Commercial & Industrial (C&I)

SmartStart Buildings® Program

For New Construction and Existing Buildings

FY21 PROGRAM GUIDE

October 1, 2020 – June 30, 2021

Modified February 2, 2021

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Limitations

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1 Program Overview

1.1 Description

New Jersey SmartStart Buildings® is a statewide energy efficiency program available to qualified commercial, industrial, institutional, governmental, or agricultural customers who are planning to construct, expand, renovate, or remodel a facility, or to replace electric or gas equipment. Incentives are available for prescriptive measures and are incentives where dollar amounts are fixed for specific categories of equipment, are offered where one-for-one, business as usual replacements are typical. The prescriptive applications are labeled by technology, such as lighting and HVAC, and defined as equipment most commonly recommended for energy-efficient projects with well-established energy savings.

Custom Incentives are offered for non-standard equipment, complex systems, and specialized technologies that are not addressed through prescriptive offerings. Customers are provided a discrete, flexible application process with the ability to submit one or multiple applications for any size project. The transparency of incentives aids customers in making informed decisions while assisting energy efficiency professionals to better solicit a prospective project.

Routinely, the program adds, removes, or modifies prescriptive incentives for various energy efficiency equipment based on national and local market trends, the development of new technologies, and changes in efficiency baselines. Note that on March 1, 2020, the State of New Jersey adopted the ASHRAE 90.1-2016 energy code for all commercial and industrial buildings. This code is implemented in the FY21 Programs.

The C&I New Construction and Retrofit Programs target commercial, educational, governmental/institutional, industrial, and agricultural customers engaged in customer-initiated construction events, including public school construction, other new building construction, renovations, remodeling, equipment replacement, and manufacturing process improvements. The Program offers incentives and technical support for both existing buildings and new construction. In addition, the Program may be used to address economic development opportunities and transmission and distribution system constraints. The Program is primarily geared towards the mainstream C&I market, as opposed to programs that target specialized markets such as those targeted by Large Energy Users Program, the Local Government Energy Audit Program, and the Direct Install Program.

Incentive and service offerings are tailored to influence market-driven events by acknowledging the customer's own initiative and the time-sensitive nature of these events. Market-driven construction events are outlined below:

- **New Construction and Additions** – Throughout the planning/design and construction stages of a project, critical decisions from an energy perspective are made regarding building design and components such as lighting systems, HVAC systems, energy-using equipment, etc.
- **Renovations** – If a building is to be "gutted" with replacement of the HVAC and lighting systems along with major modifications to the building shell.
- **Remodels** – Appearance upgrades that may include lighting changes, or a new configuration of an internal space, or alteration in mechanical/electrical systems to update appearance, or reconfiguration of space for a tenant or for safety/security reasons
- **Equipment replacement** – Equipment may be replaced at the time of a remodel/renovation, or at other times such as when it fails, becomes too costly to maintain, or becomes inappropriate for new uses.

2 Eligibility & Incentives

In order to be eligible for the program, applicants or customers must be contributors to the Societal Benefits Charge (SBC), be commercially billed and the project must be located within the service territory of at least one of New Jersey's seven regulated utilities; Atlantic City Electric, FirstEnergy/Jersey Central Power & Light, New Jersey Natural Gas, Elizabethtown Gas, Public Service Electric and Gas, Rockland Electric Company, and South Jersey Gas.

Projects located in areas where electricity is provided by a municipal utility are eligible for only those portions of the program that address the energy efficiency of natural gas equipment if it is provided by a participating gas utility.

Energy efficient measures must be installed in buildings located within a New Jersey Utilities' service territory and designated on the customer's application. The customer must ultimately own the equipment, through an up-front purchase. Equipment procured by the customer via another program offered by New Jersey's Clean Energy Program or the New Jersey Utilities, as applicable, are not eligible for incentives through this program. Customers who have not contributed to the SBC of the applicable New Jersey Utility are not eligible for incentives offered from the program.

Refer to each measure application form for additional terms and conditions specific to each technology.

2.1 Eligible Measures

Prescriptive Measures - Provide fixed incentives for common energy efficiency measures:

- Electric Chillers
- Natural Gas Chillers
- HVAC Systems
- Ground Source Heat Pumps (Geothermal)
- Gas Fired Boilers
- Gas Furnaces
- Variable Frequency Drives (VFDs)
- Gas Fired Water Heating
- Gas Fired Water Booster Heating
- Tankless Water Heaters
- Select Premium Efficiency Motors
- Prescriptive Lighting & Lighting Controls
- Performance Based Lighting
- Kitchen Hood Variable Frequency Drives
- Low Intensity Infrared Heaters
- Boiler/AC Economizing Controls
- Refrigeration Controls
- Refrigerated Doors/Covers
- Food Service Equipment

- Custom Measures - Incentives are for non-standard equipment, complex systems, and specialized technologies that are not addressed through prescriptive offerings above.

