# **ENERGY SERVICES AGREEMENT** by and between **Tarleton State University** and AMERESCO, INC. Effective upon final signature

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#### **ENERGY SERVICES AGREEMENT**

**THIS ENERGY SERVICES AGREEMENT** (this "Agreement") shall become effective upon final signature by and between Tarleton State University, having its principal place of business located at 1333 W. Washington, Stephenville, Texas 76402 ("Customer") and Ameresco, Inc., having its principal place of business at 2375 E. Camelback Road, Suite 400, Phoenix, Arizona 85016 ("Ameresco"). The Customer and Ameresco may be collectively referred to as the "Parties" and individually as a "Party."

WHEREAS, Customer wishes Ameresco to perform a project ("*Project*") consisting of certain energy conservation services and installations as set forth in <u>Attachment B</u> (as amended and/or otherwise modified from time to time as provided herein, the "*Scope of Services*") at Customer's facilities described in Attachment A (the "*Property*"), and Ameresco wishes to perform such services; and

**WHEREAS**, the Property is owned by the Board of Regents of The Texas A&M University System (sometimes hereinafter referred to as the "*Board*") and has been assigned to Customer.

**NOW, THEREFORE,** in consideration of the covenants, representations, warranties, and mutual promises and agreements contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

#### **SECTION 1** Scope of Services.

- (a) Work:
  - (i) Preconstruction Services: Ameresco has performed an Investment Grade Audit ("IGA") of the Property, dated as of November 13, 2020 as referenced in <a href="Attachment B"><u>Attachment B</u></a>. Ameresco will also assist Customer in obtaining financing for the Project.
  - (ii) Construction Work: Upon Ameresco's receipt of (i) the Notice To Proceed (as defined in Section 4), Ameresco shall furnish all labor, materials and equipment and perform all work required for the completion of the Scope of Services including the installation of the energy conservation measures as set forth in <a href="Attachment B">Attachment B</a> (the "ECMs"). Customer and Ameresco shall mutually plan the scheduling of the construction work. The construction work will be planned to minimize the interruption of the daily routine of Customer's staff and students except as permitted in writing by Customer.
  - (iii) The Texas A&M University System Office of Facilities Planning and Construction (FPC) shall manage the Scope of Work identified in Section (a) (ii) above and shall work with Ameresco and Customer regarding coordination of Ameresco's duties under this Scope of Work.
  - (iv) Ameresco shall utilize TAMUS's project management software application e-Builder® as the primary system for all project documentation through all phases of the Scope of Work. Contractor shall follow TAMUS's guidelines on the use of e-Builder®.
  - (v) Construction submittals shall be reviewed and approved by designers engaged by Ameresco for the project, with input by FPC, prior to final approval and installation
  - (vi) Ameresco shall assign a site superintendent to manage the Work and serve as point of contact for FPC.

(b) Disposal: Ameresco, at its cost, shall (i) be responsible for disposal of all non-hazardous equipment and materials which are rendered useless and removed as a result of the installation of the ECMs and (ii) cause all lamps which are classified as hazardous wastes by the rules and regulations of the U.S. Environmental Protection Agency (40 CFR Parts 260 through 279) and PCB-contaminated ballasts, if any, which have been rendered useless and removed as a result of the installation of the ECMs to be transported and disposed of. All other existing PCB- contaminated ballasts, lamps and any other hazardous materials, however, shall remain the sole responsibility of Customer and Ameresco shall assume no liability whatsoever in connection with their removal, transportation and disposal.

#### (c) Asbestos and Lead Paint:

- (i) Asbestos: The Scope of Services is predicated on the viability of the Project without Ameresco encountering or disturbing asbestos or being required to perform any asbestos abatement or taking any other action with respect to asbestos. Under no circumstances, shall Ameresco be required to handle asbestos. Customer hereby represents to Ameresco that, to the best of its knowledge and belief, there is no asbestos in any area wherein Ameresco will be performing its services hereunder. In the event that Ameresco: (A) encounters any friable or non-friable asbestos which is in the immediate vicinity of its work, (B) determines that its work will result in the disturbance of asbestos material, or (C) determines that the presence of asbestos material will impede its work, Ameresco will notify Customer of the same and Customer will, at its cost, cause the asbestos to be promptly and properly removed, enclosed, encapsulated or otherwise abated in accordance with all applicable laws, regulations and guidelines, or alternatively, Customer, at its cost, may provide written test reports showing that asbestos in such area has been properly removed, enclosed encapsulated or otherwise abated in accordance with all applicable laws. In the event that Ameresco cannot determine whether any particular material does or does not contain asbestos, Customer, upon Ameresco's written request, shall, at Customer's cost, promptly perform tests or cause tests to be performed in order to determine whether or not such material contains asbestos and/or whether there are unacceptable levels of airborne particulate material containing asbestos and provide such test reports to Ameresco. In the event Ameresco encounters asbestos which materially affects its progress of the Project, Ameresco, at its option, may demobilize and cease construction in the area affected by the presence of such asbestos until such time as Customer performs the actions required to be performed by Customer as provided herein. In the event that Customer does not promptly take action, as provided herein, or notifies Ameresco that it will not take such action, Ameresco may, at its option, either remove the affected area from the Scope of Services (and make commensurate adjustments to the rights and obligations of the Parties) or terminate this Agreement in its entirety in accordance with Section 12(a). Customer shall be responsible for all costs (including termination) incurred by Ameresco that relate to the presence of asbestos.
- (ii) Lead Paint: The Scope of Services is predicated upon the viability of the Project without Ameresco encountering or disturbing lead paint or being required to perform abatement or providing any notice or taking any other action with respect to lead paint. Under no circumstances, shall Ameresco be required to perform services which cause the disturbance of lead paint. Customer hereby represents to Ameresco that, to the best of its knowledge and belief, that there is no lead paint

in any area wherein Ameresco will be performing its services hereunder. In the event that Ameresco encounters any paint in any area where it is to perform services hereunder, which services will involve disturbing paint and Ameresco reasonably believes that such paint may be lead paint or such services will involve disturbing paint which is in a building constructed prior to 1978, Customer, upon Ameresco's written request, will, at Customer's cost, promptly perform tests or cause tests to be performed in order to determine whether or not such paint contains lead and will provide such test reports to Ameresco. In the event that such test reports demonstrate the presence of lead paint or Ameresco reasonably believes that performing its services under this Agreement is likely to cause the disturbance of lead paint in such a manner as to require Ameresco to provide any notification or take any actions pursuant to any federal, state or local laws, rules, regulations or guidelines and Ameresco notifies Customer of the same, Customer will, in either case, at its cost, cause the lead paint to be promptly and properly removed, or otherwise abated in accordance with all applicable laws and regulations. In the event that lead paint materially affects the progress of the Project, Ameresco, at its option, may demobilize and cease construction in the area affected by the presence of lead paint until such time as Customer performs the actions required to be performed by Customer as provided herein. In the event that Customer does not promptly take action as provided herein or notifies Ameresco that it will not take such action, Ameresco may, at its option, either remove the affected area from the Scope of Services (and make commensurate adjustments to the rights and obligations of the Parties) or terminate this Agreement in its entirety in accordance with Section 12(a). Customer shall be responsible for all costs (including termination) incurred by Ameresco that relate to the presence of lead paint.

- (d) Maintenance and Measurement and Verification: To the extent provided for in Attachment I, Ameresco will service and maintain during the Term (as defined in Section 5) the equipment scheduled on Attachment I, at a cost to Customer as set forth in Section 4 and Attachment G. Except for the ECMs (or other equipment) which are to be maintained by Ameresco, Customer, at its expense, shall be responsible for servicing and maintaining the ECMs (and such other equipment). To the extent provided for in Attachment M, Ameresco will supply such ongoing measurement and verification services during the Term at a cost to Customer as set forth in Section 4 and Attachment G.
- (e) Compliance with Law: Ameresco shall, at its expense, comply with and obtain all applicable licenses and permits required by federal, state and local laws in connection with (i) the installation of the ECMs and (ii) the operation and/or maintenance of the ECMs (to the extent that Ameresco agrees to perform such operations and/or maintenance services). In the event that Ameresco cannot procure any such license or permit in light of a requirement that Customer is required to do so, Customer shall promptly procure the same. Ameresco shall pay the required prevailing wage rates for work in connection with the Project pursuant to the Texas State Labor Law.
- (f) Taxes: Customer hereby represents to Ameresco that Customer is a governmental entity and that it shall cooperate with Ameresco and provide Ameresco with all appropriate documentation so that Ameresco may establish that it does not have to pay taxes, fees and assessments or other charges of any character which may be imposed or incurred by any governmental or public authority as an incident to title to, ownership of, or operation of the ECMs.

- (g) Non-Discrimination: Ameresco agrees not to knowingly or willfully discriminate against any employee, or applicant for employment, to be employed in the performance of this Agreement, with respect to hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of age, sex, sexual orientation, race, disability, color, religion, national origin, Vietnam era military service or ancestry in accordance with applicable federal, state or local laws.
- **Standards of Service and Comfort:** Customer shall operate the ECMs in a manner that shall provide the standards of service and comfort provided for in Attachment K.
- (i) Installation/Specifications: Prior to the commencement of work hereunder, Ameresco may, at its option, provide (or Customer, at its option, may reasonably request to have Ameresco provide) a sample installation of, or written specification of, any ECM to be installed (each, a "Sample"). Customer shall furnish its written approval or disapproval of each Sample within ten (10) business days following Customer's receipt of Ameresco's written notice of installation and/or delivery of such Sample. Customer's approval of such Sample shall be in substantially the form of Attachment L. If Customer disapproves any such Sample, Ameresco shall have the right to provide a substitute specification or ECM (each, a "Substitution") which conforms to the applicable specifications or is equivalent to any applicable Sample previously approved by Customer. Upon Customer's written approval of a Substitution, Ameresco may revise the Attachments to reflect each such Substitution. If, however, Customer does not approve of any Substitution, the Parties hereby agree to negotiate a mutually acceptable solution. Customer shall not unreasonably withhold, condition or delay any approval provided for herein.

#### (j) Duties, Obligations and Responsibilities of Ameresco:

- (i) All labor furnished under this Agreement shall be competent to perform the tasks undertaken, all materials and equipment provided shall be new and of appropriate quality and the completed work shall comply in all material respects with the requirements of this Agreement and in a good and workmanlike manner.
- (ii) Ameresco shall maintain the Project site in a reasonably clean condition during the performance of the construction work set forth in <u>Section 1(a)</u>.
- (iii) Ameresco shall regularly clean the Project site of all debris, trash and excess material or equipment.
- (iv) During the construction work set forth in <u>Section 1(a)</u>, Ameresco shall permit Customer and/or any of its representatives to enter upon the Project site to review or inspect the construction work; provided, that in each case, the Customer and/or its representatives coordinate such review or inspection with Ameresco and agree to comply with all applicable federal, state and local safety laws, rules and regulations, including, without limitation, those promulgated by the U.S. Department of Labor Occupational Safety & Health Administration.
- (v) Ameresco will provide equipment manuals and other appropriate information regarding equipment installed hereunder to Customer at or about the time of Substantial Completion (as defined in Section 4).

#### **SECTION 2** Ownership of and Security Interest in the ECMs.

Title to each ECM and other personal property installed or incorporated into the ECMs shall at all times during the Term remain in the name of Ameresco. Any provision in this Section to the contrary notwithstanding, ownership and title to an ECM shall automatically pass to Customer and Ameresco's security interest in such ECM shall be released and terminated, in each case without further action on either Party's part, upon Ameresco's receipt of both (i) the executed Substantial Completion Certificate (as defined in Section 4) for such ECM and (ii) the indefeasible payment in full of all of Customer's payment obligations to Ameresco for such ECM.

#### **SECTION 3** Financing.

(a) Texas A&M University System Revenue Financing System:

Funding for the project will be provided from the Texas A&M University System Revenue Financing System with the energy savings used to pay debt service.

The Parties anticipate that the Annual Energy Cost Savings (as defined in Attachment F) **(b)** guaranteed hereunder pursuant to Section 6, shall be not less than the Guaranteed Savings (as defined in Section 6(a)). If Customer does not issue a Notice to Proceed within sixty (60) days following the approval of the project by the Texas Higher Education Coordinating Board, any (i) changes in capital costs, (ii) changes in interest rates or (iii) other events, circumstances or developments cause or may have the effect of causing the Annual Energy Cost Savings to be less than the Guaranteed Savings, then the Parties agree to mutually and reasonably attempt to negotiate a reduction or modification of the applicable construction costs by removing components of the ECMs to be otherwise installed hereunder in order to ensure that the Annual Energy Cost Savings shall be no less than the Guaranteed Savings. If the Parties cannot agree to such reduction or modification, then Customer and Ameresco shall each have the option, exercisable upon written notice to the other Party, to terminate this Agreement. In that regard, Customer acknowledges and agrees that Ameresco has incurred and will incur further costs and expenses relating to the preconstruction services described in Section 1(a)(i). If Customer exercises such option to terminate this Agreement, Customer shall pay Ameresco \$182,715 in recognition of such preconstruction services.

#### **SECTION 4** Compensation and Monthly Progress Payments.

(a) For each month during the construction period of the Project following Customer's issuance to Ameresco of the notice to proceed substantially in the form of Attachment D (the "Notice to Proceed"), Customer shall make monthly progress payments to Ameresco based upon the percentage of the Project construction and equipment procurement completed at the end of each month. Ameresco shall be paid the same percentage of the Contract Cost as such percentage of completion. Following the end of each month, during the construction period of the Project, Ameresco will provide to Customer its payment requests to Customer through e-Builder® together with a list in sufficient detail to reasonably identify construction and equipment procurement during such month. Within thirty (30) days after receipt of such invoice, following Customer's review and acceptance of such invoice and detail such acceptance not to be unreasonably withheld, conditioned or delayed), Customer shall pay or cause to be paid to Ameresco the amount due under such invoice. Notwithstanding the foregoing, all invoices and payment shall comply with Texas Prompt Payment laws.

- (b) Within thirty (30) days following each successive twelve (12) month period beginning with the first day of the month following the date of the Final Delivery and Acceptance Certificate, Customer shall pay Ameresco the separate amounts provided for in <u>Attachment</u> G, if any, as an annual fee for measurement and verification services.
- (c) Within thirty (30) days following each successive twelve (12) month period beginning with the first day of the month following the date of the Final Delivery and Acceptance Certificate, Customer shall pay Ameresco the separate amounts set forth in <u>Attachment G</u>, if any, for maintenance (as described in <u>Attachment I</u>) and/or operations services, if any, as agreed by the Parties and to be performed or provided by Ameresco.
- (d) To the extent available and if Customer and Ameresco agree, Customer may purchase an extended warranty from Ameresco on certain portions of the equipment installed under this Agreement on mutually agreeable terms and conditions as set forth in Attachment G.
- (e) All amounts not paid to Ameresco on or before the due dates specified in Sections 4(a), (b), (c) and (d) shall accrue interest at the maximum rate permitted by law in the State of Texas for contracts of this type for the number of days following each such due date until such time as such amount due has been paid in full.
- (f) Upon Substantial Completion of the installation of an ECM (or portion thereof, as applicable), Ameresco will deliver to Customer a substantial completion certificate in the form of <a href="Attachment J">Attachment J</a> (the "Substantial Completion Certificate"). Within thirty (30) days after receipt of each Substantial Completion Certificate, Customer shall complete, execute and deliver to Ameresco each such Substantial Completion Certificate. A delivery and acceptance certificate in the form of <a href="Attachment E">Attachment E</a> (the "Final Delivery and Acceptance Certificate") shall be executed by Customer and delivered to Ameresco within five (5) business days after the Substantial Completion of the installation of all the ECMs under this Agreement. Customer shall not unreasonably withhold, condition or delay the execution and delivery of any Substantial Completion Certificate or the Final Delivery and Acceptance Certificate. As used in this Agreement, the term "Substantial Completion" shall mean that the subject ECM has been installed by Ameresco, and, if such ECM is equipment, such equipment is then operating in a manner such that Customer is deriving beneficial use thereof.

#### SECTION 5 Term.

The term of this Agreement (the "*Term*") shall begin on the date above first written and shall end on that date which is exactly twenty (20) years from the first day of the month following the date of Customer's execution of the Final Delivery and Acceptance Certificate, unless this Agreement is terminated prior to such date, as provided for in Section 12, 14 or 32. Anything in this Agreement to the contrary notwithstanding, Customer shall not be relieved of its obligation to pay Ameresco when due all amounts which accrued prior to such termination.

