of an initial Project Description Document and annual Monitoring Reports.

II. GREENHOUSE GAS/PROJECT DATA MANAGEMENT/MONITORING PROCESSES

Electricity:
We measure electrical use by kilowatt-hour in each major building on campus, and at each of the two incoming high voltage substations which BSU owns and operates. This information allows us to aggregate building-by-building metered data and the main substation metered data for comparison to that invoiced by our provider, I&M. *This checks-and-balances practice enables us to flag and resolve erroneous meter readings.*

Coal:
When we burned coal we received a load sheet from the trucking company for each and every load. Each truck would be weighed by a scale calibrated by the Indiana Division of Weights and Measures. The coal delivered was measured in pounds, or short tons. Once we received the load sheets, we totaled them.

Originally, in the Boiler Plant our four-boiler coal loader, referred to as a weigh lorry, contained a scale that allowed us to record every pound of coal that was dumped into each respective boiler. The boiler coal loader scale was calibrated annually. This information was used in total form for comparison with load sheets. *This checks-and-balances practice enabled us to flag and resolve erroneous meter readings.*

The coal loader scale data was totalized and reported to the Indiana Department of Environmental Management (IDEM) for use along with an average analysis of the components in our delivered coal to determine the Title V operating permit fees.

Gas:
We receive natural gas through what is referred to as a rate 260 purchase. This is due to the large volumes purchased. The purchase is measured in dekatherms. A dekatherm is equal to 1,000,000 BTUs or 1,000 cubic feet. [We adjust this later using the 1.028 multiplier]

We buy natural gas through a broker much like one would buy stock. The natural gas is in fact priced through the NYMEX. Our natural gas comes from the Henry Hub and is delivered to the city gate which is owned by Vectren. Our broker is Constellation; formerly named ProLiance Energy. The natural gas is received at one meter located prior to entering the boiler plant pipe lines. Vectren meters and accumulates this information electronically. We meter the natural gas use at each of our three natural-gas-fired boilers, totalize and use the information to compare to Vectren's metered data. *This checks-and-balances practice enables us to flag and resolve erroneous meter readings.*

Determining Project Boundary:
In determining the boundary of application of Greenhouse Gas emissions at Ball State University, it has been necessary for us to isolate that portion of annual steam production

which is sold to the privately-held hospital adjacent to the university. Mr. Lowe's staff maintains records of the daily/monthly/annual steam production from the campus heat plant and the daily/monthly/annual amount of said steam production which is sold to the hospital. As a result, the total Greenhouse Gas emissions attributable to the campus is determined using the pro-rated split in pounds of steam produced for the campus as distinct from the pounds of steam sold to the hospital.

GHG Calculations:
Ball State University uses the Clean Air Cool Planet (CACP; now SIMAP) calculator as the preferred/approved means of determining CO_2e emissions. This calculator was recommended by ACUPCC (now CLC) and STARS, and has been approved as a preferred methodology by Verified Carbon Standard (VCS). Within the calculator, we are able to select our electric utility region and associated conversion factors for Scope 2 CO_2e emissions. Thus the Greenhouse Gas Emissions reported to ACUPCC (now CLC) and STARS align with those recognized for use in the VCS project templates.
Data Management:
The cross-checked utility data provided by Mr. Lowe and his staff are used by Mr. Koester to load into the Clean Air Cool Planet (now SIMAP) spread sheets. These numbers are then cross-checked by Mr. Lowe and Mr. Koester to confirm that the public reporting using CACP (now SIMAP) is consistent with the utility records of the university. *This checks-and-balances practice enables us to flag and resolve erroneous data entry.*