2.2 Incentive Rates & Incentive Caps

Current incentive rates and requirements for each measure may be found on their respective application forms posted on the program website.

Incentives are available up to $500,000 per electric account and $500,000 per natural gas account per fiscal year. A customer is defined as a utility account. If an entity brings more than one project through NJCEP in any given FY, it will be held to an Entity Cap of $4,000,000 (Entity Cap) for that FY.

All projects are subject to an incentive cap equal to the applicant's cost for the project (material and labor).

2.3 Custom Measure Incentive Rates

A project's incentives will be based on the **lesser of the three** calculations as shown below. See Section 2.4, Enhanced Incentives, for information regarding customer eligibility for enhanced incentives. Projects that meet the eligibility criteria will receive the increased rates listed below. Program/Project Incentive Caps outlined in Section 2.2 still apply.

Equipment Type	Incentive Cap	Incentive Amount	Enhanced Incentive Amount
Custom Measures	First-Year Savings	Electric Savings: $0.16/kWh	Electric Savings: $0.32/kWh
		Gas Savings: $1.60/therm	Gas Savings: $3.20/therm
	Project Cost	50% of Total Installed Project Cost/Incremental Cost	80% of Total Installed Project Cost/Incremental Cost
	Buy-Down	Amount to buy-down to 1-year payback	Amount to buy-down to 1-year payback

2.4 Enhanced Incentives

Existing buildings that meet at least one of the eligibility criteria listed in the table below may be eligible for an enhanced incentive. See details and eligibility requirements on the SmartStart applications. Enhanced incentives do not apply to new construction projects or lighting measures of any kind. All projects are subject to an incentive cap equal to the applicant's cost for the project (material and labor).

Eligibility Basis	Criteria
Located in an Urban Enterprise Zone (UEZ)	The building where equipment is or will be installed must be located within the bounds of an Urban Enterprise Zone (UEZ). Please follow the steps below to confirm your facility is within the qualifying zone. The building location must be checked against the NJ Community Asset Map. 1. Enter the address of your building in the field at the top of the map. 2. Under the Layers menu on the left side of the screen, scroll down to **Urban Enterprise Zones** and *check* to enable the layer. 3. Print or save a screenshot of the page to include with your submission. For the avoidance of doubt, companies do not need to become a Certified UEZ Business to be eligible for enhanced incentives from NJCEP.

Eligibility Basis	Criteria
Located in an Opportunity Zone (OZ)	The building where equipment is or will be installed must be located within the bounds of an Opportunity Zone (OZ). Please follow the steps below to confirm your facility is within the qualifying zone. The building location must be checked against the NJ Community Asset Map. 1. Enter the address of your building in the field at the top of the map. 2. Under the Layers menu on the left side of the screen, scroll down to **Opportunity Zones** and *check* to enable the layer. 3. Print or save a screenshot of the page to include with your submission.
Affordable Housing	Any multifamily housing that an official document identifies as participating in a federal, state, or local affordable housing program. This includes, by way of example only, the New Jersey Department of Community Affairs listing of Affordable Housing available here https://www.state.nj.us/dca/divisions/codes/publications/developments.html as well as official documents showing identification by the documents regarding New Jersey Housing and Mortgage Finance Agency, United States Low Income Housing Tax Credit (LIHTC), and United States Housing and Urban Development (HUD).
Owned or operated by a Municipal Entity	The building must be owned or operated by a Municipal Entity as evidenced by the name listed on the utility bill(s) for the building. If the name as shown on the utility bill(s) does not clearly delineate a Municipal Entity, other documentation may be accepted to demonstrate ownership on a case-by-case basis. Please contact the Program Manager for specific guidance. The Municipal Entity name must be recognized on the New Jersey Municipalities Search tool available at: https://www.nj.gov/nj/gov/direct/municipality.html or be listed here: https://nj.gov/comptroller/news/docs/authoritiescommission.pdf.
Owned or operated by a County Entity	The building must be owned or operated by a County Entity as evidenced by the name listed on the utility bill(s) for the building. If the name as shown on the utility bill(s) does not clearly delineate a County Entity, other documentation may be accepted to demonstrate ownership on a case-by-case basis. Please contact the Program Manager for specific guidance. ○ Enhanced incentives for Counties apply to buildings owned or operated by one of the counties listed here: https://www.state.nj.us/nj/gov/county/counties.html ○ This includes, among other things, buildings owned or operated by any "community college" listed here: https://www.nj.gov/highereducation/colleges/schools_sector.shtml ○ And authorities and commissions listed here: https://nj.gov/comptroller/news/docs/authoritiescommission.pdf
Owned or operated by K-12 Public School	The building must be owned or operated by a K-12 Public School as evidenced by the name listed on the utility bill(s) for the building. If the name as shown on the utility bill(s) do not clearly delineate a K-12 Public School, other documentation may be accepted to demonstrate ownership on a case-by-case basis. Please contact the Program Manager for specific guidance. The K-12 Public School name must be recognized on the New Jersey School Directory available at: https://homeroom5.doe.state.nj.us/directory/pub.php