#### **SECTION 6** Guarantee of Energy Savings.

(a) Ameresco hereby represents and warrants to Customer that the amount of the Annual Energy Cost Savings (as defined in <u>Attachment F</u>) shall equal or exceed the "*Guaranteed Savings*" (as specified in Table 6(a) below), over the Term (the "*Guarantee of Energy Savings*")

Year	<b>Guaranteed Savings</b>
1	\$547,866
2	\$562,933
3	\$578,414
4	\$594,320
5	\$610,664
6	\$627,457
7	\$644,712
8	\$662,442
9	\$680,659
10	\$699,377
11	\$718,610
12	\$738,372
13	\$758,677
14	\$779,541
15	\$800,978
16	\$823,005
17	\$845,638
18	\$868,892
19	\$892,787
20	\$917,339

For purposes of the Guarantee of Energy Savings, the following assumptions and provisions shall apply:

- (i) Calculation of the Annual Energy Cost Savings, inclusive of energy savings and operational and maintenance cost savings, shall be performed under, and governed by, the methods, formulas, and procedures described in <u>Attachment M</u>.
- (ii) As it relates to the Annual Energy Cost Savings and the Guarantee of Energy Savings, the term "year" shall mean the consecutive twelve (12) month period beginning with the first day of the month following the date of the Final Delivery and Acceptance Certificate (the "Anniversary Date"), and each similar twelve (12) month period thereafter.
- (iii) The unit prices, including the escalation thereof, to be used to calculate the Annual Energy Cost Savings for the purposes of the Guarantee of Energy Savings are described in Attachment M.
- (iv) The Guarantee of Energy Savings herein is subject to Customer performing its maintenance and other obligations under this Agreement. Ameresco agrees as part of its responsibilities to provide O&M manuals from the equipment manufacturers and facilitate training sessions between equipment representatives and Customer representatives. Customer agrees to attend training sessions, perform maintenance and retain maintenance records for major equipment. If Customer fails to perform, or fails to properly perform, its obligations under this Agreement or interferes with, or permits any person to take any action which, in the reasonable opinion of Ameresco, prevents the achievement of the Annual Energy Cost Savings under the Guarantee of Energy Savings, then Ameresco may equitably adjust the Annual

Energy Cost Savings during the period wherein savings were affected to reflect the same. Ameresco shall notify Customer if Ameresco notices any maintenance deficiencies during the regular course of performing the M&V services, provided that Ameresco shall have no obligation to perform any maintenance or provide an in-depth inspection or investigation of Customer's maintenance in connection with such M&V services, and Ameresco's failure to notice and report any such condition to Customer shall in no event constitute an acceptance of the same or waiver of the right to adjust the baseline on Ameresco's part. Prior to making any such adjustment, Ameresco will notify Customer of the same and permit Customer a reasonable amount of time to establish, to Ameresco's reasonable satisfaction, based on Customer's accurate maintenance records, that the Annual Energy Cost Savings have not been adversely affected by the Customer's maintenance of the related equipment. If, following such review, Ameresco still feels that an adjustment to the baseline is warranted, Ameresco shall notify Customer of the same. If Customer objects to the proposed adjustment, the parties shall attempt to arrive at a mutually agreeable solution. If the parties are unable to do so, they shall proceed in accordance with the dispute resolution provisions of this Agreement. Ameresco's rights in this section shall not be in limitation of any other rights it possesses under this Agreement.

- (v) Ameresco will perform and submit to Customer a guarantee reconciliation ("Guarantee Reconciliation") upon the later of (i) one hundred twenty (120) days after each Anniversary Date and (ii) sixty (60) days after Customer delivers to Ameresco all utility billing and other data necessary for Ameresco's completion of the Guarantee Reconciliation. The Guarantee Reconciliation will include a calculation of the cumulative Annual Energy Cost Savings achieved in relation to the cumulative Guaranteed Savings for the period being reconciled.
- (vi) Ameresco hereby guarantees that if the cumulative Annual Energy Cost Savings realized by Customer as of any Anniversary Date, as detailed in the Guarantee Reconciliation, is less than the cumulative Guaranteed Savings as of such Anniversary Date, then Ameresco will pay to Customer that amount by which the cumulative Guaranteed Savings exceeds the cumulative Annual Energy Cost Savings, such payment to be made within sixty (60) days after the date of the Guarantee Reconciliation. Any such payments made by Ameresco shall be included in the cumulative Annual Energy Cost Savings total for purposes of future Guarantee Reconciliation calculations.

#### **SECTION 7** Access to Property.

During the Term, Customer shall provide Ameresco, its employees, agents and subcontractors access to the Property for the purpose of fulfilling Ameresco's obligations under this Agreement. Customer shall provide mutually satisfactory rent-free space for the installation and operation of the ECMs and shall protect such equipment in the same careful manner that Customer protects its own property.

#### SECTION 8 Changes in Work.

The quantity, quality, dimensions, type or other characteristics of the ECMs may be changed only by written consent of Customer and Ameresco by the execution of a change order form in the form of <u>Attachment H</u> (a "Change Order Form"). In addition, the Scope of Services may be reduced or expanded including,

without limitation, the addition or reduction of other energy efficiency measures and facilities not included within the ECMs scheduled on <u>Attachment B</u> by the execution and delivery of a Change Order Form.

#### **SECTION 9** Warranties.

- (a) Ameresco warrants that the design, engineering, and installation services it performs will be performed consistent with good engineering practices and that such work is warranted to be free from defects in materials and workmanship for a period of one (1) year from the date of execution of a Substantial Completion Certificate by Customer for such work. Any manufacturers' warranties which exceed this one (1) year period shall be assigned to Customer to the extent allowed by the manufacturer. Except as provided above, AMERESCO MAKES NO WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER STATUTORY, WRITTEN, ORAL OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO THE VALUE, DESIGN, AND CONDITION OR FITNESS FOR USE OR PARTICULAR PURPOSE OR MERCHANTABILITY, REGARDING THE EQUIPMENT, ECMS OR ANY SERVICES PROVIDED HEREUNDER.
- (b) Customer may purchase extended warranty coverage for equipment installed hereunder as provided in Section 4(d).

#### **SECTION 10** Customer Role and Responsibilities.

- (a) Operations: Customer shall operate the equipment installed hereunder in accordance with the manufacturers' recommendations and any supplemental procedures supplied to Customer by Ameresco.
- (b) Maintenance: Customer shall, at its expense, repair, operate and maintain the Property in good working order during the Term. Except as may otherwise be provided for in Attachment I, and subject to the provisions of Section 9(a) hereof, following the date of Substantial Completion of an ECM, Customer shall, at its expense, repair and maintain (i) the equipment and all other components which comprise the ECM and (ii) all other equipment which is attached thereto and/or is integral to the proper functioning of the ECM.
- **Malfunctions:** Customer shall notify Ameresco immediately in the event of any malfunction in the operation of the ECMs or the equipment installed hereunder.
- (d) Protection of ECM: Except in the case of emergency, Customer shall not remove, move, alter, turn off or otherwise significantly affect the operation of the equipment installed hereunder or the operation of the ECMs, or any individual part thereof, without the prior written approval of Ameresco, which approval shall not be unreasonably withheld. After receiving Ameresco's written approval, Customer shall proceed as instructed. Customer shall act reasonably to protect the ECMs from damage or injury, if, due to an emergency, it is not reasonable to notify Ameresco before acting. Customer agrees to protect and preserve the facility envelope and the operating condition of all ECMs, mechanical systems, and other energy consuming systems located on the Property.
- **Measurement System:** Customer shall not alter, move, modify or otherwise change the measurement and verification system or any component thereof without the prior written

consent of Ameresco unless such action is in accordance with operating procedures provided by Ameresco.

- **(f) Adjustment to Baseline:** If, in the reasonable opinion of Ameresco, Customer does not reasonably operate, maintain, repair or otherwise protect the ECMs and/or maintain the Property in good repair and good working condition, then Ameresco may equitably adjust the baseline, as referenced in <u>Attachment F</u>, for any increased energy usages at the Property.
- Changes to Property or Addition of Equipment: Customer shall notify Ameresco in writing at least thirty (30) days prior to making any change(s) to the Property that could reasonably be expected to have an effect on the energy usage at the Property including, without limitation, changes in (i) the hours, days or time of year that the Property is occupied or operated, (ii) the number of staff, faculty and students at the Property, (iii) the activities conducted at the Property and (iv) the equipment, the facilities, or the size of the Property. Customer shall notify Ameresco regarding increases, over time, in numbers and usage of "plug in" devices such as computers and printers. In the event that Ameresco receives such notification or otherwise determines that such a change has occurred, it will make the appropriate revisions to the Attachments or take such other action as may be provided for hereunder. Ameresco may also make retroactive adjustments where Customer has not provided timely notice and, in such instances, any payments made between the Parties shall be retroactively reconciled to reflect the changed baseline.
- (h) Energy Usage Data: If requested in writing by Ameresco, Customer shall provide to Ameresco, on a monthly basis during the Term (and in any event, within thirty (30) days of its receipt of the same), copies of all energy bills, energy usage data, and any and all other such documentation maintained by Customer, as requested by Ameresco, which is necessary for Ameresco to determine and satisfy all of its obligations under this Agreement.
- (i) Insurance and Risk of Loss or Damage: Ameresco acknowledges that, because Customer is an agency of the State of Texas, liability for the tortious conduct of the agents and employees of Customer or for injuries caused by conditions of tangible state property is provided solely by the provisions of the Texas Tort Claims Act (*Texas Civil Practice and Remedies Code*, Chapters 101 and 104), and that Workers' Compensation Insurance coverage for employees of Customer is provided by Customer as mandated by the provisions of Chapter 502, *Texas Labor Code*. Customer shall have the right, at its option, to (a) obtain liability insurance protecting Customer and its employees and property insurance protecting Customer's buildings and contents, to the extent authorized by Section 51.966, *Texas Education Code*, or other law, or (b) self-insure against any risk that may be incurred by Customer as a result of its operations under this Agreement.

Customer assumes all risk of loss of or damage to the ECMs from any cause whatsoever except to the extent that such loss or damage was caused by the negligence of Ameresco. Upon damage to any item of the equipment installed hereunder or the ECMs, Customer shall promptly notify Ameresco and immediately place the same in good repair with the proceeds of any insurance received applied to the cost of such repair. If Customer determines that any item of the ECMs are lost, stolen, confiscated, destroyed or damaged beyond repair, Customer shall replace the same with like equipment in good repair in a timely fashion.

If at any time after the date of the Final Delivery and Acceptance Certificate and after Customer's complete payment to Ameresco in accordance with Section 4(a), as such amount may be modified from time to time in accordance with this Agreement, any fire, flood, other casualty, or condemnation renders a majority of the Property incapable of being occupied and renders the ECMs or the equipment installed hereunder inoperable and, in the case of a casualty, the affected portion of such ECMs or equipment is not reconstructed or restored within one hundred twenty (120) days from the date of such casualty, Ameresco and/or Customer may terminate this Agreement by delivery of a written notice to the other Party. Upon such termination, Customer shall pay Ameresco any amounts, or pro-rata portions thereof, accrued under Sections 4(b), (c), (d) and (e) and Attachment G.

- (j) Telephone and Internet: Customer shall be responsible for installing and maintaining telephone lines and all associated costs, including internet/Ethernet charges, for the energy management system's telephone and communication lines. Ameresco may use Customer's LAN for the purposes of the energy management system.
- **Protection:** Customer shall at all times act reasonably to protect the ECMs from damage, theft or injury to the same extent and in the same manner in which it protects its other property.
- (l) Alteration: Customer shall not move, alter or change the ECMs in any way that causes a reduction in the level of efficiency or savings generated by any ECM or the equipment installed hereunder without obtaining Ameresco's prior written approval which shall not be unreasonably withheld.
- (m) Storage: Customer shall provide reasonable rent free space for Ameresco and/or its subcontractors, to mobilize and store their supplies, tools and equipment during installation of the ECMs or other activities by Ameresco within the Property pursuant to this Agreement for which such storage may be required. Only Ameresco and/or its subcontractors and Customer's assigned personnel shall have access to the storage. Customer assumes no responsibility nor will Customer provide any additional security for the storage provided.
- (n) Fuel: Customer shall procure and pay for all energy and fuel for the operation of the Property.

#### **SECTION 11** Defaults by Customer and Ameresco.

- (a) Customer shall be in default under this Agreement upon the occurrence of any of the following:
  - (i) Customer fails to pay from monies appropriated or approved by the Board and available for the purpose of this Agreement, as provided by Section 32 of this Agreement, when due any amount to be paid under this Agreement and such failure continues for a period of five (5) business days after notice of overdue payment is delivered by Ameresco to Customer; or

- (ii) any representation made by Customer in this Agreement or in any writing delivered by Customer pursuant hereto proves at any time to have been false, misleading or erroneous in any material respect as of the time when made; or
- (iii) Customer fails to perform or meet any of its required duties or obligations under this Agreement and fails to cure such failure and the effects of such failure within thirty (30) days of receipt of written notice of default, unless such failures and effects cannot be completely cured within thirty (30) days after said written notice, in which case a default shall exist only if Customer does not commence and diligently pursue to cure such failure and effects as soon as possible; or
- (iv) Customer goes into receivership or makes an assignment for the benefit of creditors whether voluntary or involuntary, or a petition is filed by or against Customer under any bankruptcy, insolvency or similar law and such petition is not dismissed within sixty (60) days.
- (b) Ameresco shall be in default under this Agreement upon the occurrence of either of the following:
  - (i) Ameresco fails to perform or meet any of its required duties or obligations under this Agreement and fails to cure such failure or effects of such failure within thirty (30) days of receipt of written notice of default, unless such failure or effects of such failure cannot be completely cured within thirty (30) days after said written notice, in which case a default shall exist only if Ameresco does not commence and diligently pursue to cure such failure as soon as possible; or
  - (ii) Ameresco goes into receivership or makes an assignment for the benefit of creditors whether voluntary or involuntary, or a petition is filed by or against Ameresco under any bankruptcy, insolvency or similar law and such petition is not dismissed within sixty (60) days.

#### **SECTION 12** Remedies for Defaults.

- (a) In the event Customer defaults under this Agreement, Ameresco may:
  - bring actions for any remedies available at law or in equity or other appropriate proceedings for the recovery of direct damages (including amounts past due), and/or bring an action in equity for specific performance; or
  - (ii) without recourse to legal process, Ameresco may terminate this Agreement by delivery of written notice of termination consistent with the notice provisions in Section 24 below.
- (b) In the event Ameresco defaults under this Agreement, Customer may terminate this Agreement and bring an action in law for direct damages.

#### **SECTION 13** Intentionally Omitted.

#### **SECTION 14** Termination.

At any time after the date of the Final Delivery and Acceptance Certificate, Customer may terminate this Agreement upon thirty (30) days prior written notice to Ameresco, provided that Customer has paid to

Ameresco all amounts due, subject to <u>Section 32</u>, as set forth in <u>Section 4</u> (including, without limitation, pro-rata portions thereof accrued under <u>Sections 4(b)</u>, (c), (d) and (e)) and on <u>Attachment G</u> (other than amounts due for future performance by Ameresco).

#### **SECTION 15** Insurance.

Ameresco shall obtain and maintain, for the duration of this Agreement or longer, the minimum insurance coverage set forth below. With the exception of Professional Liability (E&O), all coverage shall be written on an occurrence basis. All coverage shall be underwritten by companies authorized to do business in the State of Texas or eligible surplus lines insurers operating in accordance with the Texas Insurance Code and have a financial strength rating of A- or better and a financial strength rating of VII or better as measured by A.M. Best Company or otherwise acceptable to Customer. By requiring such minimum insurance, the Owner shall not be deemed or construed to have assessed the risk that may be applicable to Ameresco under this Agreement. Ameresco shall assess its own risks and if it deems appropriate and/or prudent, maintain higher limits and/or broader coverage. Ameresco is not relieved of any liability or other obligations assumed pursuant to this Agreement by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types. No policy will be canceled without unconditional written notice to Customer at least ten days before the effective date of the cancellation.

#### **Insurance:**

Cove	<u>rage</u>	<u>Limit</u>
(a)	Worker's Compensation	
	Statutory Benefits (Coverage A)	Statutory
	Employers Liability (Coverage B)	\$1,000,000 Each Accident
		\$1,000,000 Disease/Employee
		\$1,000,000 Disease/Policy Limit

Workers' Compensation policy must include under on the information page of the workers' compensation policy the state in which work is to be performed for TSU. Workers' compensation insurance is required, and no "alternative" forms of insurance will be permitted

(b)	Automobile Liability	
` '	Owned Vehicles	\$5,000,000
	Uninsured/Under insured Motorists	\$5,000,000
	Medical or PIP	\$5,000
	Non-owned Vehicles	\$5,000,000
	Hired Vehicles	\$5,000,000
(c)	Commercial General Liability	
. ,	Each Occurrence Limit	\$1,000,000
	General Aggregate Limit	\$2,000,000
	Products / Completed Operations	\$1,000,000
	Personal / Advertising Injury	\$1,000,000
	Damage to rented Premises	\$300,000
	Medical Payments	\$5,000
(d)	Umbrella/Excess Liability Insurance	\$5,000,000

The required commercial general liability policy will be issued on a form that insures Ameresco's or its subcontractors' liability for bodily injury (including death), property damage, personal and advertising injury assumed under the terms of this Agreement.

(e) Ameresco will deliver to Customer: Evidence of insurance on a Texas Department of Insurance approved certificate form verifying the existence and actual limits of all insurance after the execution and delivery of this Agreement and prior to the performance of any services by Ameresco under this Agreement. Additional evidence of insurance will be provided on a Texas Department of Insurance approved certificate form verifying the continued existence of all required insurance no later than thirty (30) days after each annual insurance policy renewal.

All insurance policies, with the exception of worker's compensation, employer's liability and professional liability will be endorsed and name The Board of Regents for and on behalf of The Texas A&M University System, The Texas A&M University System and Tarleton State University as Additional Insureds up to the actual liability limits of the policies maintained by Ameresco. Commercial General Liability and Business Auto Liability will be endorsed to provide primary and non-contributory coverage. The Commercial General Liability Additional Insured endorsement will include on-going and completed operations and will be submitted with the Certificates of Insurance.

<u>All insurance policies</u> will be endorsed to provide a waiver of subrogation in favor of The Board of Regents of The Texas A&M University System, The Texas A&M University System and Tarleton State University. No policy will be canceled without written notice to Tarleton State University at least ten days before the effective date of the cancellation. <u>All insurance policies</u> will be endorsed to require the insurance carrier providing coverage to send notice to Tarleton State University ten (10) days prior to the effective date of cancellation or non-renewal relating to any insurance policy required in this Section 11.

Any deductible or self-insured retention must be declared to and approved by Tarleton State University prior to the performance of any services by Ameresco under this Agreement. Ameresco is responsible to pay any deductible or self-insured retention for any loss. All deductibles and self- insured retentions will be shown on the Certificates of Insurance.

Certificates of Insurance and Additional Insured Endorsements as required by this Agreement will be delivered electronically, hand delivered, or 1st class mail to customer's Department of Contract Administration at 1333 W. Washington; Stephenville, TX 76402 – <a href="mailto:businessofc@tarleton.edu">businessofc@tarleton.edu</a>

The insurance coverage required by this Agreement will be kept in force until all services have been fully performed and accepted by Tarleton State University in writing.