We also make use of the Clean Air Cool Planet (now SIMAP) tool to indicate those credits that are transacted to third parties such as we did previously with BEF as agent for the Chevrolet Carbon Reduction Initiative. These values are entered into the CACP (now SIMAP) calculator as a "negative value" for offsets "purchased" which thereby adjusts the total Greenhouse Gas Emissions attributable to the campus for that given year for purposes of climate neutrality reporting. This assures that the ACUPCC (now CLC) and STARS public data reporting corresponds to the project data inputs and assumptions used in the VCS templates.
All records reported on the public websites of ACUPCC (now CLC) and STARS will remain public under the auspices of those reporting organizations; all BSU records of project credit sales will be maintained within the institution for at least ten years to correspond to the duration of the carbon reduction transaction authorized through the VCS-approved methodology.
Beyond the previously-executed transactions with BEF on behalf of Chevrolet, current and future transactions in the carbon market will continue to follow the same protocols for reporting as such transactions are registered in credible carbon registries.

NOTE
The Excel project template issued by VCS was originally affirmed during validation by Det Norske Veritas (DNV) as corresponding to the requirements that the methodology lays out for project reviews/credit accounting—and draws upon the VCS-monitored parameters in an appropriate fashion. We will continue using these tools for each year of any credit calculations that are to be transacted in the carbon market.

III. INTERNAL AUDITING/CROSS-CHECKING/QA/QC PROCESSES:

Cross-checking of the VCS Project/Greenhouse Gas accounting was provided by the following:

- Public Greenhouse Gas Reporting through ACUPCC (now CLC) and STARS includes stakeholder/peer review to establish/maintain due diligence of processes and accepted practices for accountability;
    - Internal auditing and cross-checking among team members under the direction of Mr. Lowe and Mr. Koester assures that all inputs and calculations are consistent with that established practice, the criteria of VCS templates, CACP (now SIMAP) calculator requirements and ACUPCC/STARS reporting;
    - Utility data are randomly sampled for comparison with entries into the CACP (now SIMAP) calculator to assure that the monthly/annual data entry corresponds to the monthly/annual data reported as inputs to the CACP (now SIMAP) calculator;
    - For fiscal years 2012, 2013, 2014, an informal consultation with BEF, Climate Neutral Business Network (CNBN), and representatives of Chevrolet were especially helpful as

Ball State University worked with these groups to help pilot the methodologies and processes by which such public reporting and carbon market transactions can be undertaken by the higher education sector;

- We anticipate that similar informal consultation will continue to occur with other potential carbon brokers and/or purchasers of carbon reduction credits;
- The internal cross-checking of data also remains integral to the other mandated public recording such as the internal and external auditing of our Title V reports; and, finally
- The university conducts annual financial audits at the close of each fiscal year to insure consistency and accuracy of reporting of all budgetary transactions; this review includes internal checking of invoicing for utility purchases and includes documentation of those carbon reductions/carbon credits created — including receipt of payments for transacted credits.

IV. SUPPLIER INFORMATION/FUEL MIX/SAMPLE INVOICES

Ball State University routinely will continue to provide to external validators/verifiers all necessary supporting documentation requested including utility purchasing/invoice data, consistent with sampling procedures mandated by the selected validator/verifier.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

The accompanying campus excel template sheet, supplied separately to verifiers, contains all the required calculations which Applicant believes are needed for section 4 and 2.1 above to demonstrate whether and how the additionality performance tests are satisfied and how the baseline, project emissions and project Emission Reductions are established. In the best judgment of the campus, this excel template accurately provides all relevant data and parameters on a reproducible basis to establish the project's performance in these regards, indexing clearly to the numbered equations applicable in VMD0038.

For stationary 1 and scope 2 electricity GHG calculations, specify the version of CACP (SIMAP) calculator which has consistently been used to generate BEy, PEy, LEy and ERy (tCO2e)

Project year 1
Project year 2
Project year 3
Project year 4
Project year 5
Project year 6
SIMAP Project year 7
SIMAP Project year 8
SIMAP Project year 9
Project year 10

Beyond any automatic changes derived from the use of different versions of the CACP(SIMAP) calculator as described above (e.g. vs 6.9 compared to vs 7.0 compared to vs 8.0), are there any other changes in the project data as submitted for later project year credit verification which have been made (e.g. to earlier year data)?