3 General Requirements

3.1 Inspections

The chart below identifies the application requirements for pre-inspection or waiver of pre-inspection from the Program Manager:

Measure Type	Equipment is subject to pre-inspection and application must be submitted prior to installation	Equipment may be installed prior to application submission at customer risk
Custom Measures	✔	
Prescriptive Lighting, **Performance Lighting** and **Lighting Controls** projects with incentives < $100,000		✔
Prescriptive Lighting, **Performance Lighting** and **Lighting Controls** projects with incentives ≥ $100,000	✔	
Measures meeting prescriptive measure requirements including Variable Frequency Drives, Food Service Equipment, Gas Heating, Gas Cooling, Gas Water Heating, Electric Chillers, Electric Unitary HVAC, Ground Source Heat Pump and Refrigeration Controls, Doors/Covers and Motors.		✔

To be eligible for incentives, the application must be submitted to the Program Manager within 12 months of equipment purchase. For example, an application for refrigeration equipment may be submitted at any time up to 12 months after equipment purchase and without any pre-inspection or prior approval from the Program Manager. Sufficient documentation must be provided to the Program Manager confirming date of equipment purchase (material invoice, purchase order, etc.).

All applicants are encouraged to obtain the Program Manager's approval and an incentive commitment prior to commencing installation or construction. Customers implementing projects without the Program Manager's approval do so at their own risk, including, among other things, the risk of having their project deemed ineligible for incentives.

All projects are subject to the Program's random post inspection selection process. The Program must have reasonable access to participating customer's facility to post inspect the energy-efficient measures installed under this Program.

[1] See Section 2.4 Enhanced Incentives

3.2 Prevailing Wage Requirement

Participating projects with a contract at or above current prevailing wage contract threshold amount set pursuant to the New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.) are required to pay no less than prevailing wage rate to workers employed in the performance of any construction undertaken in connection with Board of Public Utilities financial assistance, or undertaken to fulfill any condition of receiving Board of Public Utilities financial assistance, including the performance of any contract to construct, renovate or otherwise prepare a facility, the operations of which are necessary for the receipt of Board of Public Utilities financial assistance. By submitting an application, or accepting program incentives, applicant agrees to adhere to New Jersey Prevailing Wage requirements, as applicable. By signing the application, the signatories agree to comply with the provisions of the New Jersey Prevailing Wage Act, N.J.S.A. 34: 11-56.25 et seq., (Act), if and to the extent that Act may apply to the work covered by the application. More information can be found at https://www.nj.gov/labor/wagehour/regperm/public_contracts_general.html

3.3 Deficient Applications

If an application package is incomplete or information is missing or deemed insufficient, a deficiency letter will be emailed to the applicant requesting additional information. The information or documentation requested on the letter must be received within 30 days of the date of the request. If additional deficiencies are still noted, there will be up to two additional notifications issued with the same timeframes. If a customer fails to respond to a deficiency request within 30 days or exceeds the three attempts provided, the application will be rejected. If rejected, customers may re-apply under the program incentives and requirements in place at that time.

3.4 Change in customer name/contractor or payee

These requests must come from the customer in writing detailing the changes along with the appropriate updated program documents.

3.5 Tax Clearance Certificate

Effective May 2016, the State of New Jersey launched an online portal, which allows customers to apply for the Tax Clearance Certificate at no cost. The name of the customer listed on the certificate must match the customer name listed on the utility bill and the application. The customer tax ID listed on the application must agree with the tax ID listed on the Certificate. Certificates are valid for 180 days and must be valid on the date the program approves the incentive for payment.

3.6 W9, ST-4 or ST-5

This form must be completed by the entity receiving incentive payment. Certain private business entities may hold a "Sales Tax Exempt Organization Certificate (Form ST-5)." This form applies solely to purchases of tangible personal property or services and does not exempt the entity from the requirement to submit the Application for Tax Clearance.

3.7 Utility Account

Each utility account requires a complete, separate application. Projects for the same utility account and the same technology that are being done at the same time must be submitted on one application. For Custom application submissions only, customers may group utility accounts serving one facility under one application.