Ameresco shall, after receipt of the Notice to Proceed and prior to the commencement of construction, deliver to Customer payment and performance bonds in a sum equal to the Contract Cost (the "Payment and Performance Bonds") with sureties licensed by the State of Texas and reasonably satisfactory to Customer. Such Payment and Performance Bonds shall be in form provided by Customer and shall be conditioned upon the faithful performance by Ameresco, for the implementation of the ECMs. The Payments and Performance Bonds shall only apply to the installation portion of this Agreement and do not apply in any way to energy savings guarantees, payments or maintenance provisions,

except that the performance bond shall guarantee that the installation will be free of defective materials and workmanship for a period of twelve (12) months following completion and acceptance of the work.

#### **SECTION 16** Indemnification.

Ameresco agrees to defend, indemnify and hold Customer harmless from and against any and all third party claims for damages arising by reason of bodily injury, death or damage to property caused by Ameresco's negligence (or the negligence of any sub-contractor hired by Ameresco) or willful misconduct. Ameresco, however, in no event shall be obligated to indemnify Customer to the extent that any injury or damage is caused by the negligence of Customer or any entity for which Customer is legally responsible.

#### **SECTION 17** Agreement Interpretation and Performance.

The interpretation and performance of this Agreement, and the interpretation and enforcement of the rights of the Parties hereunder, shall be construed in accordance with and governed by the laws of the State of Texas. In the event of any ambiguity or conflict in meaning, the terms of this Agreement shall not be construed against the drafting Party based upon that Party's having drafted this Agreement.

#### **SECTION 18** Privileged and Proprietary Information.

Ameresco's systems, means, cost, and methodologies of evaluating, implementing, accomplishing and determining energy savings and the terms of this Agreement for the Project shall be considered privileged and proprietary information. Customer shall use the same level of effort to protect and safeguard such information as it employs to safeguard its own confidential information. Customer shall not disclose such proprietary information without the express written consent of an officer of Ameresco unless required to do so by statute or regulation. When any request for disclosure of such information is made under any applicable freedom of information law (the "FOIL"), Customer shall provide prompt written notice to Ameresco such that Ameresco will have the opportunity to timely object under the FOIL should it desire to object to such disclosure of that information in whole or in part. In the event that Customer is required to make a filing with any agency or other governmental body, which includes such information, Customer shall notify Ameresco in order to permit Ameresco to seek confidential treatment of such information included within any such filing.

#### **SECTION 19** Severability.

Any term or provision of this Agreement that is declared invalid by any court of competent jurisdiction, shall not affect the validity or enforceability of the remaining terms and provisions of this Agreement.

#### **SECTION 20** Assignments and Subcontracting.

- (a) Ameresco may elect to use subcontractors and/or subconsultants in meeting its obligations hereunder.
- (b) Customer shall not assign, transfer, or otherwise dispose of, in whole or in part, this Agreement, the ECMs, or any interest therein, or sublet or lend the ECMs or permit the ECMs to be used by anyone other than Customer and Customer's employees without the prior express written consent of Ameresco (or, if applicable, the Lessor) such consent not to be unreasonably withheld, conditioned or delayed. If Customer transfers ownership or its interest in the Property, Customer shall terminate this Agreement in accordance with Section 14.
- (c) Ameresco shall not assign this Agreement, in whole or in part, to any other party without first obtaining the written consent of Customer, which consent shall not be unreasonably withheld, conditioned or delayed. The foregoing notwithstanding, Ameresco may assign, without the prior written consent of Customer, its (i) rights and obligations under this Agreement, in whole or in part, to any affiliated or associated company of Ameresco and (ii) rights for payments under this Agreement to any financial institution, lender or investor in connection with a leasing or financing arrangement for the ECMs. Ameresco will notify Customer ten (10) business days prior to any such assignment and Customer agrees to acknowledge receipt of such notice in writing within three (3) business days after such notice.

#### **SECTION 21** Waiver.

The failure of either Party to require compliance with any provision of this Agreement shall not affect that Party's right to later enforce the same. It is agreed that the waiver by either Party of performance of any term of this Agreement or of any breach thereof will not be held or deemed to be a waiver by that Party of any subsequent failure to perform the same or any other term or condition of this Agreement or any breach thereof.

#### **SECTION 22** Force Majeure.

Neither party will be in breach of its obligations under this Agreement (other than payment obligations) or incur any liability to the other party for any losses or damages of any nature whatsoever incurred or suffered by that other party if and to the extent that it is prevented from carrying out those obligations by, or such losses or damages are caused by, a Force Majeure, except to the extent that the relevant breach of its obligations would have occurred, or the relevant losses or damages would have arisen, even if the Force Majeure had not occurred. Force Majeure is defined as 1) acts of God; 2) war; 3) act(s) of terrorism; 4) fires; 5) explosions; 6) natural disasters, to include without limitation, hurricanes, floods, and tornadoes; 7) failure of transportation; 8) strike(s); 9) loss or shortage of transportation facilities; 10) lockout, or commandeering of materials, products, plants or facilities by the government or other order (both federal and state); 11) interruptions by government or court orders (both federal and state); 12) present and future orders of any regulatory body having proper jurisdiction; 13) civil disturbances, to include without limitation, riots, rebellions, and insurrections; 14) epidemic(s), pandemic(s), or other national, state, or regional emergency(ies); and 15) any other cause not enumerated in this provision, but which is beyond the reasonable control of the party whose performance is affected and which by the exercise of all reasonable due diligence, such party is unable to overcome. Notwithstanding the foregoing, a party's financial inability to perform its obligations shall in no event constitute a Force Majeure.

# In the event of a Force Majeure, this Agreement shall remain in effect but the affected Party's obligations shall be suspended for a period equal to the disabling circumstances, provided that:

- (a) the non-performing Party gives the other Party prompt written notice describing the particulars of the Force Majeure, including but not limited to the nature of the occurrence and its expected duration, and continues to furnish timely regular reports with respect thereto during the period of Force Majeure;
- (b) the suspension of performance is of no greater scope and of no longer duration than is required by the Force Majeure;
- (c) no obligations of either Party that arose before the Force Majeure causing the suspension of performance are excused as a result of the Force Majeure;
- (d) the non-performing Party uses reasonable efforts to remedy its inability to perform; and
- (e) the Term, upon written agreement of the Parties', shall be extended for a period equal to the number of days that the Force Majeure prevented the non-performing Party from performing.
- (f) Any decision by Customer to close or change the use of the facilities or ECMs at the Property shall not constitute a Force Majeure excusing Customer's performance under this Agreement.

#### **SECTION 23** Contract Documents.

- (a) Upon execution of this Agreement by both Parties, this Agreement and its Attachments (including the IGA attached as a part of Attachment B) shall constitute the entire Agreement between the Parties relating to the subject matter hereof, and shall supersede all proposals, previous agreements, discussions, correspondences, and all other communications, whether oral or written, between the Parties relating to the subject matter of this Agreement.
- **(b)** Section headings used herein are for the convenience of reference only and are not to be construed as a part of this Agreement.
- (c) This Agreement may not be modified or amended except in writing signed by the Parties.

#### **SECTION 24** Notices.

All notices, requests, demands, claims and other communications hereunder shall be in writing. Any notice, request, demand, claim or other communication hereunder (other than regularly scheduled payments) shall be deemed properly given or made upon receipt if delivered in person or sent by electronic facsimile with regular mail follow-up, or two business days after being deposited in the mail if sent by registered or certified mail, return receipt requested, postage prepaid, or the next business day if sent by overnight delivery service, in each case, addressed as follows:

#### **Tarleton State University**

1333 W. Washington Stephenville, TX 76402

Attention: Contract Administration

Facsimile: 254.968.9438

#### AMERESCO, INC.

111 Speen Street Suite 410

Framingham, MA 01701 Attention: Counsel

Facsimile: 508.661.2201

2375 E. Camelback Road

#### WITH COPY TO:

Box T-0120

Stephenville, TX 76402 Suite 400

Attention: Vice President for Phoenix, AZ 85016

Finance & Administration Attention: Robert Georgeoff

### The Texas A&M University System, Office of Facilities Planning and Construction

Billy C. Hamilton, Executive Vice Chancellor and Chief Financial Officer Office of Facilities Planning & Construction The Texas A&M University System 301 Tarrow Street, 2<sup>nd</sup> Floor College Station, Texas 77840-7896

With Copies to:

Peter Schmid, Executive Director Office of Facilities Planning & Construction The Texas A&M University System 301 Tarrow Street, 2<sup>nd</sup> Floor College Station, Texas 77840-7896

Either Party may change such address from time to time by written notice to the other Party.

#### **SECTION 25** Records.

To assist Ameresco in its performance of this Agreement, Customer shall (to the extent it has not already done so) furnish (or cause its energy suppliers and transporters to furnish) to Ameresco, upon its request, accurate and complete data (kept by Customer or Customer's energy suppliers and transporters in the regular course of their respective businesses) concerning energy usage for the existing facilities at the Property. Such records shall include, without limitation, the following data for the most current thirty-six (36) month period: (i) utility records; (ii) occupancy information; (iii) descriptions of any changes in building structure or heating, cooling or other systems or energy requirements; (iv) descriptions of all energy consuming or saving equipment used on Property; and (v) descriptions of all energy management procedures presently utilized. If requested by Ameresco, Customer shall also provide any prior energy analyses of the Property to the extent reasonably available.

#### **SECTION 26** Representations.

Each Party represents to the other that:

- (a) it has all requisite power, authority, licenses, permits and franchises, corporate or otherwise, to execute and deliver this Agreement and perform its obligations hereunder;
- (b) its execution, delivery and performance of this Agreement have been duly authorized by, and are in accordance with, as to Ameresco, its organic instruments and, as to Customer, by all requisite Board or other action and policies and regulations, and are not in breach of any applicable law, code or regulation;
- (c) this Agreement has been duly executed and delivered by the signatories so authorized, and constitutes its valid and binding obligation;
- (d) its execution, delivery and performance of this Agreement shall not result in a breach or violation of, or constitute a default under, any agreement, lease or instrument to which it is a party or by which it or its properties may be bound or affected;
- (e) it has not received any notice of, nor to the best of its knowledge there is no, pending or threatened violation of any applicable laws, ordinances, regulations, rules, decrees, awards, permits or orders which would materially adversely affect its ability to perform its obligations hereunder; and
- (f) the persons executing this Agreement are duly authorized to do so.
- (g) Customer represents to Ameresco that Customer has obtained all necessary governmental, legal, administrative and any other approval necessary for it to enter into this Agreement.

#### **SECTION 27** Independent Contractor.

Nothing in this Agreement shall be construed as reserving to Customer any right to exercise any control over or to direct in any respect the conduct or management of business or operations of Ameresco. The entire control or direction of such business and operations shall be in and shall remain in Ameresco, subject only to Ameresco's performance of its obligations under this Agreement. Neither Ameresco nor any person performing any duties or engaged in any work on the Property on behalf of Ameresco shall be deemed an employee or agent of Customer. Nothing in this Section shall be deemed to be a waiver of Customer of the right to use its property. Customer and Ameresco are independent of one another and shall have no other relationship relating to or arising out of this Agreement. Neither Party shall have or hold itself out as having the right or authority to bind or create liability for the other by its intentional or negligent act or omission, or to make any contract or otherwise assume any obligation or responsibility in the name of or on behalf of the other Party.

#### **SECTION 28** Additional Representations of Customer.

Customer hereby represents to Ameresco that:

- (a) Customer intends to continue to use the Property in a manner reasonably similar to its present use;
- (b) Customer does not intend to make any changes to the electrical and thermal consumption characteristics of the Property from those which existed during the base period except as may have been disclosed in writing by Customer to Ameresco prior to the date of this Agreement;
- (c) Customer has provided Ameresco with all records heretofore requested by Ameresco (and, in that regard, Ameresco acknowledges that it has received base period data from Customer which appear to be complete as of the date of this Agreement) and that the information set forth therein is, and all information in other records to be subsequently provided pursuant to this Agreement shall be, true and accurate in all material respects except as may be disclosed by Customer in writing;
- (d) Customer has not entered into any contracts or agreements for the Property with persons or entities other than Ameresco regarding the provision of the services referenced herein.
- (e) Since November 13, 2020 (the date of the IGA), there has been no change, event, circumstance or development that has or could reasonably be expected to have a material adverse effect on (i) the operation or condition of the Property, (ii) the energy usage at the Property, or (iii) the ability of Customer to perform its obligations hereunder.

#### **SECTION 29** Absence of Fraud or Collusion.

Ameresco hereby certifies, by its execution of this Agreement, that no official or employee of Customer or its Board has any direct or indirect interest in this Agreement or in the expected profits to arise hereunder, and that this Agreement is made in good faith without fraud or collusion with any other person involved in the bidding process.

#### SECTION 30 Negligent/Wrongful Acts.

It is understood and agreed that neither Party to this Agreement shall be liable for any negligent or wrongful acts, either of commission or omission, chargeable to the other, unless such liability is imposed by law, and

that this Agreement shall not be construed as seeking to either enlarge or diminish any obligation or duty owed by one Party against the other or against third parties.

#### **SECTION 31** Further Documents and Events.

The Parties shall execute and deliver all instruments and documents and perform all further acts that may be reasonably necessary to effectuate the provisions of this Agreement. Ameresco agrees to execute and deliver all documents reasonably required to release any lien held by Ameresco or its assignees upon the termination of this Agreement and payment of all amounts required to be paid by Customer to Ameresco pursuant to this Agreement. Customer agrees to execute and deliver all documents which may be required by an entity which provides funds for any financing contemplated herein and to cooperate with Ameresco in obtaining such funds. Customer agrees to execute and deliver all instruments and documents which may be required to obtain all licenses, permits and governmental approvals required by Ameresco for installation and operation of the ECMs. Ameresco's obligations hereunder are subject to obtaining all such required licenses, permits and governmental approvals.

#### **SECTION 32** Non-Appropriation.

- (a) This Agreement shall be deemed executory only to the extent of the monies appropriated by the Board and available for the purpose of this Agreement, and no liability on account therefore shall be incurred beyond the amount of such monies. This Agreement is not a general obligation of Customer. The full faith and credit of Customer is not pledged to the payment of any amount due or to become due under this Agreement. All pecuniary obligations of Customer are subject and subordinate to the timely payment of Parity Obligations issued or incurred pursuant to the Master Resolution Establishing The Revenue Financing System for the Texas A&M University System, adopted on November 19, 1990, as amended on September 17, 1993 and August 1, 1997. It is understood that neither this Agreement nor any representation by any public employee or officer creates any legal or moral obligation to request, appropriate or make available monies for the purposes of this Agreement. Notwithstanding the foregoing statutory provision, Customer hereby covenants and agrees to the following:
  - (i) Customer shall not engage any other party to perform the services described herein, or services similar to those described herein, during the Term.
  - (ii) Subject to applicable legal limitations, Customer shall take all necessary and timely action during the Term to obtain funds and maintain appropriations sufficient to satisfy its obligations under this Agreement (the "Obligations") including, without limitation, providing for the Obligations in each required budget submitted to obtain applicable appropriations, using its best efforts to obtain approval of such budget, and exhausting all available reviews and appeals in order to effectuate an appropriation sufficient to satisfy the Obligations.
- (b) Ameresco and Customer agree that upon the occurrence of all the events described in subparagraphs (i) through (iv) below (collectively, the "Non-Appropriation Occurrence") that Customer may terminate this Agreement in accordance with Section 14 (subject to said legal limitations), effective as of the first day of fiscal year (July 1 through June 30) for which funds have not been appropriated. The descriptions of the following events are not intended to impose requirements beyond the current term of the presently constituted Board but rather to set forth occurrences which give rise to the right of Customer to terminate this Agreement.
  - (i) An authorized governmental action, or non-action, of the Board, including a Board to be constituted in the future, shall have resulted in the lack of an appropriation of funds sufficient to satisfy the Obligations and Customer shall have provided Ameresco a true, correct and complete copy of a document describing such action.
  - (ii) Customer shall have exhausted all lawfully available funds and have no funds lawfully available from any other source to satisfy the Obligations.
  - (iii) Customer agrees to provide written notice to Ameresco of the governmental action resulting in the lack of appropriations of funds (as described in subsection (i)) within twenty (20) days of Customer's knowledge thereof.
- (c) If this Agreement is terminated following a Non-Appropriation Occurrence, Customer and Ameresco agree that during the Term (as would otherwise have been in effect): (i)

Customer shall not purchase, lease, rent, engage the services of an agent or independent contractor or otherwise pay for the use of a system or equipment performing functions or services similar to those performed by the ECMs installed pursuant to this Agreement and (ii) if Customer receives an appropriation of funds which permits Customer to purchase, lease, rent, engage the services of an agency or independent contractor, or otherwise pay for the use of a system or equipment performing functions or services similar to those performed by the ECMs installed pursuant to this Agreement, upon receipt of such funds such other obligations shall immediately be rescinded and Customer shall satisfy the Obligations then owed to Ameresco prior to Customer's appropriation of such funds for the purpose of paying any other payee(s).

#### **SECTION 33** Third Party Beneficiaries.

Except as may be specifically provided for in this Agreement, the Parties hereto do not intend to create any rights for, or grant any remedies to, any third party beneficiary of this Agreement.

#### **SECTION 34** Notifications of Governmental Action - Occupational Safety and Health.

The Parties agree to notify each other as promptly as is reasonably possible upon becoming aware of an inspection under, or any alleged violation of, the Occupational Safety and Health Act or any other provision of federal, state or local law rule or regulation relating in any way to the undertakings of either Party under this Agreement.

#### **SECTION 35** References.

Unless otherwise stated all references to a particular "Attachment" or to "Attachments" are to the referenced Attachment or Attachments which are attached to this Agreement and all such referenced Attachments are incorporated by reference within this Agreement. All references herein to a Section or subsection shall refer to a Section or a subsection, as the case may be, of this Agreement unless this Agreement specifically provides otherwise.