☐ *Yes* ☒ *No*

5.1 Baseline Emissions

For **FY 2018, FY 2019, FY 2020** (where applicable) using the version of CACP (SIMAP) calculator consistently described above:

For stationary 1 reductions, BE 65,781

For years 2012 using CACP tCO2e
For years 2013 using CACP tCO2e

For years 2014	using CACP		tCO2e
For years 2015	using CACP		tCO2e
For years 2016	using CACP		tCO2e
For years 2017	using SIMAP v 1.0		tCO2e
For years 2018	using SIMAP v 1.0	61,239	tCO2e (Halved below for half-year CY crediting for project year 7 in BE_7)
For years 2019	using SIMAP v 1.0	60,443	tCO2e (Halved below and half-years applied across CY crediting for project years 7 and 8 in $BE_{7/8}$)
For years 2020	using SIMAP v 1.0	59,657	tCO2e (Halved below for half-year CY crediting for project year 8 in BE_8)
For years	using CACP		

For scope 2 electricity reductions, BE N/A

For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e
For years	using CACP	N/A	tCO2e

Based on equations 13/24 (stat 1/scope 2):

$$BE_y = BE * (1 - 0.013)\text{^}(y - 1)$$

For stationary 1, BEy (tCO2e)

	Project year 1 using CACP vs
	Project year 2 using CACP vs
	Project year 3 using CACP vs
	Project year 4 using CACP vs
	Project year 5 using CACP vs
	Project year 6 using SIMAP v 1.0
30,620	Project year 7 **half**-year using SIMAP v 1.0
60,443	Project year 8 **full**-year using SIMAP v 1.0
29,829	Project year 9 **half**-year using SIMAP v 1.0
	Project year 10 using CACP vs

For scope 2 electricity, BEy (tCO2e)

N/A	Project year 1 using CACP vs
N/A	Project year 2 using CACP vs
N/A	Project year 3 using CACP vs
N/A	Project year 4 using CACP vs
N/A	Project year 5 using CACP vs
N/A	Project year 6 using CACP vs
N/A	Project year 7 using CACP vs
N/A	Project year 8 using CACP vs
N/A	Project year 9 using CACP vs
N/A	Project year 10 using CACP vs

5.2 Project Emissions

For **FY 2018, FY 2019, FY 2020** (as applicable) using the version of CACP (now SIMAP) calculator consistently described above:

For stationary 1, PEy (tCO2e)		Project year 1 using CACP vs
		Project year 2 using CACP vs
		Project year 3 using CACP vs
		Project year 4 using CACP vs
		Project year 5 using CACP vs
		Project year 6 using SIMAP v 1.0
	9,443	Project year 7 **half**-year using SIMAP v 1.0 (Half-year crediting for project year 7 in PE_7)
	18,946	Project year 8 **full**-year using SIMAP v 1.0 (Two FY half years applied to CY crediting for project years 7 & 8 in $PE_{7/8}$)
	7,038	Project year 9 **half**-year using SIMAP v 1.0 (Half-year crediting for project year 8 in PE_8)
		Project year 10 using CACP vs
For scope 2 electricity, PEy (tCO2e)	N/A	Project year 1 using CACP vs
	N/A	Project year 2 using CACP vs
	N/A	Project year 3 using CACP vs
	N/A	Project year 4 using CACP vs
	N/A	Project year 5 using CACP vs
	N/A	Project year 6 using CACP vs
	N/A	Project year 7 using CACP vs
	N/A	Project year 8 using CACP vs
	N/A	Project year 9 using CACP vs
	N/A	Project year 10 using CACP vs

For all FY years, using the appropriately generated GHG figures as above with SIMAP 1.0 for **FY 2018, FY 2019 and FY 2020** (as applicable):