3.8 Expirations and Extensions

Pre-approved projects are given a one-year approval in which the proposed measure is to be installed and

operational. When a project has expired, the customer will have 30 days to either submit a request for an extension OR submit final project paperwork. Extension requests must be in writing from the customer and include the circumstances that led to the extension request, and the percentage of the project completed.

The Program Manager may grant up to two extensions, with each extension for a period of up to six (6) months from the original approval expiration date. In addition, the Program Administrator (PA), with the approval of Board Staff, may approve up to two extensions, each of a length set by the PA with the approval of Board Staff, beyond the extensions the Program Manager is authorized to approve.

If the project has not started and the applicant is still interested in installing the equipment, the existing application will be canceled, and a new application must be submitted and meet the current program requirements. The incentive amount will be based upon the program guidelines in effect at the time of the new submission. If no response is received within 30 days of expiration, the project will be canceled.

4 Prescriptive Application Requirements

4.1 Initial Application Process

Each type of Prescriptive Measure has its own application that can be submitted directly via the online portal, emailed, faxed, or printed and mailed to the program. To be eligible for incentives, a customer, or an agent (contractor/vendor) authorized by a customer, must submit a properly completed application package. A complete application package should include:

- Completed application forms signed by the customer.
    - For applications signed by someone other than the customer, a letter of authorization is required.
- Manufacturer specification sheets and supporting documentation of qualifications.
- Excel worksheet.
- Recent copy of a complete utility bill from a participating utility (gas or electric depending on technology) showing Societal Benefits Charge and commercial billing code.
    - Customer name listed on application must match the customer name on the utility bill.
    - For new construction projects where a utility account has not been established yet, the customer will be required to submit a utility bill prior to the incentive payment.
- Enhanced incentive documentation demonstrating eligibility (if applicable).

4.2 Process for Payment

Once installation is complete, an applicant must submit:

- An invoice establishing the applicant has paid for the material and labor related to the installation of the equipment covered by the application (requirement listed on each application);
- A valid Tax Clearance Certificate; and
- A W-9, ST5 or ST4 Form. This form must be completed by the entity receiving incentive payment.

4.3 Multi-Site Prescriptive Lighting

Prescriptive Lighting applicants may submit a single application to apply for projects occurring at multiple locations or buildings through the Multi-Site Submittal path.

This path is a good fit for initiative-based lighting retrofits in chain retail locations and schools or business on campuses with multiple buildings.

A Multi-Site Prescriptive Lighting submittal is defined as two (2) or more Prescriptive Lighting projects with similar project scope occurring at roughly the same time in different buildings owned by a single entity.

- An entity is defined as a company with a single tax ID number.
- A building is defined as a separate and distinct electric utility account.
- The name on each utility bill must align with the name of the main entity.

5 Custom Application Requirements

5.1 General

Custom Incentives are offered for non-standard equipment, complex systems, and specialized technologies that are not addressed through prescriptive applications. Proposed measures will not be eligible for Custom Measure incentives if a Prescriptive incentive is available. Eligible electric and gas measures may include lighting systems, HVAC systems, motor systems, large boiler systems, gas-engine driven chillers, and other non-prescriptive measures. Technologies not explicitly listed as Custom (per the Filing and/or Program Guide) will be reviewed for eligibility by the Program Manager on a case-by-case basis. In general, work designated as repair, monitoring only, or maintenance is not eligible. Additional guidance on Custom Measures can be found in Appendix A of this Program Guide.

The process for calculating Custom Measure incentives is performance-based and may include a commissioning component. Incentives are evaluated and determined via an incremental cost and energy savings analysis provided by the customer or customer's authorized representative (vendor/contractor), which are subject to review and approval by the Program. The specific incentive rates and caps are outlined in Section 2.3.

The Program allows a single facility with multiple utility accounts to submit a proposed custom project under one application. Projects at multiple facilities may not be submitted under one application.

5.2 Application Process

The Custom Measure application process generally follows that of Prescriptive, as outlined in Sections 4.1 and 4.2. There is some additional documentation required, please refer to the complete list within the Custom Measure Application.

5.3 Establishing a Baseline

All custom projects must establish a baseline from which energy and energy cost savings are measured.

- Baseline for retrofit projects will be existing conditions. Proposed measure must meet or exceed minimum requirements as outlined by ASHRAE 90.1-2016.
- Baseline for new construction/gut-rehab projects will be established using ASHRAE 90.1-2016. Proposed measure must exceed the established baseline.
- In cases where ASHRAE 90.1-2016 does not apply, other applicable standard will be used, such as the Consortium for Energy Efficiency (CEE), EPA ENERGY STAR, or other established resources such as: current New Jersey baseline studies and other market research; the program experience of the Commercial/Industrial Program Manager; experience of the New Jersey utilities; or utility/public program experience from other

comparable jurisdictions.