#### **SECTION 36** Delinquent Child Support Obligations.

A child support obligor who is more than 30 days delinquent in paying child support and a business entity in which the obligor is a sole proprietor, partner, shareholder, or owner with an ownership interest of at least 25 percent is not eligible to receive payments from state funds under an agreement to provide property, materials, or services until all arrearages have been paid or the obligor is in compliance with a written repayment agreement or court order as to any existing delinquency. The *Texas Family Code* requires the following statement be included in this Contract, which is certified by the signatory of the vendor hereto: "Under Section 231.006, *Texas Family Code*, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate."

#### **SECTION 37** Payment of Debt or Delinquency to the State.

Pursuant to Section 2252.903, *Texas Government Code*, Ameresco agrees that any payments owing to Ameresco under this Agreement may be applied directly toward certain debts or delinquencies that Ameresco owes the State of Texas or any agency of the State of Texas regardless of when they arise, until such debts or delinquencies are paid in full.

#### **SECTION 38** Franchise Tax Certification.

If Ameresco is a taxable entity subject to the Texas Franchise Tax (Chapter 171, *Texas Tax Code*), then Ameresco certifies that it is not currently delinquent in the payment of any franchise (margin) taxes or that Ameresco is exempt from the payment of franchise (margin) taxes.

#### **SECTION 39** Prohibited Bids and Agreements.

A state agency may not accept a bid or award a contract that includes proposed financial participation by a person who received compensation from the agency to participate in preparing the specifications or request for proposals on which the bid or contract is based. The *Texas Government Code* requires the following statement: "Under Section 2155.004, *Texas Government Code*, the vendor certifies that the individual or business entity named in this bid or contract is not ineligible to receive the specified contract and acknowledges that this contract may be terminated and payment withheld if this certification is inaccurate."

#### **SECTION 40** Former Employees.

Section 2252.901 of the *Texas Government Code* provides that a state agency may not enter into an employment contract, a professional services contract under Chapter 2254, or a consulting services contract under Chapter 2254 with a former or retired employee of the agency before the second anniversary of the last date on which the individual was employed by the agency, if appropriated money will be used to make payments under the contract.

#### **SECTION 41** Tax Exempt Status.

As an agency of the State of Texas, Customer is tax exempt. Tax exemption certification will be furnished upon request.

#### **SECTION 42 Products and Materials Produced in Texas.**

Ameresco agrees that in accordance with Section 2155.4441, *Texas Government Code*, in performing its duties and obligations under this Agreement, Ameresco will purchase products and materials produced in Texas when such products and materials are available at a price and time comparable to products and materials produced outside of Texas.

#### **SECTION 43 Public Information.**

- (a) Ameresco acknowledges that Customer is obligated to strictly comply with the Public Information Act, Chapter 552, *Texas Government Code*, in responding to any request for public information pertaining to this Agreement, as well as any other disclosure of information required by applicable Texas law. Customer will endeavor to give the notices required under Section 18 hereof, and otherwise comply with the provisions of Section 18, to the extent permitted by law.
- (b) Upon Customer's written request, Ameresco will provide specified contracting information exchanged or created under this Agreement for or on behalf of Customer.

- (c) Ameresco acknowledges that Customer may be required to post a copy of the fully executed Agreement on its Internet website in compliance with Section 2261.253(a)(1), *Texas Government Code*.
- (d) The requirements of Subchapter J, Chapter 552, Texas Government Code, may apply to this agreement and the Contractor agrees that the agreement can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter.

#### SECTION 44 Venue.

The substantive laws of the State of Texas (and not its conflicts of law principles), USA, govern all matters arising out of or relating to this Agreement and all of the transactions it contemplates. Pursuant to Section 85.18 (b), *Texas Education Code*, venue for a state court suit filed against The Texas A&M University System, any member of The Texas A&M University System, or any officer or employee of The Texas A&M University System is in the county in which the primary office of the chief executive officer of the system or member, as applicable, is located. At execution of this Agreement, such county is Erath County, Texas. Venue for any suit brought against The Texas A&M University System in federal court must be in the Houston Division of the Southern District of Texas.

#### **SECTION 45** State Auditor's Office.

Ameresco understands that acceptance of funds under this Agreement constitutes acceptance of the authority of the Texas State Auditor's Office, or any successor agency (collectively, "Auditor"), to conduct an audit or investigation in connection with those funds pursuant to Section 51.9335(c), *Texas Education Code*. Ameresco agrees to cooperate with the Auditor in the conduct of the audit or investigation, including without limitation, providing all records requested. Ameresco will include this provision in all contracts with permitted subcontractors.

#### **SECTION 46** Non-Waiver.

Ameresco expressly acknowledges that Customer is an agency of the State of Texas and nothing in this Agreement will be construed as a waiver or relinquishment by Customer of its right to claim such exemptions, privileges, and immunities as may be provided by law.

#### **SECTION 47 Dispute Resolution.**

The dispute resolution process provided in Chapter 2260, Texas Government Code, and the related rules adopted by the Texas Attorney General pursuant to Chapter 2260, shall be used by Customer and Ameresco to attempt to resolve any claim for breach of contract made by Ameresco that cannot be resolved in the ordinary course of business. Ameresco shall submit written notice of a claim of breach of contract under this Chapter to the Business Services, Procurement & Contracts office of Customer (i.e., Kem Morgan, Associate Vice President for Business Services), who shall examine Ameresco's claim and any counterclaim and negotiate with Ameresco in an effort to resolve the claim.

#### **SECTION 48** Limitations.

The Parties are aware that there are constitutional and statutory limitations on the authority of Customer (a state agency) to enter into certain terms and conditions of this Agreement, including, but not limited to, those terms and conditions relating to liens on Customer's property; disclaimers and limitations of warranties; disclaimers and limitations of legal

rights, remedies, requirements and processes; limitations of periods to bring legal action; granting control of litigation or settlement to another party; liability for acts or omissions of third parties; payment of attorneys' fees; dispute resolution; indemnities; and confidentiality (collectively, the "Limitations"), and terms and conditions related to the Limitations will not be binding on Customer except to the extent authorized by the Constitution and the laws of the State of Texas. Neither the execution of this Agreement by Customer nor any other conduct, action, or inaction of any representative of Customer relating to this Agreement constitutes or is intended to constitute a waiver of Customer's or the state's sovereign immunity to suit.

#### **SECTION 49** Prohibition Of Contracts With Companies Boycotting Israel.

To the extent that Texas Government Code, Chapter 2271 applies to this Agreement, Ameresco certifies that (a) it does not currently boycott Israel; and (b) it will not boycott Israel during the term of this Agreement. Ameresco acknowledges this Agreement may be terminated and payment withheld if this certification is inaccurate.

#### **SECTION 50** Certification Regarding Business With Certain Countries and Organizations.

Pursuant to Subchapter F, Chapter 2252, Texas Government Code, Ameresco certifies it is not engaged in business with Iran, Sudan, or a foreign terrorist organization. Ameresco acknowledges this Contract may be terminated if this certification is inaccurate.

#### **SECTION 51** Records Retention.

Ameresco will preserve all contracting information, as defined under Texas Government Code, Section 552.003 (7), related to the Agreement for the duration of the Agreement and for seven years after the conclusion of the Agreement.

## SECTION 52 Prohibition On Contracts Related To Persons Involved In Human Trafficking.

Under Section 2155.0061, Government Code, Ameresco certifies that the individual or business entity named in this Agreement is not ineligible to receive the specified Agreement and acknowledges that this Agreement may be terminated and payment withheld if this certification is inaccurate.

#### **SECTION 53** Not Eligible For Rehire.

A designation of Not Eligible for Rehire will disqualify a former employee from being (a) employed or retained by a member as an independent contractor, consultant or volunteer, or (b) assigned to perform work for a member while an employee of a business entity for the duration of the specified term. Any former employee acting as an independent contractor, consultant, or volunteer must disclose their designation of Not Eligible for Rehire to the member for whom they are proposing to perform work. A business entity employing a former member employee designated as Not Eligible for Rehire is responsible for ensuring that its employee is not involved in any work for the A&M System.

#### **SECTION 54** Conflict of Interest.

By executing this Agreement, Ameresco and each person signing on behalf of Ameresco certifies, and in the case of a sole proprietorship, partnership or corporation, each party thereto certifies as to its own organization, that to the best of their knowledge and belief, no member of The Texas A&M University System or The Texas A&M University System Board of Regents, nor any employee, or person, whose salary is payable in whole or in part by The Texas A&M University System or its members, has direct or

indirect financial interest in the award of this Agreement, or in the services to which this Agreement relates, or in any of the profits, real or potential, thereof.

#### SECTION 55 Counterparts.

This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, and both of which will constitute one Agreement.

IN WITNESS WHEREOF, the duly authorized officers or representatives of the Parties have set their hand on the date first written above with the intent to be legally bound.

TARLETON STATE UNIVERSITY	AMERESCO, INC.
James L. Hurley President / CEO	Robert Georgeoff Vice President
Dated: 2 · /2 · 2/	Dated: February 11, 2021

BOARD OF REGENTS OF THE TEXAS A&M UNIVERSITY SYSTEM (TAMUS)

APPROVAL RECOMMENDED:

**Executive Director** 

Office of Facilities Planning & Construction

Date\_02, N. 2021.

APPROV	ED AS TO FORM:	
	11.020	
	mornigh	
General C		
Date	2/11/2021	

[Signature page to Energy Services Agreement]

#### ATTACHMENT A

#### PROPERTY DESCRIPTION

The following buildings, facilities, and areas, which are owned and operated by Customer, are included in the Scope of Services detailed in <u>Attachment B</u>:

Facility	Address
Engineering Technology	1333 W. Washington, Stephenville, Texas 76402
Fine Arts Center	1333 W. Washington, Stephenville, Texas 76402
Autry Building	1333 W. Washington, Stephenville, Texas 76402
Math Building	1333 W. Washington, Stephenville, Texas 76402
Grant Building	1333 W. Washington, Stephenville, Texas 76402
Howell Building	1333 W. Washington, Stephenville, Texas 76402
Physical Plant	1333 W. Washington, Stephenville, Texas 76402
Hunewell Hall	1333 W. Washington, Stephenville, Texas 76402
Hunewell Addition	1333 W. Washington, Stephenville, Texas 76402
Tarleton Center	1333 W. Washington, Stephenville, Texas 76402
Administration Building	1333 W. Washington, Stephenville, Texas 76402
Kinesiology Building	1333 W. Washington, Stephenville, Texas 76402
Smith Library	1333 W. Washington, Stephenville, Texas 76402
Central Receiving	1333 W. Washington, Stephenville, Texas 76402
Business Administration	1333 W. Washington, Stephenville, Texas 76402
Hydrology Building	1333 W. Washington, Stephenville, Texas 76402
Student Center	1333 W. Washington, Stephenville, Texas 76402
Central Plant	1333 W. Washington, Stephenville, Texas 76402
Science Building	1333 W. Washington, Stephenville, Texas 76402
Texan Village I	1333 W. Washington, Stephenville, Texas 76402
Texan Village II	1333 W. Washington, Stephenville, Texas 76402
Texan Village III	1333 W. Washington, Stephenville, Texas 76402
Texan Village Clubhouse	1333 W. Washington, Stephenville, Texas 76402
Texan Village IV	1333 W. Washington, Stephenville, Texas 76402
Centennial Hall	1333 W. Washington, Stephenville, Texas 76402
Dining Hall	1333 W. Washington, Stephenville, Texas 76402
Legends Hall	1333 W. Washington, Stephenville, Texas 76402
Legacy Hall	1333 W. Washington, Stephenville, Texas 76402
Heritage Hall	1333 W. Washington, Stephenville, Texas 76402
Recreation Center	1333 W. Washington, Stephenville, Texas 76402
Integrity Hall	1333 W. Washington, Stephenville, Texas 76402
Traditions North	1333 W. Washington, Stephenville, Texas 76402
Traditions South	1333 W. Washington, Stephenville, Texas 76402
Nursing	1333 W. Washington, Stephenville, Texas 76402
Honors Hall	1333 W. Washington, Stephenville, Texas 76402

#### ATTACHMENT B

#### **SCOPE OF SERVICES**

#### DESCRIPTION OF THE ENERGY CONSERVATION MEASURES AND EQUIPMENT

This <u>Attachment B</u> provides a description of existing equipment and the ECMs and related equipment to be installed by Ameresco at the facilities scheduled on <u>Attachment A</u>. Installation of the ECMs and the included equipment is subject to change if Ameresco discovers unforeseen conditions at the Property that render its preliminary analysis of the Property inaccurate, or significantly affect Ameresco's anticipated economic benefit or the Guarantee of Energy Savings.

This <u>Attachment B</u> includes by reference the IGA dated as of November 13, 2020 for the Property and submitted under separate cover.

The proforma includes a recurring line item cost for O&M for payments for years four through twenty. This cost is for network thermostat user interface access, data hosting, and support services. The cost for Year 1 through Year 3 is included in the implementation cost. The financial analysis included an allowance for continued service for Year 4 through 20. The University is responsible for maintaining the service through the performance period by contracting directly with the service provider.

The following table summarizes the ECMs recommended and described in the IGA:

ECM		501 Engineering Technology	506 Fine Art Center	508 Autry Building	509 Math Building	511 Grant Building	513 Howell Building	518 Physical Plant	529 Hunewell Hall	531 Hunewell Addition	533 Tarleton Center	534 Administration Building	648 Kinesiology Building	656 Smith Library	685 Central Receiving	68 / Business Administration	688 Hydrology Building	600 Central Dlant	919 Science Building	952 Texan Village Apartments I	953 Texan Village Apartments II	954 Texan Village Apartments III		956 Texan Village Apartments IV	960 Centennial Hall	961 Dining Hall	962 Legends Hall	963 Legacy Hall	964 Heritage Hall	967 Recreation Center	970 Integrity Hall	Traditions North	2 Traditions South	981 Nursing	986 Honors Hall	XXX General/Plant/Site
No.	Measure Name	20	500	508	506	21	51.	518	526	53	53.	53,	649	929	89	98	89	00	916	957	95	95	95;	950	96	96	96	96	796	96	97(	971	972	86	986	X
1.0	Lighting Improvements		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.1	Exterior Lighting Retrofits		•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.2	Interior Lighting Retrofits		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2.0	Water Fixture Improvements		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
2.1	Toilet Retrofits		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
2.2	Urinal Retrofits		•	•	•	•	•	•			•	•	•	•	•	•	•	•	•						•	•				•				•		
2.3	Aerator Retrofits		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
2.4	Showerhead Retrofits		•					•	•	•			•							•	•	•		•	•		•	•	•	•	•	•	•	•	•	
2.5	Pre-Rinse Sprayer Retrofits																	•								•										
3.0	Controls and Instrumentation Improvements		•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•		•	•	•		•	•	•	•	•	
3.1	Controller Firmware Upgrades		•			•	•		•	•	•	•	•	•	•	•	•	•	•															•		
3.2	Laboratory Ventilation Controls																		•																	
3.3	Network Thermostats*							•	•	•										•	•	•		•	•		•	•	•		•	•	•		•	
3.4	Submetering																		•														$\perp$			
4.0	HVAC Lifecycle Improvements												•												•		•	•								
4.1	RTU Replacements												•																				$\perp$			
4.2	PTAC Replacements																								•		•	•								

# ATTACHMENT C PROJECT CASH FLOW

Initial Project Costs:	
Investment Grade Audit	\$ 182,715
Implementation Costs	\$ 11,943,480
	\$ -
	\$ -
Total Ameresco Contract Amount	\$ 12,126,195
3rd Party Engineering Review	\$ 5,000
Net Project Costs	\$ 12,131,195
Construction Period Interest	\$ 322,354
Total Amount Financed	\$ 12,453,549

	1
	20.0 yrs
	20.0 yrs
	2.25%
	2
	2.25%
Electricity 2.75%, Natural Gas 2.75%, Water and Sewer 2.75%	
	0.00%
	3.00%
	3.00%
	0.00%
	Ť
	Electricity 2.75%, Natural Gas 2.75%, Water and Sewer 2.75%

Proforma	Year																					
	Initial Values			1	2	2		3		4	1			6		7		8		9		10
					l.								1			-			1			
1 Projected Annual Energy Cost Savings	\$	588,408	\$	592,288	\$ 60	08,576	\$	625,312	\$	642,508	\$	660,177	\$	678,332	\$	696,986	\$	716,153	\$	735,848	\$	756,083
2 Guaranteed Energy Cost Savings	\$	544,277	\$	547,866	\$ 56	32,933	\$	578,414	\$	594,320	\$	610,664	\$	627,457	\$	644,712	\$	662,442	\$	680,659	\$	699,377
3 O&M Savings	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875
4 Demand Response	\$	23,867	\$	23,867	\$ 2	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867
5 Recurring Capital Contribution	\$	- 1	\$	two	\$	-	\$	(***)	\$	-	\$	<del>=</del> 1	\$	-	\$	-	\$	=	\$	7 <del>4</del> 77	\$	7940
6 Utility Rebates (Note 4)			\$	160,540	j.			- 1														
_ Total Project Savings				**																		
(Line 2 + Line 3 + Line 4 + Line 5 + Line 6)	\$	645,019	\$	809,148	\$ 60	33,675	\$	679,156	\$	695,062	\$	711,406	\$	728,199	\$	745,454	\$	763,184	\$	781,401	\$	800,119
					ž.								1			1			1			3
8 Payments for Financing Equipment			\$	782,077	\$ 64	18,323	\$	663,365	\$	662,278	\$	677,660	\$	693,463	\$	709,698	\$	726,377	\$	743,512	\$	761,116
9 Payments for Measurement and Verification Services			\$	26,340	\$	14,620	\$	15,059	\$	15,511	\$	15,976	\$	16,455	\$	16,949	\$	17,457	\$	17,981	\$	18,520
10 Payments for Operation and Maintenance Services			\$	-	\$	1	\$	-	\$	16,542	\$	17,038	\$	17,549	\$	18,076	\$	18,618	\$	19,176	\$	19,752
11 Total Payments			\$	808,417	\$ 60	52,943	\$	678,424	\$	694,330	\$	710,674	\$	727,468	\$	744,723	\$	762,452	\$	780,669	\$	799,387
													1									
12 Net Annual Benefit			\$	731	\$	732	\$	732	\$	732	\$	732	\$	731	\$	731	\$	732	\$	732	\$	732
13 Cumulative Cash Flow	\$	14,633	\$	731	\$	1,462	\$	2,194	\$	2,926	\$	3,658	\$	4,389	\$	5,120	\$	5,852	\$	6,584	\$	7,315

