

New York State General Municipal Law Article 5L

Municipal Sustainable Energy Loan Program – Commercial Property Assessed Clean Energy (PACE) Guidance Document

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September 2017

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I. Executive Summary

Property Assessed Clean Energy (PACE) financing programs use authority given to a municipal corporation (county, town, city or village) to offer financing for property owners to fund energy efficiency and renewable energy projects on existing residential and commercial structures through a property owner’s voluntary agreement to have a special assessment or special tax charge placed on their annual property tax bill. This provides financing for these types of improvements over time without requiring the property owner to make a large upfront investment.

New York State General Municipal Law Article 5-L (PACE Legislation) authorizes municipal corporations or their agents to create a sustainable energy loan program to provide financing to property owners for the installation of eligible Renewable Energy Systems or Energy Efficiency Improvements (as described in [Section II](#) below) repaid through a charge on the tax bill for the real property benefited by such financing, levied and collected at the same time and in the same manner as municipal property taxes.¹ The PACE Legislation requires the New York State Energy Research and Development Authority (NYSERDA) to provide certain guidance regarding the implementation of PACE in New York.

This document provides such guidance for commercial PACE programs, which for all purposes of this guidance also includes multifamily buildings. While certain portions of this guidance may also be applicable in the residential sector, NYSERDA does not suggest that this guidance should be used for residential PACE; indeed, NYSERDA may issue additional guidance in the future regarding PACE in the residential sector.

In accordance with the PACE Legislation, NYSERDA is required to:

1. Certify entities to certify contractors to perform Energy Audits ([Section III](#)) and Renewable Energy System Feasibility Studies ([Section VII](#)).
2. Develop state-wide criteria for municipal corporations and certifying entities desiring to certify contractors to perform Energy Audits ([Section IV](#)) and Renewable Energy System Feasibility Studies ([Section VIII](#)).
3. Establish criteria for determining when an Energy Efficiency Improvement is cost-effective and to approve lists of such cost-effective Energy Efficiency Improvements ([Section V](#)).
4. Approve for PACE financing “Renewable Energy Systems” in addition to those listed in the PACE Legislation ([Section VI](#)).
5. Establish the form and manner by which municipal corporations should verify and report on the installation and performance of the Energy Efficiency Improvements and Renewable Energy Systems ([Section IX](#)).

II. Minimum Requirements for PACE Energy Audits

An Energy Audit is defined in the PACE Legislation as “a formal evaluation of the energy consumption of a permanent building or structural improvement to real property...for the

¹ Municipal Sustainable Energy Loan Program, New York State General Municipal Law Article 5L § 119E-119GG (2015).

purpose of identifying appropriate energy efficiency improvements to be made to the property.” The law further clarifies that “no such loan shall be made for energy efficiency improvements unless determined to be appropriate through an energy audit” Energy Efficiency Improvements (sometimes referred to as “Improvement(s)”) are defined in the PACE Legislation as:

“[A]ny renovation or retrofitting of a building to reduce energy consumption, such as window and door replacement, lighting, caulking, weatherstripping, air sealing, insulation, and heating and cooling system upgrades, and similar improvements determined to be cost-effective pursuant to criteria established by [NYSERDA]. However, ‘energy efficiency improvement’ shall not include lighting measures or household appliances that are not permanently fixed to real property.”

NYSERDA recommends the following minimum requirements to help clarify what should be included in an Energy Audit. NYSERDA strongly encourages contractors to use a whole building analysis approach for the Energy Audit, but single (custom) measure evaluations are also an acceptable approach. Beyond these minimum requirements, the certifying entity (see [Section III](#) below) should ensure contractors perform high-quality Energy Audits that are clear, accurate, and present useful recommendations to the property owner.

For single (custom) measure evaluations, the Energy Audit should include, but may not be limited to:

- An analysis of customer provided utility bills (preferably 12 months of historical utility bills, including bills for delivered fuels with respect to measures addressing oil, propane or other delivered fuel systems) that relate to the whole building and/or the portion of the building that will be impacted by the proposed Improvements.
- A description of the existing conditions and operations including existing equipment, fuel type, etc.
- A description of the proposed Improvements including energy efficiency measures, projected energy savings (including all assumptions, calculations, and conversion factors), implementation costs and average life calculations of the proposed Improvements. Additionally, the Energy Audit may include the societal benefits associated with certain energy efficiency measures including, but not limited to, maintenance savings, health benefits, greenhouse gas emissions reductions, or other environmental benefits.
- Implementation costs must include, at a minimum, material and labor costs associated with each Improvement as well as source citations from reliable industry sources.
- Simple payback analysis and/or life cycle cost or other more detailed financial analysis (i.e. return on investment, internal rate of return, etc.).
- Verification that interaction effects were considered.
- Rule of thumb assumptions and percentage savings calculations are not acceptable.