- The Program Manager reserves the right to determine whether a project is considered retrofit or new construction, and/or require an appropriate baseline for the project, where the above do not strictly apply or where special circumstances prevail.
- Information supporting the proposed project exceeding ASHRAE 90.1-2016 or applicable industry standard must be provided in the application submission.
- Please consult the Program Manager if additional assistance is required to determine the applicable baseline for your project.

5.4 Incremental Costs

All custom projects must establish the incremental cost of the project. Incremental cost is defined as the difference in material and/or labor costs between the proposed equipment and its respective baseline component, whose specifications only meet ASHRAE 90.1-2016 (or other industry standard).

- Retrofit projects are required to provide the total proposed cost of the project. Generally, the baseline cost will be zero ($0), therefore the incremental cost will equal the proposed cost.
- New construction/gut-rehab projects must provide both a total proposed cost, as well as a corresponding baseline cost, in order to calculate the project's total incremental cost.
- The Program Manager reserves the right to determine whether an incremental cost is required for a retrofit project, or alternatively not required for a new construction project, where the above situations do not strictly apply or where special circumstances prevail.
- The Partner may estimate costs using cost estimation manuals, vendor quotes, design team calculations, online pricing, or other reasonable methods. Project cost should include, at a minimum, relevant material and labor/installation costs. Sales tax should be excluded from these figures.
- All energy and cost savings figures must be explicitly defined and referenced in the application package. Any prescriptive or ineligible measure energy savings and cost should be excluded from the application.

5.5 Custom Lighting Requirements

For LED projects where the product is qualified by either DLC or ENERGY STAR but the qualification category is not present on the Prescriptive Lighting application, the following additional information should be included with this application: (a) Confirmation of existing fixture wattage (ballast/lamp or other system documentation), (b) Documentation supporting existing and proposed lighting run hours, and (c) Sample photometric (lighting output) report of existing and proposed conditions for general representative spaces.

5.6 Metering

Certain measures may require post-installation metering, trending analysis, and/or a Statement of Substantial Completion by the installing contractor. This will be requested by the Program Manager during application review.

6 Program Dispute Resolution

Disputes, concerns, or complaints that arise will be addressed initially by the Program Manager or Program Staff at the point of contact. If resolution for whatever reason is not possible, there is a dispute resolution process backed by the NJ Board of Public Utilities. Appeals and disputes must be presented to

the Program Administrator within 45 days of the Program Manager's determination regarding the subject of the appeal or dispute.

For contractual disputes between a system owner and installer or registrant, the NJ Division of Consumer Affairs (DCA) is the point of contact and the agency has an online complaint form.

The program is designed to allow for participation by any third-party contractor that meets the program requirements. One of the primary responsibilities of the program is to oversee the level of performance of the contractors that participate in the program. There are BPU approved contractor remediation procedures that will be followed if a contractor is found to violate program procedures and rules or consistently violates program requirements, which may include being barred from participating in the program.