												Year										
Line #		11		12		13		14		15		16	16		17		18		19		á.	Totals
					9					1												
1 Projected Annual Energy Cost Savings	\$	776,876	\$	798,240	\$	820,191	\$	842,747	\$	865,922	\$	889,735	\$	914,203	\$	939,343	\$	965,175	\$	991,718	\$	15,516,413
2 Guaranteed Energy Cost Savings	\$	718,610	\$	738,372	\$	758,677	\$	779,541	\$	800,978	\$	823,005	\$	845,638	\$	868,892	\$	892,787	\$	917,339	\$	14,352,683
3 O&M Savings	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	76,875	\$	1,537,500
4 Demand Response	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	23,867	\$	477,340
3 Recurring Capital Contribution	\$	<del>-</del>	\$	-	\$	= 1	\$	1	\$	<u> </u>	\$	-	\$		\$	*	\$	-	\$	-	\$	( <del>.</del>
6 Utility Rebates (Note 4)					Ï.								1								\$	160,540
Total Project Savings																						
(Line 2 + Line 3 + Line 4 + Line 5 + Line 6)	\$	819,352	\$	839,114	\$	859,419	\$	880,283	\$	901,720	\$	923,747	\$	946,380	\$	969,634	\$	993,529	\$	1,018,081	\$	16,528,063
												*										
8 Payments for Financing Equipment	\$	779,200	\$	797,779	\$	816,867	\$	836,476	\$	856,622	\$	877,318	\$	898,580	\$	920,423	\$	942,863	\$	965,916	\$	15,759,913
9 Payments for Measurement and Verification Services	\$	19,076	\$	19,648	\$	20,237	\$	20,844	\$	21,469	\$	22,113	\$	22,776	\$	23,459	\$	24,163	\$	24,888	\$	393,541
10 Payments for Operation and Maintenance Services	\$	20,344	\$	20,955	\$	21,583	\$	22,231	\$	22,898	\$	23,585	\$	24,292	\$	25,021	\$	25,772	\$	26,545	\$	359,976
11 Total Payments	\$	818,620	\$	838,382	\$	858,687	\$	879,551	\$	900,988	\$	923,015	\$	945,648	\$	968,903	\$	992,797	\$	1,017,349	\$	16,513,430
12 Net Annual Benefit	\$	732	\$	732	\$	732	\$	732	\$	732	\$	732	\$	732	\$	731	\$	732	\$	732	\$	14,633
13 Cumulative Cash Flow	\$	8,047	\$	8,779	\$	9,511	\$	10,243	\$	10,974	\$	11,706	\$	12,438	\$	13,169	\$	13,901	\$	14,633		

- Notes:

  1 This cash flow reflects an estimated RFS funded project with a rate of 2.25%. The actual rate will increase or decrease based on market conditions and customer credit rating at the time of lease funding.

  2 Energy Savings or revenues are based on current utility rate structures and usage information provided for purposes of this project.

  3 The performance and payment bonds apply only to the installation portion of the contract and do not apply in any way to energy savings guarantees, payments or maintenance provisions, except that the performance bond shall guarantee that the installation will be free of defective materials and workmanship for a period of 12 months following completion and acceptance of the work

  4 The amount of the utility rebate(s) are not guaranteed. The final rebate amount will be determined by the utility company.

### ATTACHMENT D

### NOTICE TO PROCEED

[PLACE ON CUSTOMER LETTERHEAD]

Mr. Robert Georgeoff Vice President Ameresco, Inc. 2375 E. Camelback Road Suite 400 Phoenix, AZ 85018

Dear Mr. Georgeoff:

In accordance with Section 1(a) of the Energy Services Agreement (the "ESA") dated as of \_\_\_\_\_\_\_, 20\_\_\_\_, by and between the Tarleton State University ("Customer") and Ameresco, Inc. ("Ameresco"), Customer hereby submits to Ameresco this Notice to Proceed in relation to the Scope of Services as defined in the ESA.

Sincerely,

Tarleton State University

By: \_\_\_\_\_\_

Duly Authorized Signatory Name:

Title: \_\_\_\_\_\_

Date:

# ATTACHMENT E

### FINAL DELIVERY AND ACCEPTANCE CERTIFICATE

[PLACE ON CUSTOMER LETTERHEAD]

Mr. Robert Georgeoff Vice President Ameresco, Inc. 2375 E. Camelback Road Suite 400 Phoenix, AZ 85018

Phoen	ix, AZ 85018	
Re:		pitalized terms used and not defined herein shall have A) dated as of, 20, by and arer") and Ameresco, Inc. ("Ameresco")
Dear l	Mr. Georgeoff:	
	mer hereby acknowledges its receipt and accepy which are installed and in good working condit	otance of all ECMs described in <u>Attachment B</u> of the ion.
		Sincerely,
		Tarleton State University
		By:
		Duly Authorized Signatory Name:
		-
		Title:
		Date

### ATTACHMENT F

### **DETERMINATION OF ENERGY COST SAVINGS**

The following is a breakdown of annual energy and other cost savings such as operations and maintenance (as modified below, the "Annual Energy Cost Savings"). The "Base Year" period as used herein is based on the utility system information as provided by Customer.

### **Baseline Development:**

The baseline energy usage for purposes of this Agreement is as detailed below:

Site	Annual kWh	Annual MCF	Annual kGal
Main Campus	38,855,963	77,955	48,798

Above baseline is based on September 2018 to August 2019 utility usage.

In general, the occupied and unoccupied standard of operation for the Science Building laboratories will be as follows:

Science Building Laboratory Standards of Operation		
	Hours of Operation	ACH <sup>[1]</sup>
Pre Retrofit Standards of Operation		
Occupied Sequence	8,760	12
Presence/Hood Sash Open [2]	4,117	12
Unoccupied Sequence (No Existing Sequence)	N/A	NI/A
Presence/Hood Sash Open	N/A	N/A
Post Retrofit Standards of Operation		
Occupied Sequence	2,350	(
Presence/Hoods in Use	500	6
Unoccupied Sequence	6,410	4
Presence/Hoods in Use	0	4

<sup>[1]</sup> Minimum air changes per hour. Savings have been calculated based on the maximum of the hood requirements or the minimum number of ACHs for each space.

In general, the occupied and unoccupied schedules will be maintained as follows for resident rooms at Hunewell Hall, Hunewell Addition, Texas Village 1, Texas Village II, Texan Village III, Texan Village IV, Centennial Hall, Legends Hall, Legacy Hall, Heritage Hall, Traditions North, Traditions South, and Honors Hall:

			Occu	Unocc	upied <sup>[2]</sup>		
				Cool	Heat	Cool	Heat
Session	Begin Date	End Date	Time Period	°F	°F	°F	°F
Pre Retrofit Standa	ards of Operation						
Spring Semester	Mid-January	Mid-May	00:00 - 23:59	72	72	72	72
Summer Break	Mid-May	Mid-August	00:00 - 23:59	72	72	72	72
Fall Semester	Mid-August	Mid-December	00:00 - 23:59	72	72	72	72
Winter Break	Mid-December	Mid-January	00:00 - 23:59	72	72	72	72
Post Retrofit Stand	lards of Operation						
Spring Semester	Mid-January	Mid-May	00:00 - 23:59	72	72	Auto	Auto
Summer Break	Mid-May	Mid-August	00:00 - 00:00	72	72	85	60
Fall Semester	Mid-August	Mid-December	00:00 - 23:59	72	72	Auto	Auto
Winter Break	Mid-December	Mid-January	00:00 - 00:00	72	72	85	60

<sup>[2]</sup> Baseline hoods are open to 18-inches for 47 percent of the time.

# **Annual Energy Cost Savings:**

As part of the IGA, Ameresco modeled the savings associated with each of the specific measures described therein. Customer has reviewed such models and agrees to the level of savings associated with each specific measure and the total savings of all measures combined. Therefore, "Annual Energy Cost Savings" shall be further defined as specified below:

Year	Guaranteed Energy Savings	Stipulated Operation & Maintenance Savings	Stipulated Demand Response Savings	Annual Energy Cost Savings
1	\$547,866	\$76,875	\$23,867	\$648,608
2	\$562,933	\$76,875	\$23,867	\$663,675
3	\$578,414	\$76,875	\$23,867	\$679,156
4	\$594,320	\$76,875	\$23,867	\$695,062
5	\$610,664	\$76,875	\$23,867	\$711,406
6	\$627,457	\$76,875	\$23,867	\$728,199
7	\$644,712	\$76,875	\$23,867	\$745,454
8	\$662,442	\$76,875	\$23,867	\$763,184
9	\$680,659	\$76,875	\$23,867	\$781,401
10	\$699,377	\$76,875	\$23,867	\$800,119
11	\$718,610	\$76,875	\$23,867	\$819,352
12	\$738,372	\$76,875	\$23,867	\$839,114
13	\$758,677	\$76,875	\$23,867	\$859,419
14	\$779,541	\$76,875	\$23,867	\$880,283
15	\$800,978	\$76,875	\$23,867	\$901,720
16	\$823,005	\$76,875	\$23,867	\$923,747
17	\$845,638	\$76,875	\$23,867	\$946,280
18	\$868,892	\$76,875	\$23,867	\$969,634
19	\$892,787	\$76,875	\$23,867	\$993,529
20	\$917,339	\$76,875	\$23,867	\$1,018,081

### ATTACHMENT G

### CONTRACT COST AND ANNUAL SERVICES

- (a) Contract Cost: Customer shall pay to Ameresco, an amount equal to Twelve Million One Hundred Twenty-six Thousand One Hundred Ninety-five Dollars and No Cents (\$12,126,195.00) (the "Contract Cost") in accordance with the terms described in Section 4 of this Agreement. The Contract Cost includes the preconstruction services described in Section 1(a)(i) of this Agreement.
- (b) Operations and/or Maintenance: Not Applicable.
- (c) Measurement and Verification: Ameresco will perform measurement and verification (M&V) services upon completion of construction and every year thereafter for the twenty (20) year performance period, or at a shorter term as directed in writing by Customer. Customer may cancel the M&V services at any time upon thirty (30) days' prior written notice to Ameresco. Termination of the M&V services as aforesaid will also terminate the Guarantee of Energy Savings as of the effective date of such termination of the M&V services. The cost of measurement and verification services for each year of the agreement is defined in the following table:

Year	Annual M&V Fee
	Schedule
1	\$26,340
2	\$14,620
3	\$15,059
4	\$15,511
5	\$15,976
6	\$16,455
7	\$16,949
8	\$17,457
9	\$17,981
10	\$18,520
11	\$19,076
12	\$19,648
13	\$20,237
14	\$20,844
15	\$21,469
16	\$22,113
17	\$22,776
18	\$23,459
19	\$24,163
20	\$24,888

- (d) Other Annual Services: Not applicable.
- (e) Extended Warranty: Not applicable.

# ATTACHMENT H

CHANGE ORDER FORM
(Request & Agreement for change in Plans and/or Specifications and/or Contract)

Custo	ge Request No.: mer:			
Depar	tment:	_		
Projec	et No.:	Contract No.:	Si	te:
Title:				
I.	REQUEST		Date:	
(a) (b)	Requested by: Description of change:			
Ш.	AMERESCO'S AGREEMENT			
the wo	l costs involved in this change includions described in accordance with the ps accurate, complete and current, and the second contract of	provisions of the subject		
	Payment shall be made on the ba ( )(a) Predetermined lump sum ( )(b) Lump sum "not-to-exceed (Max. price based on contract or m ( )(c) Time & Material Basis "n (Computed in accordance with pro	total of: (add) (deduct)  1": (add) (deduct)  egotiated unit prices)  not-to-exceed": (add) (de	\$	
necess	an "X" beside selected proposal meth sary, attach detailed estimates and bre ork performed under protest shall be s	akdown for above in acc		
An ex	tension of contract time of	_ calendar days to	is requested.	
Amer	esco, Inc.: (name and title)		by:(signature)	
Date:				
CUST	TOMER APPROVAL:	Date:		
Custo By: Title:	mer:		Contract Award Previous Additions Previous Deductions Net Total This Change Total	\$

### ATTACHMENT I

### **MAINTENANCE SERVICES**

Except as otherwise provided in <u>Section 10(b)</u> of this Agreement, Ameresco will provide the following maintenance services on the equipment listed below (installed under this Project) during the Term and at the cost to Customer as set forth in <u>Section 4</u> and <u>Attachment G</u> of this Agreement. Detailed terms and conditions relating to this maintenance service are included in this Attachment.

No maintenance services are included under this Agreement.

# ATTACHMENT J

# CERTIFICATE OF SUBSTANTIAL COMPLETION

		CONTRACT DA	NO.:
	nd to be substantially co		icate] under the Agreement has/have of Substantial Completion of the
SUBSTANTIAL COM	MPLETION DATE:		
			ed by Customer when such ECM is Customer derives beneficial use thereof.
for such ECM(s), as red	quired by the Agreemerns. The failure to include	nt. A list of items t le any items on suc	mmencement of applicable warranties to be completed or corrected is identified the punchlist does not alter the with the Agreement.
CONTRACTOR:	Ameresco, Inc., 2375	E. Camelback Roa	nd, Suite 400, Phoenix, AZ 85016
AUTHORIZED SIGN	NATURE:		DATE:
NAME:	(type or print)	)	-
CUSTOMER:	[CUSTOMER ADDR	ESS]	
AUTHORIZED SIGN	NATURE:		DATE:
NAME:	(type or print)	)	-
	PUN	CHLIST ITEMS	

Attach additional page(s) as necessary. Number of pages attached \_\_\_\_\_\_.

# ATTACHMENT K STANDARDS OF SERVICE & COMFORT

In general, the occupied and unoccupied schedules will be maintained as follows:

Baseline Conditions																			
D '11'								Occi	pied									Unoc	cupied
Building	Space	Cooling	Heating	Mond	ay	Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Cooling	Heating
501 Engineering Technology	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
506 Fine Art Center	All	72	72	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	Off	Off
508 Autry Building	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
509 Math Building	All	72	72	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	Off	Off
511 Grant Building	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
513 Howell Building	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
518 Physical Plant	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
529 Hunewell Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
531 Hunewell Addition	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
533 Tarleton Center	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
534 Administration Building	All	72	72	4:00	19:00	4:00	19:00	4:00	19:00	4:00	19:00	4:00	19:00	6:00	19:00	6:00	19:00	Off	Off
648 Kinesiology	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
648 Kinesiology Building	All	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
656 Smith Library	All	72	72	5:55	20:00	5:55	20:00	5:55	20:00	5:55	20:00	5:55	20:00	0:00	23:59	0:00	23:59	Off	Off
685 Central Receiving	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
687 Business Administration	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
688 Hydrology Building	All	72	72	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	Off	Off
689 Student Center	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
690 Central Plant	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
919 Science Building	All	72	72	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	Off	Off
952 Texan Village I	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
953 Texan Village II	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off

954 Texan Village III	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
955 Texan Village Clubhouse	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
959 Texan Village IV	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
960 Centennial Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
961 Dining Hall	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
962 Legends Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
963 Legacy Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
964 Heritage Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
967 Recreation Center	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
970 Integrity Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
971 Traditions North	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
972 Traditions South	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
981 Nursing Building	All	72	72	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	Off	Off
986 Honors Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
Post Conditions																		,	
								0											!1

D '11'								Оссі	ıpied									Unoccupied	
Building	Space	Cooling	Heating	Mond	lay	y Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Cooling	Heating
501 Engineering Technology	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
506 Fine Art Center	All	72	72	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	7:00	17:00	Off	Off
508 Autry Building	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
509 Math Building	All	72	72	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	7:00	22:00	Off	Off
511 Grant Building	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
513 Howell Building	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
518 Physical Plant	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
529 Hunewell Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
531 Hunewell Addition	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
533 Tarleton Center	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
534 Administration Building	All	72	72	4:00	19:00	4:00	19:00	4:00	19:00	4:00	19:00	4:00	19:00	6:00	19:00	6:00	19:00	Off	Off

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648 Kinesiology	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
648 Kinesiology Building	All	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
656 Smith Library	All	72	72	5:55	20:00	5:55	20:00	5:55	20:00	5:55	20:00	5:55	20:00	0:00	23:59	0:00	23:59	Off	Off
685 Central Receiving	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
687 Business Administration	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
688 Hydrology Building	All	72	72	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	Off	Off
689 Student Center	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
690 Central Plant	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
919 Science Building	All	72	72	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	0:01	23:59	Off	Off
952 Texan Village I	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
953 Texan Village II	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
954 Texan Village III	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
955 Texan Village Clubhouse	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
959 Texan Village IV	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
960 Centennial Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
961 Dining Hall	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
962 Legends Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
963 Legacy Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
964 Heritage Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
967 Recreation Center	All	72	72	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	17:00	Off	Off
970 Integrity Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
971 Traditions North	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
972 Traditions South	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
981 Nursing Building	All	72	72	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	5:00	19:00	Off	Off
986 Honors Hall	General	72	72	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	Off	Off
	l .					l .	l	l .	l				l						

In general, the occupied and unoccupied standard of operation for the Science Building laboratories will be as follows:

Science Building Laboratory Standards of Operation				
	Hours of Operation	ACH <sup>[1]</sup>		
Pre Retrofit Standards of Operation				
Occupied Sequence	8,760	10		
Presence/Hood Sash Open [2]	4,117	12		
Unoccupied Sequence (No Existing Sequence)	N/A	NT/A		
Presence/Hood Sash Open	N/A	N/A		
Post Retrofit Standards of Operation				
Occupied Sequence	2,350	(		
Presence/Hoods in Use	500	6		
Unoccupied Sequence	6,410	4		
Presence/Hoods in Use	0	4		
[1] Minimum air changes per hour. Savings have been calculated based on the maximum of the				

hood requirements or the minimum number of ACHs for each space. [2] Baseline hoods are open to 18-inches for 47 percent of the time.