Do any of the EE measures require PE adjustments? ☒ Yes ☐ No

If yes, resulting $PE\Delta_y$ for project year y (tCO_2e)		[$PE\Delta_1$ for project year 1]
		[$PE\Delta_2$ for project year 2]
		[$PE\Delta_3$ for project year 3]
		[$PE\Delta_4$ for project year 4]
		[$PE\Delta_5$ for project year 5]
		[$PE\Delta_5$ for project year 6]
	6,534	[$PE\Delta_7$ for project **half-**year 7] (Based on half-year crediting for project year 7 in PE_7)
	17,770	[$PE\Delta_8$ for project **full**-year 8] (Two FY half-years applied to CY crediting for project years 7 & 8 in $PE_{7/8}$)
	4,901	[$PE\Delta_9$ for project **half**-year 9] (Half-year crediting for project year 8 in PE_8)
		[$PE\Delta_{10}$ for project year 10]

5.3 Leakage

Project leakage is set at zero for all project years y:

Resulting LEy for project year y (tCO2e)	0 LE_y for all project years y

5.4 Net GHG Emission Reductions and Removals

For **CY 2018, CY 2019** (as applicable) using the relevant (SIMAP) generated results as described above:
For stationary 1 reductions:

Years	Baseline emissions or removals (tCO_2e) BE_y	Project emissions or removals (tCO_2e) PE_y	PE Adjustment emissions (tCO_2e) $PE\Delta_y$	Sq ft adjustment factor $SF\Delta_y$	Actual net GHG emission reductions or removals (tCO_2e) ER_y
Project Year 1					
Project Year 2					
Project Year 3					
Project Year 4					
Project Year 5					
Project Year 6					
Project Year 7 2nd ½ Fiscal Year 2018 (01 Jan 2018 – 30 Jun 2018)	30,620	9,443	6,534	1	14,643
Project Year 8 Full Fiscal Year 2019 (01 Jul 2018 - 30 Jun 2019)	60,443	18,946	17,770	1	23,727
Project Year 9 1st ½ Fiscal Year 2020 (01 Jul 2019 - 31 Dec 2019)	29,829	7,038	4,901	1	17,890
Project Year 10					
Total for this Monitoring Period Only (01 January 2018-31 December 2019)	120,892	35,427	29,205	N/A	~~56,260~~ 56,096 (deducts 164 for 2017 reporting error)
[**CY 2018**]	60,841	18,916	15,419		26,342
[**CY 2019**]	60,051	16,511	13,786		29,754

For scope 2 electricity-based reductions:

Years	Baseline emissions or removals (tCO_2e) BE_y	Project emissions or removals (tCO_2e) PE_y	PE Adjustment emissions (tCO_2e) $PE\Delta_y$	Sq ft adjustment factor $SF\Delta_y$	Actual net GHG emission reductions or removals (tCO_2e) ER_y
Project Year 1					
Project Year 2					
Project Year 3					
Project Year 4					
Project Year 5					
Project Year 6					
Project Year 7					
Project Year 8					
Project Year 9					
Project Year 10					
Total for this Monitoring Period (only)					

If both stationary 1 and scope 2 electricity reductions are sought, total project ERy (their sum) for each project year and for the total monitoring period following this same chart format, comprises:

Years	Baseline emissions or removals (tCO2e) BEy	Project emissions or removals (tCO2e) PEy	PE Adjustment emissions (tCO2e) PE∆y	Sq ft adjustment factor SF∆y	Actual net GHG emission reductions or removals (tCO2e) ERy
Total Project Year 1					
Total Project Year 2					
Total Project Year 3					
Total Project Year 4					
Total Project Year 5					
Total Project Year 6					
Total Project Year 7					
Total Project Year 8					
Total Project Year 9					
Total Project Year 10					
Total For This Monitoring Period					

APPENDIX A: CAMPUS MAP REFLECTING PROJECT BOUNDARY