7 Call Center Support

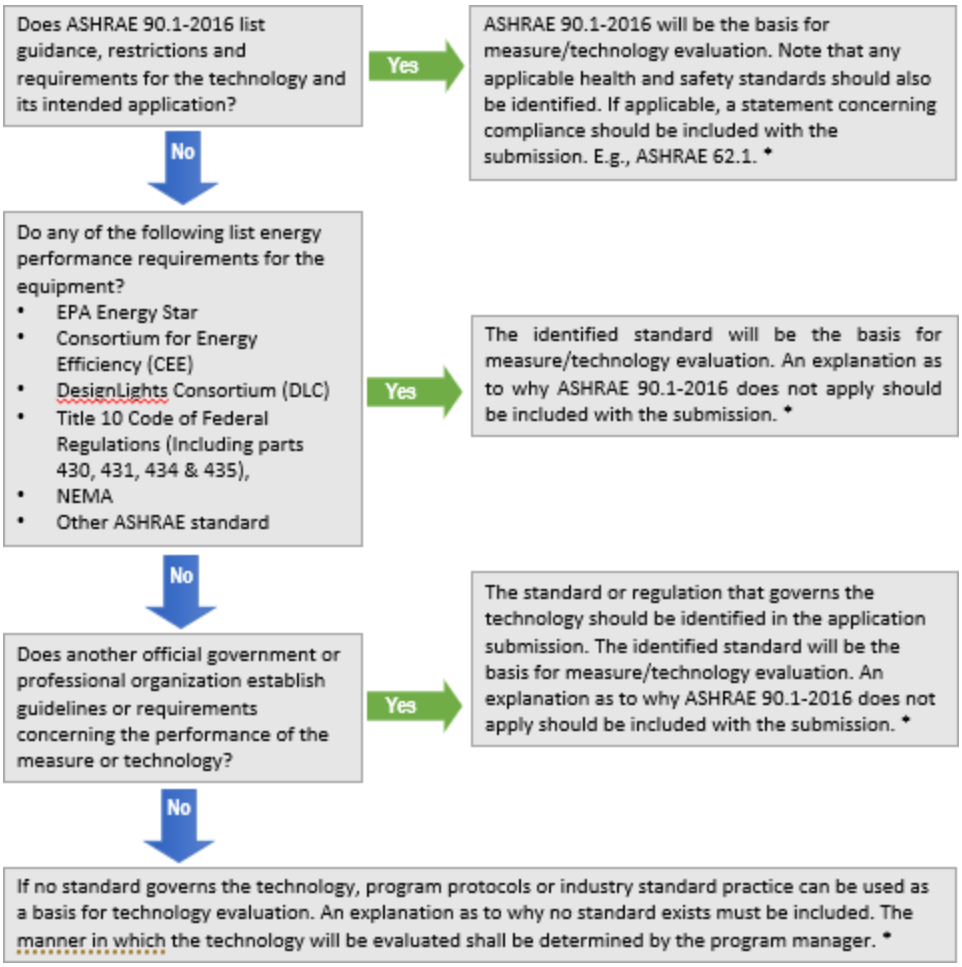
New Jersey's Clean Energy Program operates a call center staffed weekdays between 8 AM and 7 PM. The phone number is 866-657-6278. The call center is trained in answering general questions about the program and application processes. It also provides specific information pertaining to an application.

8 Program Website Link

This link routes to the overall NJ SmartStart program homepage: http://njcleanenergy.com/ssb

Appendix A: Custom Measure Guide

A-1. Code Guidance



**Ultimately the applicable standard(s) will be subject to the program manager's discretion. More than one standard may apply.*

A-2. Specific Measure Guidance: Standards and Calculations

Measure Description	Standard that most likely applies[2]	Typical Format/Methodology of Supporting Calculations
VFD in specialized application	Will vary upon application	The savings basis is usually a change from a constant speed/inefficient load profile to a more efficient load profile. Fan or pump affinity laws are typically employed. Common key variables are horsepower controlled, motor and drive efficiencies, plant production and/or run hours.
Large Boilers: Comfort	ASHRAE 90.1-2016	Weather based analysis should be employed. Typical formats include bin-style analysis or HDD analysis. Alternative approaches include using the NJCEP Program Protocols.
Large Boilers: Industrial or Mixed Usage	ASHRAE 90.1-2016	Weather and/or process load based analysis. Typical formats include bin-style analysis or HDD analysis. Alternative approaches include using the NJCEP Program Protocols.
Non-Standard Lighting Fixtures and Retrofit Kits	ASHRAE 90.1-2016, DesignLights Consortium® (DLC), and/or ENERGY STAR®.	The product must be Design Lights Consortium (DLC) or Energy Star listed. The product category must not be offered on the Prescriptive Lighting application. A line- by-line style energy savings calculation must be used. The document must have sufficient detail to perform a site inspection. The savings calculation must list existing and proposed fixture wattages, quantities, operation hours and locations. A lighting level calculation (not measurement) must be provided for representative sample areas for pre-retrofit and post- retrofit conditions.
Non-Standard Lighting Controls	ASHRAE 90.1-2016, DesignLights Consortium® (DLC), and/or ENERGY STAR®.	The control system must be Design Lights Consortium (DLC) listed. The system must meet or exceed ASHRAE 90.1-2016 based on project type. The baseline will typically be existing conditions for retrofit, or ASHRAE 90.1-2016 for new construction, subject to program manager discretion.
Refrigeration: Controls	ASHRAE 90.1-2016	The measure must not be a prescriptive measure, the system must meet or exceed ASHRAE 90.1-2016 based on project type. Typical relevant sections include 6.4.5, 6.4.6, and 6.5.11. Analysis format will vary depending upon the control; however bin analysis should be employed when the affected system's performance is weather dependent.
Refrigeration: Racks/Compressors	ASHRAE 90.1-2016	The system must meet or exceed ASHRAE 90.1-2016 based on project type, see section 6.5.11. Baseline shall be an equivalent system compliant with this section. Bin analysis or energy modelling should be employed to simulate system performance.
Computer Room Air Conditioners	ASHRAE 90.1-2016	The system must meet or exceed ASHRAE 90.1-2016 based on project type. Refer to table 6.8.1-11. Baseline shall be an equivalent system compliant with this standard. Bin analysis or energy modelling should be employed to simulate system