In general, the occupied and unoccupied schedules will be maintained as follows for resident rooms at Hunewell Hall, Hunewell Addition, Texas Village 1, Texas Village II, Texan Village III, Texan Village IV, Centennial Hall, Legends Hall, Heritage Hall, Traditions North, Traditions South, and Honors Hall:

Resident Rooms Standards of Operation							
			Occu	pied <sup>[1]</sup>		Unoccupied <sup>[2]</sup>	
				Cool	Heat	Cool	Heat
Session	Begin Date	End Date	Time Period	°F	°F	°F	°F
Pre Retrofit Standa	rds of Operation						
Spring Semester	Mid-January	Mid-May	00:00 - 23:59	72	72	72	72
Summer Break	Mid-May	Mid-August	00:00 - 23:59	72	72	72	72
Fall Semester	Mid-August	Mid-December	00:00 - 23:59	72	72	72	72
Winter Break	Mid-December	Mid-January	00:00 - 23:59	72	72	72	72
Post Retrofit Standards of Operation							
Spring Semester	Mid-January	Mid-May	00:00 - 23:59	72	72	Auto	Auto
Summer Break	Mid-May	Mid-August	00:00 - 00:00	72	72	85	60
Fall Semester	Mid-August	Mid-December	00:00 - 23:59	72	72	Auto	Auto

Resident Rooms Standards of Operation								
	Occupied <sup>[1]</sup>				Unoccupied <sup>[2]</sup>			
					Cool	Heat	Cool	Heat
Sessio	n	Begin Date	End Date	Time Period	°F	°F	°F	°F
Winte	r Break	Mid-December	Mid-January	00:00-00:00	72	72	85	60

<sup>[1]</sup> Occupied setpoints have been assumed to remain the same pre and post retrofit.
[2] Automatic in-Session, unoccupied setbacks to be based on 12-minute recovery to occupied setpoint.

### ATTACHMENT L

# TEST INSTALLATION ACCEPTANCE LETTER

[PLACE ON CUSTOMER LETTERHEAD]

	Date	
Vice I Amero 2375 I Suite	Ir. Robert Georgeoff Tice President meresco, Inc. 375 E. Camelback Road uite 400 hoenix, AZ 85018	
RE:	E: Energy Services Agreement (the "ESA"; capitalized terms used and not defined the meanings given to such terms in the ESA) dated as of	, 20 by and
Dear l	ear Mr. Georgeoff:	
pursua levels	ustomer has reviewed samples of certain ECMs (as set forth on the list attached heretoursuant to the ESA. Customer hereby approves such ECMs and, if applicable, their resevels, for installation in Customer's Property located at [ ]. Ameresco and its lende ustomer's approval herein for the purpose of procuring such ECMs to be used in the pSA.	pective lighting rs may rely upon
	Sincerely,	
	Tarleton State University	
	By:	
	Duly Authorized Signatory Na	me:
	Title:	
	Date:	

### ATTACHMENT M

### MEASUREMENT AND VERIFICATION

Measurement and Verification services include services integral to the measurement and verification plan for the Guarantee of Energy Savings. Included in these measurement and verification services are the annual Guarantee Reconciliation as defined in <u>Section 6</u>.



#### **F.0 Measurement and Verification**

The long-term success of any comprehensive energy efficiency program depends on the development of an accurate and successful measurement and verification (M&V) plan. The main objective is to develop a cost-effective plan that quantifies and verifies the performance results of the energy and water conservation measures (ECMs). Ameresco subscribes to using industry standard M&V protocols that have been developed in response to the need for reliable and consistent measurement practices.

Ameresco used the International Performance Measurement and Verification Protocol (IPMVP) for the development of M&V procedures for this project.

The protocols help to allocate various risks associated with achieving energy cost savings and allow risk reduction and better risk management. The M&V options description, provided herein, was developed by summarizing the IPMVP and contains excerpts taken from that document. The protocols have several benefits:

- Define the role of verification in energy contracts and implementation
- Discuss procedures with varying levels of accuracy and cost for verifying baseline and project installation conditions and long-term energy savings performance
- Provide techniques for calculating whole-facility savings, individual technology savings, and stipulated savings
- Provide procedures that are consistent, industry-accepted, impartial, and reliable
- Provide procedures for the investigation and resolution of disagreements related to performance issues

The general approach to determining energy savings in these plans involves comparing the energy use of the retrofitted system before installation of the energy and water conservation measure (baseline) and after installation of the energy and water conservation measure (postretrofit). In general:

Energy Savings = Baseline Energy Use - Post Retrofit Energy Use

The IPMVP protocols have defined four M&V options (Options A through D) that meet the needs of a wide range of performance contracts and provide suggested procedures for baseline development and post-retrofit verification. These M&V options are flexible and reflect the aforementioned considerations. The options are summarized in Table F.0.





Table F.0. Measurement and Verification Options

M&V Option Option A: Partially Measured Retrofit Isolation	How Savings Are Calculated	Typical Applications
Savings are determined by partial field measurement of the energy use of the system(s) to which an ECM was applied, separate from the energy use of the rest of the facility. Measurements may be either short-term or continuous of the error they may introduce.	Engineering calculations using short term or continuous post-retrofit measurements and stipulations.	Lighting retrofit where power draw is measured periodically. Operating hours of the lights are stipulated.
Partial measurement means that some but not all parameter(s) may be stipulated, if the total impact of possible stipulation error(s) is not significant to the resultant savings. Careful review of ECM design and installation will ensure that stipulated values fairly represent the probable actual value. Stipulations should be shown in the M&V plan along with analysis of the significance of the error they may introduce.		
Option B: Retrofit Isolation		
Savings are determined by field measurement of the energy use of the systems to which the ECM was applied, separate from the energy use of the rest of the facility. Short-term or continuous measurements are taken throughout the post-retrofit period.	Engineering calculations using short term or continuous measurements.	Application of controls to vary the load on a constant speed pump using a variable speed drive. Electricity use is measured by a kWh meter installed on the electrical supply to the pump motor. In the base year, this meter is in place for a week to verify constant loading. The meter is in place throughout the post-retrofit period to track variations in energy use.
Option C: Whole Facility (Bill Comparison)		
Savings are determined by measuring energy use at the whole facility level. Short-term or continuous measurements are taken throughout the post-retrofit period.	Analysis of whole facility utility meter or sub-meter data using techniques from simple comparison to regression analysis.	Multifaceted energy management program affecting many systems in a building. Energy use is measured by the gas and electric utility meters for a 12-month base year period and throughout the post-retrofit period.
Option D: Calibrated Simulation (Calibrated Build		
Savings are determined through simulation of the energy use of components or the whole facility. Simulation routines must be demonstrated to adequately model actual energy performance measured in the facility. This option usually requires considerable skill in calibrated simulation.	Energy use simulation, calibrated with hourly or monthly utility billing data and/or end- use metering.	Multifaceted energy management program affecting many systems in a building but where no base year data are available. Post-retrofit period energy use is measured by the gas and electric utility meters. Base year energy use is determined by simulation using a model calibrated by the post-retrofit period utility data.

The table on the following pages provides a summary of the proposed M&V plans for the project. All specific protocols in the plans must be explained to and accepted by Tarleton State University (TSU) before construction on the project can begin. If TSU does not agree with the protocols used to verify the savings, there is potential for significant disagreement once verification efforts begin.





Table F.1. Measurement and Verification Summary Matrix

Table 1.1. Meas	dicinent	and Verification Summa M&V Req	uirements			Performance
ECM	IPMVP Option	Baseline	Post-Retrofit	Measurement and Metering	Stipulated Variables	Period M&V Requirements
ECM 1.0 Lighting Improvements	A	Fixture power consumption based on spot measurement at select fixtures.  Hours of operation based on interview with staff.  HVAC system efficiencies.  Exterior hours of operation based on dusk to dawn operation.	Fixture power consumption based on spot measurement at select fixtures.	Baseline fixture wattage is to be measured prior to retrofit. Post-installation wattages will be measured after retrofit.  Number of selected fixtures shall be statistically significant. Sample size will be decided by post-retrofit sample group. (FEMP 80/20 sampling plan).  Operating hours are based on discussions with facility personnel and sample short-term data logging during the PUA.	Baseline and post-retrofit fixture power consumption measurements to be used for baseline and post-retrofit fixture power consumption for the duration of the performance period.  Baseline and post-retrofit operating hours for each fixture group provided in the IGA to be used for baseline and post-retrofit operating hours for the duration of the performance period.  HVAC interactive effects to be based plant and distribution efficiencies of 1.0 kW/ton for cooling, 83.0% for gas heating, and 100.0% for electric heating. Baseline HVAC efficiencies to be used to for the baseline and post-retrofit HVAC efficiencies for the duration of the performance period.	Annual visual inspection of a sample of lamps to verify operation and minimum efficiency requirements.
ECM 2.0 Water Fixture Improvements	A	Fixture flow rate based on spot measurement at select fixtures during the IGA.  Fixture usage based on occupancy and occupant usage factors.  Water heating system efficiency.	Fixture flow rate based on spot measurement at select fixtures.	Baseline fixture flow rate measured during the IGA. Post-installation wattages will be measured after retrofit.  Number of selected fixtures shall be statistically significant. Sample size will be decided by post retrofit sample group. (FEMP 90/20 sampling plan).  Fixture usage based on discussions with facility personnel, occupancy, occupant usage factors, and reconciliation with metered data.	Baseline fixture flow rate provided in the IGA and post retrofit fixture flow measurements to be used for baseline and post retrofit fixture flow rate for the duration of the performance period.  Baseline fixture usage provided in the IGA to be used for the baseline and post retrofit fixture usage for the duration of the performance period.  Baseline and post retrofit heating system efficiency is 80%.  Baseline showerhead flow rate is stipulated at name plate due to the limited usage and magnitude of savings.	Annual visual inspection of a sample of fixtures to verify operation and minimum efficiency requirements.





Table F.1. Measurement and Verification Summary Matrix

Tuble 1.1. Weds	diomonic	ent and Verification Summary Matrix  M&V Requirements				Performance
ECM	IPMVP Option	Baseline	Post-Retrofit	Measurement and Metering	Stipulated Variables	Period M&V Requirements
ECM 3.0 Controls and Instrumentation Improvements	A	Lab air changes per hour.  Hood face velocity.  Hood CFM (sash position).  Ventilation air conditioning energy.  Supply fan power consumption profile.  Residential space setpoints.  Cooling and heating systems efficiency.	Lab air changes per hour.  Hood face velocity. Hood CFM (sash position). Hood occupancy hours.  Ventilation air conditioning energy. Supply fan power consumption profile. Residential space setpoints via remote user interface. Residential insession occupancy profile via remote user interface. Residential offsession occupancy profile via remote user interface. Cooling and heating systems efficiency.	Pre and post retrofit flow rate and ventilation rates to be established with controller reporting functions.  Pre spot power measurement of motor at various speeds/loads post-retrofit via BAS reporting.  Short term trending of supply fan air changes per hour prior to application of automatic sash closers and modification to sequences of operation.  Short term logging of space temperature and occupancy profiles via thermostat reporting system.	Proposed setpoints for occupied hours and unoccupied hours. Existing occupied hours 8,760 with average 47% sash usage. Postretrofit occupied hours 2,350 with 500 hours of user presence. All other hours are unoccupied.  Baseline and post-retrofit hours of operation to be equal.  Binned TMY-3 weather data to be used to determine ventilation load for spreadsheet calculations.  Central cooling efficiency based on central plant and distribution system efficiency is 1.0 kW/ton.  Central heating efficiency based on central plant and distribution system efficiency is 83%.  AHU performance based on design drawings.  Heating and cooling load profiles based on design temperature and weather correlations.  Proposed setpoints for occupied hours and unoccupied hours.  Baseline and post-retrofit hours of operation.  Binned TMY-3 weather data to be used to determine ventilation load for spreadsheet calculations.  Residential unoccupied setpoint behavior based on sampling during IGA.  Cooling and heating package equipment efficiencies based on nameplate.	Periodic visual inspection of a sample of sash actuators to verify operation.  Periodic review of controls sequence (ACH).  Periodic inspection of occupied and unoccupied setpoints via thermostat reporting interface.





Table F.1. Measurement and Verification Summary Matrix

Table F.T. Meas		M&V Requirements		M&V Requirements				Performance
ECM	IPMVP Option	Baseline	Post-Retrofit	Measurement and Metering	Stipulated Variables	Period M&V Requirements		
ECMs 4.0 HVAC Lifecycle Replacement	A	Power consumption of existing equipment based on spot measurement at select units for comparison against performance curve at test conditions.	Power consumption of existing equipment based on spot measurement at select units for comparison against performance curve at test conditions.	Spot measurement of condensing unit compressors and fan motor power pre-retrofit.  Spot measurement of condensing unit compressor and fan motor power post-retrofit.  Number of selected fixtures shall be statistically significant. Sample size will be decided by post-retrofit sample group. (FEMP 80/20 sampling plan).	Performance of units rated less than five tons is stipulated to be consistent with manufacturer data.  Cooling capacity based on nameplate.  Air side motor power based on nameplate.  Part load performance stipulated to be consistent with manufacturer data where full load data is measured to be consistent with manufacturer data.  Full load equivalent operating hours.  Number of cooling and heating months.	Annual phone review with facility personnel on operational practices.		





#### **F.1 Utility Rate Summary**

Energy savings will be calculated using the applicable billing unit (e.g., kWh, kW, MMBtu, or kGal). Table F.2 summarizes the value of each of the different types of utility savings that will be used to calculate dollar savings in each year of the M&V period. A 2.75 percent energy escalation rate has been applied to the natural gas and water/wastewater each year of the project. A 2.75 percent energy escalation rate has been applied to the electrical component for years two through twenty; no escalation has been applied to the electrical rates for year one to account for the contract rate that is in place through August of 2022. This escalation rate is based on the forecast by the U.S. Department of Commerce – National Institute of Standards and Technology (NIST) published in the most recent version of Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis - 2020. Table S-3 in the publication provides projected fuel price indices with assumed general price inflation rates. The NIST projects electricity prices will increase by 72 percent and natural gas prices by 112 percent over the 20year project term for commercial customers in Census Region 3, which includes Texas, based on a general inflation rate of 3 percent. The 72 percent cost increase projected for electricity equates to an annualized escalation rate of 2.75 percent. The 112 percent cost increase projected for natural gas equated to an annualized escalation rate of 3.97 percent. Ameresco used the more conservative electricity escalation for all utilities for the financial analysis. A copy of Table S-3 of the NIST publication is provided in the Appendix.

Table F.2. Main Campus Rates

Year	Electricity Demand (\$/kW)	Electricity Energy (\$/kWh)	Natural Gas (\$/MMBtu)	Water/ Wastewater (\$/kGal)
Baseline	\$7.331	\$0.03767	\$3.1629	\$8.450
Year 1	\$7.331	\$0.03767	\$3.2499	\$8.682
Year 2	\$7.533	\$0.03871	\$3.3393	\$8.921
Year 3	\$7.740	\$0.03977	\$3.4311	\$9.166
Year 4	\$7.953	\$0.04086	\$3.5254	\$9.419
Year 5	\$8.171	\$0.04199	\$3.6224	\$9.678
Year 6	\$8.396	\$0.04314	\$3.7220	\$9.944
Year 7	\$8.627	\$0.04433	\$3.8244	\$10.217
Year 8	\$8.864	\$0.04555	\$3.9295	\$10.498
Year 9	\$9.108	\$0.04680	\$4.0376	\$10.787
Year 10	\$9.358	\$0.04809	\$4.1486	\$11.083
Year 11	\$9.616	\$0.04941	\$4.2627	\$11.388
Year 12	\$9.880	\$0.05077	\$4.3799	\$11.701
Year 13	\$10.152	\$0.05216	\$4.5004	\$12.023
Year 14	\$10.431	\$0.05360	\$4.6241	\$12.354
Year 15	\$10.718	\$0.05507	\$4.7513	\$12.694
Year 16	\$11.013	\$0.05659	\$4.8820	\$13.043
Year 17	\$11.316	\$0.05814	\$5.0162	\$13.401
Year 18	\$11.627	\$0.05974	\$5.1542	\$13.770
Year 18	\$11.946	\$0.06139	\$5.2959	\$14.149
Year 20	\$12.275	\$0.06307	\$5.4415	\$14.538





#### **F.2 Measurement and Verification Plans**

#### **ECM 1.0 Lighting Improvements**

### **Measurement and Verification Overview**

The M&V protocol for this measure is based on IPMVP Option A. Option A includes engineering calculations with one-time representative measured values, resulting in measured verification of performance. With the chosen method, hours of operation are agreed to for the duration of the project. Post installation fixture wattages will be determined from one-time after spot measurements of representative fixture types.

Ameresco will perform equipment measurements to verify that the performance of the installed equipment will operate at the levels defined in the Investment Grade Audit (IGA) report. This will be established by measuring a percentage of fixtures (either individual fixtures or on a given lighting circuit) of the same lamp/ballast combination as defined in the project specific M&V plan. If the lighting systems do not perform as proposed, Ameresco will either change the systems or compensate TSU if the overall energy savings for all measures in the project are not achieved. For the site operating hours, Ameresco has no control over the hours of operation of the facility. Therefore, TSU and Ameresco will agree to the run hours for the life of the contract.