[2] Ultimately the applicable standard(s) will be subject to the program manager's discretion.

		performance.
Insulation: Other, non-prescriptive	ASHRAE 90.1-2016	A heat loss calculation shall be used. The measure must meet or exceed ASHRAE 90.1-2016 based on project type. Refer to section 6.8.3, 6.4.4.1.3
Insulation: General Building Envelope	ASHRAE 90.1-2016	A heat loss calculation shall be used. Calculations for exterior walls shall employ bin analysis or building modelling. The measure must meet or exceed ASHRAE 90.1-2016 based on project type.
Process Chiller	ASHRAE 90.1-2016	Bin analysis or energy modelling. The measure must meet or exceed ASHRAE 90.1-2016 based on project type.
VFD: Chiller Compressor	ASHRAE 90.1-2016	Existing building retrofits only. Bin analysis or energy modelling.
VFD: Condenser Water Pump	ASHRAE 90.1-2016	The measure must meet or exceed ASHRAE 90.1-2016 based on project type. Typically, only existing buildings. Bin analysis or energy modelling.
HVAC: Variable Refrigerant Flow (VRF)	ASHRAE 90.1-2016	Bin analysis or energy modelling. The measure must meet or exceed ASHRAE 90.1-2016 based on project type. Baseline for savings may be based on Appendix G where baselines apply. Only systems with a ratio other than 1:1 of condensing units to evaporators will be considered. See table 6.8.1-10.
HVAC: Energy Recovery	ASHRAE 90.1-2016	Bin analysis or energy modelling. The measure must meet or exceed ASHRAE 90.1-2016 based on project type. The baseline system shall comply with ASHRAE 90.1-2016 where baselines apply. See section 6.5.6.
HVAC: Demand Control Ventilation	ASHRAE 90.1-2016	Bin analysis or energy modelling. The measure must meet or exceed ASHRAE 90.1-2016 based on project type. The baseline system shall comply with ASHRAE 90.1-2016 where baselines apply. See section 6.4.3.8.
Building Automation Systems (BAS)	ASHRAE 90.1-2016	An energy model will be expected to accurately model complex systems. Simpler systems may employ bin analysis where feasible. The measure must meet or exceed ASHRAE 90.1-2016 based on project type. The baseline system shall comply with ASHRAE 90.1-2016 where baselines apply.
VFD: CRAH or CRAC	Will vary upon application	Bin analysis.

A-3. Specific Measure Guidance: Supporting Data

Measure Description	**Typical Supporting Data:** Baseline	**Typical Supporting Data:** Proposed
VFD in specialized application	Load profile supported by plant/facility data. Plant production in annual units produced.	Data used to support expected load profile. Projected annual production.
Large Boilers: Comfort	Facility type, hours of operation, occupancy rate	Expected occupancy rate or expected changes in hours of operation
Large Boilers: Industrial or Mixed Usage	Facility type, hours of operation, occupancy rate, consumption of relevant process equipment served by the boiler	Expected load profile, expected changes in baseline inputs
Non-Standard Lighting Fixtures and Retrofit Kits	Inventory of existing fixtures. Existing fixture wattages supported by documentation, or program protocol values. Hours of operation for the building and each area as applicable.	Hours of operation for the building and each area as applicable.
Non-Standard Lighting Controls	Inventory of existing fixtures. Existing fixture wattages supported by documentation, or program protocol values. Documentation and/or data for hours of operation for the building and each area as applicable. For each control point and parameter, documentation supporting the values.	Anticipated hours of operation for the building and each area as applicable. For each control point and parameter, a calculation or profile for expected changes.
Refrigeration: Controls	Inventory of relevant equipment to be controlled. Data supporting hourly run times, setpoints, and control styles as relevant to the measure. Existing loading profiles where applicable.	Calculations or data supporting proposed hourly run times, setpoints, and control styles as relevant to the measure. Proposed loading profiles where applicable.
Refrigeration: Racks/Compressors	Site specific weather conditions. Data on run times and/or production numbers if process dependent.	Site specific weather conditions. Data on run times and/or production numbers if process dependent.
Computer Room Air Conditioners	Existing IT load	If changes in existing IT load are anticipated, calculations or estimates of proposed IT load
Insulation: Other	Inventory of equipment to be insulated. Parameters such as diameters, fluid temperatures, and usage should be indicated. System run hours.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided.
Insulation: General Building Envelope	Building occupancy hours, HVAC equipment schedules, inventory of existing insulation and shell construction description.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided.
Process Chiller	**Process load documentation, facility operation hours, production figures.**	If changes in baseline operating parameters are anticipated, a calculation or estimation