Table F.3. Measurement and Verification Options

Anna Danasiakian		Existing Annual Hours of	Proposed Annual Hours of
Area Description AUD	Auditorium	Operation	Operation
	1.00.00	2,088	2,088
AUD-OS	Auditorium, install new occupancy sensor	2,088	1,566
BR-RES	Bedroom - Residence	1,462	1,462
CAF	Cafeteria	2,088	2,088
CAF-OS	Cafeteria, add new occupancy sensor	2,088	1,399
CONF	Conference Room	2,088	2,088
CONF-EXST-OS	Conference Room, existing occupancy sensor	1,670	1,670
CONF-OS	Conf. Room, add new occupancy sensor	2,088	1,670
CR	Classroom	1,827	1,827
CR-EXST-OS	Classroom, existing occupancy sensor	1,462	1,462
CR-OS	Classrooms add new occupancy sensor	1,827	1,462
DR	Dorm Room	1,462	1,462
GL-OS	Locker Room, add new occupancy sensor	3,863	2,588
GYM	Gymnasium	3,863	3,863
GYM-OS	Gymnasium, add new occupancy sensor	3,863	2,588
GYM-OS-DH	Gymnasium, add new occupancy and daylight harvesting sensors	3,863	2,028
HALL	Hallways & Common Areas	3,863	3,863
HALL-DH	Hallways & Common Areas, add new daylight harvesting sensor	3,863	3,028
HALL-EXST-OS	Hallways & Common Areas, existing occupancy sensor	2,588	2,588
HALL-OS	Hallways & Common Areas, add new occupancy sensor	3,863	2,588
HALL-RES	Hallways & Common Areas - Residence	731	731





Table F.3. Measurement and Verification Options

	ement and Verification Options	Existing Annual Hours of	Proposed Annual Hours of
Area Description		Operation	Operation
HALL-RES-OS	Hallways & Common Areas - Residence, install new		
	occupancy sensor	731	490
JC	Janitor Closet	522	522
JC-EXST-OS	Janitors Closet, existing occupancy sensor	418	418
JC-EXST-TIMER	Janitors Closet, existing timer switch	418	418
JC-OS	Janitor Closet, add new occupancy sensor	522	418
K	Kitchen	1,827	1,827
K-EXST-OS	Kitchen, existing sensor	1,484	1,484
K-OS	Kitchen , add new occupancy sensor	1,827	1,462
K-OS-DH	Kitchen , add new occupancy & daylight sensor	1,827	1,095
K-RES	Kitchen - Residence	1,462	1,462
K-RES-OS	Kitchen - Residence, install new occupancy sensor	1,462	1,096
LAB	Laboratory Area	3,863	3,863
LAB-EXST-TC	Laboratory Area, existing timer control	2,897	2,897
LAB-OS	Laboratory Area, add new occupancy sensor	3,863	2,897
LR-RES	Living Room - Residence	1,827	1,827
LR-RES-OS	Living Room - Residence, install new occupancy sensor	1,827	1,370
M	Mechanical Room	3,863	3,863
M-EXST-OS	Mechanical Room, existing sensor	3,090	3,090
M-I	Mechanical Room - Inactive	522	522
M-I-OS	Mechanical Room - Inactive, install new occupancy sensor	522	418
M-OS	Mechanical Room, install new sensor	3,863	2,897
N	No Hours	0	0
0	Office	3,132	3,132
O-EXST-OS	Office, existing occupancy sensor	2,506	2,506
00	Open Office	3,863	3,863
OO-EXST-OS	Open Offices, existing occupancy sensor	2,897	2,897
00-0S	Open Offices, add new occupancy sensor	3,863	2,897
O-OS	Offices, add new occupancy sensor	3,132	2,506
O-OS-DH	Offices, add new occupancy and daylight harvesting sensors	3,132	1,837
RC	Library	2,088	2,088
RC-OS	Library, add new occupancy sensor	2,088	1,670
RR-EXST-OS	Restroom, existing occupancy sensor	1,159	1,159
RR-OS	Restroom, add new occupancy sensor	3,863	1,159
RR-P	Private Restroom	522	522
RR-P-EXST-OS	Private Restroom, existing occupancy sensor	418	418
RR-P-OS	Private Restroom, add new occupancy sensor	522	418
RR-P-RES	Private Restroom - Residence	522	522
SH	Shower	522	522
SH-EXST-OS	Shower, existing sensor	418	418
SH-RES	Shower	522	522
SR	Storage Room	522	522
SR-A	Storage Room - Active	1,044	1,044
SR-A-EXST-OS	Storage Room - Active, existing occupancy sensor	835	835
SR-A-OS	Storage Room - Active, add new occupancy sensor	1,044	835
SR-EXST-OS	Storage Room, existing sensor	418	418





Table F.3. Measurement and Verification Options

Area Description		Existing Annual Hours of Operation	Proposed Annual Hours of Operation
SR-OS	Storage Room, add new occupancy sensor	522	418
SR-RES	Storage Room - Residence	522	522
SR-RES-OS	Storage Room - Residence, install new occupancy sensor	522	418
WH-OS	Warehouse, add new occupancy sensor	3,863	2,588
X	Outside Areas	4,380	4,380
X-SW	Outside Areas, switch controlled	1,462	1,462
Z	24 Hour Areas	8,760	8,760
Z-EXST-OS	24 Hour Areas, existing occupancy sensor	5,866	5,866
Z-OS	24 Hour Areas, add new occupancy sensor	8,760	5,869
Z-OS	24 Hour Areas, add new occupancy sensor	8,760	5,869

# **Energy Savings Calculation Methodology**

Ameresco will measure the pre- and post-installation fixture input power using Federal Energy Management Plan (FEMP) 80/20 sampling plan of the representative fixtures at the time of commissioning. The average value for all fixtures of the same type will be used as the post retrofitted wattage.

Lighting interactive effects with HVAC result on cooling energy savings due to lower sensible energy dissipated in the space and conditioned by the cooling coil. The reduction on heat load has the opposite effect on heating requiring an increase in heating consumption. These interactive effects are calculated using standard formulas and are stipulated savings.

# **Lighting Savings**

Energy savings for this portion of the ECM are generated directly by reducing the energy consumption at the fixture. Energy savings for this portion of the ECM are calculated by the following method:

```
Lighting \ kW \ Savings = Base \ Light \ kW - Post \ Light \ kW
Base Light kW = Base Fixture kW \times Diversity Factor
Post Light kW = Post Fixture kW \times Diversity Factor
Lighting \ kWh \ Savings = Base \ Lighting \ kWh - Post \ Lighting \ kWh
Base Lighting kWh = Base Light kW \times Hours
Post\ Lighting\ kWh = Post\ Light\ kW\ \times Hours
```

Lighting occupancy savings are generated by reducing the hours the light fixtures are in operation when the space is unoccupied. The lighting occupancy controls calculation are based on the lighting kWh savings equation and adjusting the hours of operation in spaces the occupancy sensors are applicable. Energy savings are calculated by the following method:

```
Lighting kWh Savings = Base Lighting kWh - Post Lighting kWh
Base Lighting kWh = Light \ kW \times Base \ Hours
Post Lighting kWh = Light \ kW \times Post \ Hours
```





### **HVAC Savings**

Energy savings for this portion of the ECM are generated by reducing the thermal load during cooling seasons and offset by reducing the thermal load during the heating season. Demand savings are generated by reducing the thermal load during monthly cooling peaks. Heating season demand peaks are neglected since the heating peaks occur during the morning pullup heating sequence, before lights are activated. HVAC savings are calculated by the following method:

$$kWh \, Savings = Cooling \, kWh \, Savings + Heating \, kWh \, Savings$$

$$= \frac{Lighting \, kWh \, Savings \times 3.412 \, {}^{kBtu}/{}_{kWh}}{12 \, months \times 12 \, {}^{kBtu}/{}_{tonhours}} \times Load \, Factor \times Cooling \, Efficiency$$

$$\times \, Cooling \, Months$$

$$Heating \, kWh \, Savings$$

$$= \frac{-Lighting \, kWh \, Savings}{12 \, months} \times Load \, Factor \times (1 - Gas \, Heat \, Ratio) \times Heating \, Months$$

$$Cooling \, kW \, Savings$$

$$= \sum_{Month} \frac{Lighting \, kW \, Savings_{Monthly \, Peak \, Temperature} \times 3.412 \, {}^{kBtu}/{}_{kWh}}{12 \, kBtu} \times Load \, Factor$$

$$\times \, Cooling \, Efficiency \, HVAC$$

$$Heating \, Gas \, Savings$$

$$= \frac{-Lighting \, kWh \, Savings \times Gas \, Heat \, Ratio \times 3.412 \, {}^{kBtu}/{}_{kWh}}{12 \, months \times Heating \, Efficiency \times 1000 \, kBtu/MMBtu} \times Heating \, Months$$

$$\times \, Load \, Factor$$

# **Metering Plan**

Ameresco will measure the fixture input power based on FEMP 80/20 accuracy level for the fixtures representing at least 76 percent of kWh savings. The existing fixtures will be measured per Table F.4.

Table F.4. Existing Fixture Sampling Plan

Fixture Group Code	Fixture Group Description	Percent of kWh Savings	Retrofit Quantity	M&V Quantity
FLU-F32T8(2): B-T8-2-32-IS-SP(1)	(2)32w T8 fluorescent	19.9%	6,327	11
FLU-F32T8(4): B-T8-4-32-IS-SP(1)	(4)32w T8 fluorescent	9.9%	1,528	11
FLU-F32T8(4): B-T8-2-32-IS-SP(2)	(4)32w T8 fluorescent	5.9%	837	11
FLU-F32T8(3): B-T8-3-32-IS-SP(1)	(3)32w T8 fluorescent	4.6%	1,028	11
HPS-400W-ED-SIM(1): B-HPS-1-400-MAG(1)	(1)400w HPS	3.5%	116	11
CFL-26W-MT-4P(2): B-CFL-2-26-ELECT(1)	(2)26w 4pin CFL	3.4%	1,205	11
FLU-F25T8(2): B-T8-2-32-IS-SP(1)	(2)25w 3' T8 fluorescent	3.3%	1,199	11
HPS-400W-ED-SIM(4): B-HPS-1-400-MAG(4)	(4)400w HPS	2.9%	25	8
HPS-150W-ED-SIM(1): B-HPS-1-150-MAG(1)	(1)150w HPS	2.4%	205	11
CFL-13W-SPR-GU24(3): NA(0)	(3)13w GU24 CFL	2.3%	2,623	11
MH-400W-ED-SIM(1): B-MH-1-400-MAG(1)	(1)400w MH	1.8%	66	10
CFL-32W-MT-4P(1): B-CFL-2-32-ELECT(1)	(1)32w 4pin CFL	1.6%	720	11





Table F.4. Existing Fixture Sampling Plan

Fixture Group Code	Fixture Group Description	Percent of kWh Savings	Retrofit Quantity	M&V Quantity
FLU-F32T8(3): B-T8-2-32-IS-SP(2)	(3)32w T8 fluorescent	1.5%	312	11
FLU-F32T8(2): B-T8-4-32-IS-SP(1)	(2)32w T8 fluorescent	1.4%	492	11
FLU-F32T8(2): NA(0)	(2)32w T8 fluorescent	1.4%	481	11
FLU-F54T5/HO(1): B-T5HO-2-54-PS-RP(1)	(1)54w T5HO fluorescent	1.3%	398	11
MH-250W-ED-SIM(1): B-MH-1-250-MAG(1)	(1)250w MH	1.2%	63	10
FLU-FB32T8(2): B-T8-2-32-IS-SP(1)	(2)32w u-bend T8 fluorescent	1.1%	345	11
CFL-13W-SPR-SI(3): NA(0)	(3)13w screw in CFL	1.0%	852	11
CFL-27W-MT-2P(2): B-CFL-1-27-MAG(2)	(2)27w 2pin CFL	1.0%	261	11
FLU-F28T5(2): B-T5-2-28-PS-RP(1)	(2)28w T5 fluorescent	1.0%	307	11
MH-150W-ED-SI(1): B-MH-1-150-MAG(1)	(1)150w MH	0.9%	79	10
HPS-400W-ED-SIM(3): B-HPS-1-400-MAG(3)	(3)400w MH	0.9%	10	6
FLU-F14T5(2): B-T5-2-28-PS-RP(1)	(2)14w 2' T5 fluorescent	0.7%	490	11
MH-100W-ED-SI(1): B-MH-1-100-MAG(1)	(1)100w MH	0.7%	62	10
Total:	75.6%	20,031	263	

The upgraded fixtures will be measured at the same locations and quantities provided in Table F.4.

If the total sample values of all fixtures result in savings within 10 percent of the IGA savings, no change will be made. If the measured values are not within 10 percent, Ameresco will evaluate the combined performance of all measures to determine the net savings and will take corrective action to increase savings for the entire project as needed.

No long-term, physical metering of equipment energy will be provided for this measure.

# **Annual Inspection**

As part of the monitoring services, Ameresco will perform a yearly visual inspection of ECM 1.0. The observations during this inspection will be made part of the Annual Reconciliation Report.





#### **Water Fixture Improvements ECM 2.0**

### **Measurement and Verification Overview**

M&V protocol for this ECM is based on IPMVP Option A. This option allows for the measurement of at least one variable while allowing others to be stipulated constant. Performance verification methods include engineering calculations using one-time representative measured values, resulting in a quantified confirmation of energy/resource savings. Baseline fixture flow rates were determined during the IGA. Post installation fixture flow rates will be determined from one-time after spot measurements of representative fixture types.

Ameresco will measure the flow rate per fixture based on the Federal Energy Management Plan (FEMP) 90/20 sampling protocol on a campus level.

For baseline conditions, Ameresco utilized occupancy data provided by TSU for classes, events, staff, and dorm occupancy. The annual occupant hours for classes, events, and staffing have been established and converted to full time equivalent (FTE) daily occupants count for each building. Ameresco has no control over building occupancy and cannot be reasonably requested to assume the risk for this variable. Therefore, TSU and Ameresco will agree to the building occupancy rates for the life of the contract.

Table F.5. Occupancy and Usage Factors

Table F.S. Occupancy and Osage Factors	Academic & General Use Buildings				Student Housing			
	Faculty	Part Time Faculty	Staff	Part Time Staff		Visitors	Residents	
Average hourly population	424	291	619	10	13,226	265	3,441	69
Population % that is male	42%	42%	50%	50%	39%	50%	39%	50%
Female population	245	168	310	5	8,121	133	2,113	35
Male population	179	123	310	5	5,105	133	1,328	35
Average hours per day occupied	8	4	8	4	3.5	0.5	10	0.5
Average days per year occupied	180	180	250	250	180	180	260	180
Residential (Yes or No)	No	No	No	No	No	No	Yes	No
Flush Factor	100%	100%	100%	100%	100%	100%	100%	100%
% of Urinals Available to Males	100%	100%	100%	100%	100%	100%	0%	100%
Lavatory Use Factor	100%	100%	100%	100%	100%	100%	100%	100%
Kitchen/General Purpose Faucet Use Factor	25%	25%	25%	25%	5%	0%	50%	5%
Shower Use Factor	0.1%	0.1%	0.1%	0.1%	0.1%	0%	90%	0.1%
Female number of toilet flushes per day	979	336	1,238	10	14,211	33	10,564	9
Male number of total flushes per day	717	246	1,238	10	8,934	33	6,641	9
Male number of toilet flushes per day	179	62	310	3	2,234	8	6,641	2
Male number of urinal flushes per day	538	185	929	8	6,701	25	0	6
Lavatory number of uses per day	1,696	582	2,476	20	23,146	66	3,441	17
Lavatory number of minutes used per day	170	58	248	2	2,315	7	17,205	2
Kitchen/General Purpose Faucet number of uses per day	106	73	155	3	661	0	1,721	3
Kitchen/General Purpose Faucet number of minutes used per day	212	146	310	5	1,323	0	5,162	7
Shower number of uses per day	0	0	1	0	13	0	3,097	0
Shower number of minutes used per day	3	2	5	0	106	0	30,969	1





# **Energy Savings Calculation Methodology**

Water savings for restroom fixture retrofits are determined by comparing the baseline consumption of fixtures to the post-retrofit consumption. The following is used to determine the water savings per building. Usage factors, including building occupancy and water fixture consumption profiles are assumed to be the same for baseline and post-retrofit calculations. Each calculation is done on a per building basis by using average flow rate per fixture at the campus level determined during testing.

```
Annual Occupant Days = FTE Daily Occupants \times Diversity Factor \times Annual Occupant Days
kGal\ Savings = Base\ kGal - Post\ kGal
Base\ kGal = Occupant\ Usage\ Factor 	imes Base\ Fixture\ Flow\ Rate 	imes Annual\ Occupant\ Days
Post\ kGal = Occupant\ Usage\ Factor \times Post\ Fixture\ Flow\ Rate \times Annual\ Occupant\ Days
```

Energy savings for restroom fixture retrofits is determined by assessing the energy requirement to raise the amount of water saved from the average ground water temperature to tap or shower temperature. Energy savings is only assessed for lavatory aerators replacement and showerhead replacement as these are the only aspects of this ECM utilizing domestic hot water. Energy savings are determined by calculating the energy required to heat the previously calculated water savings volume from the local ground water temperature to the assumed fixture usage temperature. Temperatures at the showerhead are assumed to be 105°F and 100°F at the sinks. The following equation is used to determine the energy savings per building. Each calculation is done on a per building basis.

```
Thermal Energy Savings
                 = Water Savings kGal \times 1000 \frac{Gal}{kGal} \times 8.33 lb/Gal \times Heat Capacity of Water
                 \times (Fixture Temperature – Ground Water Temperature)
                                         Thermal Savings
    Gas\ MCF\ Savings = \frac{1}{Heatinjg\ Efficiency\ \times 1000\ kBtu/MMBtu} \times
```





# **Metering Plan**

Pre-retrofit flow rate measurements were taken during the IGA. A summary of the flow rates is provided below. The toilets, urinals, and faucets were sampled at a 90/20 accuracy level. Showerhead flow rates are stipulated at the nameplate flowrate due to the limited number, limited usage, and limited magnitude of savings.