	Existing load profile.	should be provided. Expected load profile.
VFD: Chiller Compressor	Process load documentation, facility operation hours, production figures. Existing load profile.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided. Expected load profile.
VFD: Condenser Water Pump	Process load documentation, facility operation hours, production figures. Existing load profile.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided. Expected load profile.
HVAC: Variable Refrigerant Flow (VRF)	Facility operation hours, site specific weather data, facility type and description.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided. Expected load profile.
HVAC: Energy Recovery	For retrofits, existing load profiles and OA and SA data. Affected space types should be listed along with square feet served and occupant information.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided. Expected load profile.
HVAC: Demand Control Ventilation	For retrofits, existing load profiles and OA and SA data. Affected space types should be listed along with square feet served and occupant information.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided. Expected load profile.
Building Automation Systems (BAS)	An inventory of the controlled systems, and data points such as airflow rates and schedules should be collected. Existing load profile data.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided. Expected load profile.
VFD: CRAH or CRAC	Current control method and load profiles. IT load documentation. Facility operation hours, site specific weather data, facility type and description.	If changes in baseline operating parameters are anticipated, a calculation or estimation should be provided. Expected load profile.

A-4. Specific Measure Guidance: Supporting Equipment Documentation

Measure Description	Typical Equipment Documentation: Existing or Baseline	Typical Equipment Documentation: Proposed
VFD in specialized application	Motors/equipment to be controlled. Ancillary equipment tied to savings calculations. [E.g., if HVAC savings result than HVAC equipment datasheets].	VFD specification sheet. Any datasheets for new control systems used to facilitate measure should be included.
Large Boilers: Comfort	Existing boiler or heating system nameplates or datasheets	Proposed boiler datasheets
Large Boilers: Industrial or Mixed Usage	Existing boiler or heating system nameplates or datasheets. Datasheets and/or nameplates of relevant process equipment.	Proposed boiler datasheets
Non-Standard Lighting Fixtures and Retrofit Kits	Ballast photographs, lamp photographs. Program protocol fixture wattages can be used as an alternative.	Product specification sheet(s). DLC or Energy Star qualified product listing(s).
Non-Standard Lighting Controls	Ballast photographs, lamp photographs. Program protocol fixture wattages can be used as an alternative.	Product specification sheet(s). DLC qualified product listing(s).
Refrigeration: Controls	Nameplate photos and performance data sheets of the equipment to be controlled and for equipment that contributes to interactive savings (e.g., refrigeration compressors)	Proposed control system specification sheets/ catalog pages.
Refrigeration: Racks/Compressors	Specification sheets of baseline compressor(s).	Specification sheets of proposed compressor(s).
Computer Room Air Conditioners	Calculation detailing which ASHRAE unit/system types were selected.	Specification sheets of proposed unit(s).
Insulation: Piping	Boiler nameplate(s) and performance datasheets. Other heating/cooling equipment datasheets as relevant to the conditioned fluid flows. Datasheets for existing insulation.	Datasheets for proposed insulation.
Insulation: General Building Envelope	HVAC equipment datasheets and nameplate photos. Building plans/layout detailing areas to be retrofitted.	Datasheets for proposed insulation.
Process Chiller	Existing chiller nameplate photo(s)and performance data sheet. Datasheets or nameplate photo(s) of equipment served by process chiller where applicable.	Proposed chiller performance data sheet.

VFD: Chiller Compressor	Existing chiller nameplate photo(s)and performance data sheet.	Proposed VFD data sheet.
VFD: Condenser Water Pump	Existing chiller nameplate photo(s)and performance data sheet.	Proposed VFD data sheet.
HVAC: Variable Refrigerant Flow (VRF)	Calculation detailing which ASHRAE unit/system types were selected.	Proposed equipment datasheet(s)/specification(s). AHRI certificates.
HVAC: Energy Recovery	For retrofits, existing HVAC nameplate photos and performance datasheets. For NC or baseline projects, calculation detailing which ASHRAE unit/system types were selected.	Proposed equipment datasheet(s)/specification(s). AHRI certificates.
HVAC: Demand Control Ventilation	For retrofits, existing HVAC nameplate photos and performance datasheets. For NC or baseline projects, calculation detailing which ASHRAE unit/system types were selected.	Proposed equipment datasheet(s)/specification(s). AHRI certificates.
Building Automation Systems (BAS)	Nameplate photos and performance data sheets of the equipment to be controlled and for equipment that contributes to interactive savings (e.g., refrigeration compressors)	Proposed equipment datasheet(s)/specification(s). AHRI certificates where applicable.
VFD: CRAH or CRAC	Existing CRAH/CRAC unit datasheets and nameplate photos.	Proposed VFD data sheet.