Table F.6. Pre-Retrofit Flow Rate Averages

	Academic &	Student	
Fixture Type	General Use	Housing	Units
Toilets	2.43	1.97	Gallons per Flush
Urinals	0.64	0.64	Gallons per Flush
Lavatory	1.46	1.36	Gallons per Minute
Kitchen/General Purpose Faucet	2.20	1.81	Gallons per Minute
Showerheads	1.77	1.79	Gallons per Minute

A one-time post measurement of a sample number of fixtures of each type of retrofit included in the project aerators, urinals, toilets, and shower heads will be taken. The post retrofit sample will be based on the recommended FEMP 90/20 accuracy level.

# **Annual Inspection**

As part of the services provided under the measurement and verification agreement, Ameresco will conduct an annual inspection of the optimization system to ensure it is correctly installed, properly maintained, and operating per the intention of the measure. The results of the inspection will be documented in the Annual M&V Report.





#### **ECM 3.0 Controls and Instrumentation Improvements**

### **ECM 3.1 Controller Firmware Upgrades**

No savings are claimed for this sub-measure.

# **ECM 3.2 Laboratory Ventilation Controls**

### **Measurement and Verification Overview**

The M&V protocol for this savings source is based on IPMVP Option A. Cooling and heating savings from the retrofit will be verified by measuring supply airflow reduction at the air handling unit (AHU) and temperatures across cooling and heating coils. Airflow measurements will be coordinated with the commissioning of the laboratory airflows to avoid redundancy. Temperature readings will be done through the building automation system (BAS) when possible; otherwise, Ameresco will perform short term logging at select cooling and heating coils.

In the M&V calculations, supply airflows from the AHU will be variable, which is the existing condition. After the retrofit, the airflows may vary because the newly installed fume hood air valves will allow for variable volume. However, considering that savings from this retrofit is relatively small, Ameresco does not recommend providing more detailed airflow measurements for M&V, as the M&V cost will quickly outweigh its benefits.

Table F.7. Laboratory Standards of Operation

	Hours of Operation	ACH <sup>[1]</sup>	
Pre Retrofit Standards of Operation			
Occupied Sequence	8,760	40	
Presence/Hood Sash Open [2]	4,117	12	
Unoccupied Sequence (No Existing Sequence)	N/A	N/A	
Presence/Hood Sash Open	N/A		
Post Retrofit Standards of Operation			
Occupied Sequence	2,350	6	
Presence/Hoods in Use	500	6	
Unoccupied Sequence	6,410	4	
Presence/Hoods in Use	0	4	

<sup>[1]</sup> Minimum air changes per hour. Savings have been calculated based on the maximum of the hood requirements or the minimum number of ACHs for each space.

# **Energy Savings Calculation Methodology**

Preheating energy use at the AHUs can be calculated using the measured airflow and temperatures. For preheating, the temperature before the coil is the outside air temperature. Preheating is used only when preheat temperature is higher than outside air temperature.

Preheating (Btu/hr) = 1.03 x Airflow CFM x (Tpreheat - TOA)



<sup>[2]</sup> Baseline hoods are open to 18-inches for 47 percent of the time.



The total amount of preheating used for a year will then be the sum of the preheating multiplied by the number of hours in the bin data for that particular outside air temperature.

Preheatenergy (Btu) =  $\Lambda$ [Preheating (Btu/hr) x Hours in bin] for all T OA

Hot water for preheating is supplied from the hot water loop. The amount of hot water energy consumed for providing preheating at the AHUs can be calculated as shown below:

```
Preheat. (Therms) = Preheat energy (Btu) / 100,000
```

Precooling energy use at the AHUs can also be calculated using the measured airflow and temperatures. For simplicity, in this M&V calculation we assume a dry coil condition for precooling. This precooling calculation is valid only when the precooling temperature is lower than outside air temperature.

```
Precooling (Btu/hr) = 1.03 x Airflow CFM x (TOA - Tprecool)
```

The total amount of precooling used for a year will then be the sum of the precooling times the number of hours in the bin data for that particular outside air temperature.

```
Precoolenergy (Btu) = \Lambda [Precooling (Btu/hr) \times Hours in bin] for all T_OA
```

Electricity consumption for AHU precooling can then be calculated as follows.

```
Precool electricity (kWh) = Precool energy (Btu) / (3,412 Btu/kWh) / Condenser COP
```

Cooling energy consumed at the main cooling coil is calculated using the measured airflows and temperatures across the coil. As in the precooling calculation, we assume a dry coil condition in this calculation. For the DAL climate, with low humidity, this is a reasonable assumption. The total annual cooling energy is calculated using the weather BIN data.

```
Cooling (Btu/hr) = 1.03 x Airflow CFM x (Thefore coil – Tsupply)
```

```
Cooling energy (Btu) = \Lambda[Cooling (Btu/hr) x Hours in bin] for all T_OA
```

Cooling at the AHUs is provided by chilled water supplied from central plant chilled water (CHW) loop. Chiller electricity consumption can be calculated using the amount of cooling used and chiller efficiency. In this calculation, we use a chiller efficiency of 1.0 kW/ton, or a COP of 3.5.

```
Cooling electricity (kWh) = Cooling energy (Btu) / (3,412 Btu/kWh) / Chiller COP
```

Heating hot water use from central hot water loop to provide reheating can be calculated in the same manner as preheating.

```
Reheating (Btu/hr) = 1.03 x Airflow CFM x (Tafter coil – Tbefore coil) Reheat energy (Btu) = 1
Reheating (Btu/hr) x Hours in bin ] for all T OA Reheat N.G. (Therms) = Reheat energy (Btu)/100,000
/Boiler eff
```

Total electricity use for laboratory cooling is the sum of electricity use for precooling and main cooling. Electricity savings from the retrofit will be the difference between this total electricity use before and after the retrofit.

Electricity use (kWh) = Precool electricity (kWh) + Cooling electricity (kWh)





Electricity kWh savings = Baseline electricity use (kWh) - Post retrofit electricity use (kWh) Electricity \$ savings = Electricity kWh savings x \$/kW

Similarly, total natural gas consumption for laboratory heating is the sum of the natural gas use at the preheating and reheating coils. Natural gas savings from the retrofit will be the difference in this total natural gas use before and after retrofit. Monetary savings from reduction in natural gas consumption is calculated using the unit natural gas price.

N.G. use (Therms) = Preheat N.G. (Therms) + Reheat N.G. (Therms)

N.G. Therms savings = Baseline N.G. use (Therms) – Post retrofit N.G. use (Therms)

N.G. \$ savings = N.G. Therms savings x \$/Therms

Total cost savings from this retrofit is the sum of cost savings from electricity and natural gas usage reduction.

Total \$ savings = Electricity \$ savings + N.G. \$ savings

### **Metering Plan**

Ameresco will perform a one-time measurement of supply airflows at each room before and after sequence modification. The measurements will be provided using the room controller instrumentation. The airflow measurements will be coordinated with the commissioning phase of the retrofit to minimize redundancy and disruption to the laboratory. Airflow measurements will be done for the 18 inch sash position at the fume hoods. This is the sash position observed during the energy audit. Sashes will be equipped with an automated sash closing system that will prevent unnecessary hood ventilation. This will further lower the airflow to the laboratory, which in turn will reduce cooling and heating consumption.

### **Annual Inspection**

No annual inspection is included for this measure. Periodic review of the setpoints and sash closure devices will be performed at select units or via review with maintenance personnel. Review of thermostat setpoints will be performed through the network thermostat remote user interface. The University must maintain the remote service access through the performance period.

### **ECM 3.3 Network Thermostats**

### **Measurement and Verification Overview**

The M&V protocol for this ECM is based on the recommendations of IPMVP Option A. This option allows for the measurement of at least one variable while allowing others to be stipulated constant. Performance verification methods include engineering calculations using one-time representative measured values, resulting in a quantified confirmation of energy/resource savings. Installation verification and/or commissioning of this ECM will be utilized to ensure that the stipulations are realistic and attainable. Ameresco will monitor the residence hall controls setpoints to verify that the system is operating according to the intended design. The cost to measure the ECM variables in relation to the confidence of the assumptions used in calculations





to determine savings deemed this ECM suitable to stipulate all values.

TSU and Ameresco agreed to stipulate the periods of facility occupancy. Hours of operation have been estimated based on detailed surveys, observations, TSU input, and occupant interviews. As facility operating hours are beyond the control of Ameresco, stated values will not be adjusted during the performance period.

The baseline internal loads were established when the building was originally built. Ameresco assumed the HVAC equipment selections were accurate and no changes to the type of occupancy and occupancy have occurred. Since future equipment loads are not influenced by Ameresco, the loads are stipulated for the performance period.

Table F.8. Resident Rooms Standards of Operation

			Occupied <sup>[1]</sup>			Unoccupied <sup>[2]</sup>	
				Cool	Heat	Cool	Heat
Session	Begin Date	End Date	Time Period	°F	°F	°F	°F
Pre Retrofit Standards of Operation							
Spring Semester	Mid-January	Mid-May	00:00 - 23:59	72	72	72	72
Summer Break	Mid-May	Mid-August	00:00 - 23:59	72	72	72	72
Fall Semester	Mid-August	Mid-December	00:00 - 23:59	72	72	72	72
Winter Break	Mid-December	Mid-January	00:00 - 23:59	72	72	72	72
Post Retrofit Standards of Operation							
Spring Semester	Mid-January	Mid-May	00:00 - 23:59	72	72	Auto	Auto
Summer Break	Mid-May	Mid-August	00:00 - 00:00	72	72	85	60
Fall Semester	Mid-August	Mid-December	00:00 - 23:59	72	72	Auto	Auto
Winter Break	Mid-December	Mid-January	00:00 - 00:00	72	72	85	60

<sup>[1]</sup> Occupied setpoints have been assumed to remain the same pre and post retrofit.

# **Energy Savings Calculation Methodology**

Energy savings are determined using the following equations:

```
Electricity Savings = Cooling Savings + Electric Heating Saving + Motor Savings
Cooling Savings = Base Cooling kWh - Post Cooling kWh
Base Cooling kWh = Cooling\ Capacity\ \times Utilization\ \times Cooling\ Efficiency\ \times Base\ Hours
Post Cooling kWh = Cooling\ Capacity\ \times\ Utilization\ \times\ Cooling\ Efficiency\ \times\ Post\ Hours
Electric Heating Savings = Base Heating kWh - Post Heating kWh
Base Heating kWh = Heating kW Capacity \times Utilization \times Base Hours
Post Heating kWh = Heating kW Capacity \times Utilization \times Post Hours
Motor\ Savings = Base\ Motor\ kWh - Post\ Motor\ kWh
Base Motor kWh = Base Constant Speed Motor kWh + Base Variable Speed Motor kWh
```

Base Constant Speed Motor kWh

$$= \frac{Motor\ HP \times Load\ Factor \times 0.746\ kW/hp}{Motor\ Efficiency} \times Base\ Hours \times Utilization$$

Base Variable Speed Motor kWh

$$= \frac{\textit{Motor HP} \times \textit{Load Factor} \times 0.746 \, \textit{kW/hp}}{\textit{Motor Efficiency}} \times \textit{Base Hours} \times \textit{Utilization}^{\textit{VFD Power Index}}$$



<sup>[2]</sup> Automatic in-Session, unoccupied setbacks to be based on 12-minute recovery to occupied setpoint.



 $Post\ Motor\ kWh = Post\ Constant\ Speed\ Motor\ kWh + Post\ Variable\ Speed\ Motor\ kWh$ 

 $Post\ Constant\ Speed\ Motor\ kWh = \frac{Motor\ HP\ \times Load\ Factor\ \times 0.746\ kW/hp}{Motor\ Efficiency} \times Post\ Hours$ 

Post Variable Speed Motor kWh

 $= \frac{Motor\ HP \times Load\ Factor \times 0.746\ kW/hp}{Power\ Index} \times Post\ Hours \times Utilization^{VFD\ Power\ Index}$ 

 $Gas\ Heating\ Savings = Base\ Heating - Post\ Heating$ 

Base Gas Heating = Heating Capacity MBH  $\times$  Utilization  $\times$  Base Hours

Post Gas Heating = Heating Capacity MBH  $\times$  Utilization  $\times$  Post Hours

### Where:

Base Constant Speed Motor kWh = Base constant speed motor electric energy consumption (kWh) Base Cooling kWh Base cooling equipment electric energy consumption (kWh)

Base Gas Heating = Base gas energy consumption (CCF)

= Base heating equipment electric energy consumption (kWh) Base Heating kWh

Base Hours = Base hours

= Base motor energy consumption (kWh) Base Motor kWh

Base Variable Speed Motor kWh Base variable speed motor electric energy consumption (kWh)

= Cooling system capacity (ton) Cooling Capacity

Cooling Efficiency = Cooling equipment efficiency (kW/ton)

Cooling Savings = Cooling system electric energy savings (kWh)

Electric Heating Capacity = Electric heating system capacity (kW)

Electric Heating Savings = Electric heating system energy savings (kWh)

Electricity Savings Total electric energy savings (kWh) Gas Heating Capacity Gas heating system capacity (MBH)

Gas Heating Savings Gas heating system thermal energy savings

Gas Savings = Heating system gas savings (CCF) Heating Efficiency Gas heating equipment efficiency

Heating kW Capacity Heating system electric heating capacity (kW)

Load Factor = Motor loading Motor Efficiency Motor efficiency Motor HP Motor power (hp)

Motorized equipment (i.e. pumps, fans) electric energy savings Motor Savings

(kWh)

Post Constant Speed Motor kWh = Post constant speed motor electric energy consumption (kWh) Post Cooling kWh = Post cooling equipment electric energy consumption (kWh)

Post Gas Heating = Post gas energy consumption (CCF)

= Post heating equipment electric energy consumption (kWh) Post Heating kWh

Post Hours = Post hours

Post Motor kWh = Post motor energy consumption (kWh)

Post Variable Speed Motor kWh = Post variable speed motor electric energy consumption (kWh)

Utilization = System utilization at BIN temperature





### **Metering Plan**

No long term, physical metering of equipment energy will be provided for this measure. The high level of confidence in the engineering of the ECM and calculation of the associated savings allow the M&V plan to eliminate the cost of a metering strategy and not adversely impact the economics of the measure.

### **Annual Inspection**

As part of the services provided under the M&V agreement, Ameresco will conduct an annual inspection of the equipment related to this ECM to ensure it is correctly installed, properly maintained, and operating per the intention of the measure via review of the online operation portal. In addition, an assessment of operating schedules and space temperature setpoints will be performed for compliance to the Standards of Operation.

### **ECM 3.4 Submetering**

No savings are claimed for this sub-measure.





#### **HVAC Lifecycle Replacements ECM 4.0**

### **Measurement and Verification Overview**

Energy savings for this ECM will be calculated using spreadsheets. The models use local weather data separated in temperature ranges or BINs to determine the energy consumption for each building. The spreadsheet uses both the BIN weather data and building operating parameters to determine the cooling and heating loads providing the energy consumption for the building as an output. Typical building parameters include equipment efficiency, temperature setpoint, outdoor air percent, and economizer mode. These BIN models have been tested throughout the years and have been determined to be accurate if not conservative as a method of estimating energy savings.

# **Energy Savings Calculation Methodology**

Energy savings are determined using the following equations:

Energy Savings = Base Cooling kWh - Post Cooling kWh $Demand\ Savings = Base\ Annual\ kW - Post\ Annual\ kW$ 

Base Annual  $kW = \sum_{Months} Base Cooling kW_{T,Avg}$ 

Base Cooling  $kW = Base\ Tons \times Base\ Utilization \times Base\ Efficiency$ 

Base Cooling  $kWh = Base Cooling kW \times Cooling Hours$ 

Post Annual  $kW = \sum_{Months} Post\ Cooling\ kW_{T,Avg}$ 

 $Post\ Utilization = \left(\frac{Base\ Tons\ \times Base\ Utilization}{Post\ Tons}\right)$ 

Post Cooling  $kW = PostTons \times Post\ Utilization \times Post\ Efficiency$ 

Post Cooling  $kWh = Post Cooling kW \times Cooling Hours$ 

### Where:

Base Annual kW Sum of baseline peak electrical demand for cooling =

Base Cooling kW = Baseline peak electrical demand for cooling Base Cooling kWh Baseline electrical consumption for cooling

Base Efficiency Baseline seasonal cooling system efficiency (kW/ton)

Base Ton Baseline cooling capacity

Base Utilization Baseline utilization at temperature bin Cooling Hours Cooling mode operating hours Demand Savings = Total electrical demand savings

Electricity Savings Total electrical savings =

Post Annual kW Sum of post peak electrical demand for cooling = Post electrical peak demand for cooling Post Cooling kW

Post Cooling kWh Post electrical consumption for cooling

Post Efficiency = Post seasonal cooling system efficiency (kW/ton)

Post Ton = Post cooling capacity

Post Utilization Post utilization at temperature bin





# **Metering Plan**

Metering will be conducted via a one-time power measurement using a true RMS meter. The power consumption measured in kW will be compared with the kW rating provided by the equipment manufacturer. Only units larger than 5 tons will be measured. No long term physical metering of equipment energy will be provided for this measure. The high level of confidence in the engineering of the ECM and calculation of the associated savings allow the M&V plan to eliminate the cost of a metering strategy and not adversely impact the economics of the measure.

### **Annual Inspection**

As part of the services provided under the M&V agreement, Ameresco will conduct an annual inspection of the equipment related to this ECM to ensure it is correctly installed, properly maintained, and operating per the intention of the measure. In addition, an assessment of operating schedules and space temperature setpoints will be performed for compliance to the Standards of Operation.



# ATTACHMENT N

# EXTENDED WARRANTY

No extended warranty coverage is included under this Agreement.