For whole building energy-modeling projects, the Energy Audit should include, but may not be limited to:

- An analysis of customer provided utility bills (preferably 12 months of historical utility or energy bills, including bills for delivered fuels with respect to measures addressing oil,

propane or other delivered fuel systems) that relate to the whole building and/or the portion of the building that will be impacted by the proposed Improvements.

- A description of the existing conditions and operations including existing equipment, fuel type, etc.
- A description of the proposed Improvements including energy efficiency measures, projected energy savings (including all assumptions, calculations, and conversion factors), implementation costs and average life calculations of the proposed Improvements. Additionally, the Energy Audit may include the societal benefits associated with certain energy efficiency measures including, but not limited to, maintenance savings, health benefits, greenhouse gas emissions reductions, or other environmental benefits.
- Implementation costs must include, at a minimum, material and labor costs associated with each Improvement as well as source citations from reliable industry sources.
- Simple payback analysis and/or life cycle cost or other more detailed financial analysis (i.e. return on investment, internal rate of return, etc.).
- Verification that interaction effects were considered.
- Rule of thumb assumptions and percentage savings calculations are not acceptable.
- Use of modeling software approved by the municipal corporation.
- Input data for the building and for each proposed Improvement presented in a manner which allows easy identification of input parameters.
- Output data from model with clear and precise presentation of the results in both tabular and narrative forms.
- Energy savings calculations must be presented as savings at the customer's utility meter(s). For complex systems like self-generated steam or chilled water, savings should be calculated back to the source of generation (i.e. natural gas) and then summarized at a consistent site savings level.

The Energy Audit requirement may be met when an American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Level 2 or 3 energy audit is conducted for a commercial property. For more information on ASHRAE 2 or 3 energy audits, please refer to the ASHRAE publication "Procedures for Commercial Energy Audits."² Additionally, the municipal corporation or its agent may also consider alternative calculation methods, such as automated audit software (e.g. ENERGY STAR® savings calculation tools), which can serve to satisfy the Energy Audit requirement.

III. NYSERDA's Approval of Entities to Certify Contractors to Perform PACE Energy Audits

The PACE Legislation provides that the Energy Audit must be performed by a contractor who is certified by NYSERDA or a certifying entity approved by NYSERDA for this purpose. NYSERDA will not directly certify contractors to perform commercial PACE Energy Audits. As provided for in the PACE Legislation, NYSERDA has instead established a process by which it will approve certifying entities to, by themselves, certify third-parties to perform the Energy

² ASHRAE. Procedures for Commercial Building Energy Audits. <https://www.ashrae.org/resources--publications/bookstore/procedures-for-commercial-building-energy-audits>

Audits required by the statute. Any entity that would like to be approved by NYSERDA to certify contractors to perform Energy Audits – which entities may include PACE providers, municipal corporations, industry-based associations or contractors themselves – must submit an application to NYSERDA (www.nyserderda.ny.gov/cpace-guidelines) showing that it meets the requirements listed below.³ NYSERDA will review the application and make a final determination within sixty (60) days as to whether the entity is approved to certify contractors to perform Energy Audits.

In considering whether to approve an entity to certify contractors to perform Energy Audits, NYSERDA will consider whether the applicant has:

- an identified staff person who is an expert in building science and who will be dedicated at least in part to the role of reviewing certification requests by contractors to perform PACE Energy Audits, and assessing whether those contractors are qualified to perform Energy Audits as they are described in [Section II](#) above;
- an internal policy and set of procedures to ensure that auditors are subject to a probationary period until they complete a required number of successful audits;
- quality control and quality assurance procedures in place to review the quality of the audits and to confirm satisfactory performance, in line with the requirements of [Section II](#) above;
- a policy that provides for warning, suspension or termination of an auditor based on failure to meet the standards suggested in this guidance;
- a customer issue and dispute resolution policy and procedure that can manage – among property owners, contractors, and the approving entity – customer service or other complaints that may arise from the audit; and
- an ability to make available contractor training.

This list is not exhaustive nor is it exclusive. NYSERDA reserves the right to add to or subtract from this list on an as needed basis.

As discussed above, a municipal corporation or its agent may authorize the use of alternative calculation methods, such as automated audit software in their program requirements. If so, NYSERDA’s approval of a certifying entity for such program will include a review of the entity’s experience with use and monitoring of such software.

IV. **State-Wide Criteria for Certifying Contractors to Perform PACE Energy Audits**

The PACE Legislation requires NYSERDA to adopt state-wide criteria for certifying contractors to perform PACE Energy Audits. The criteria identified in this section should be applied with respect to contractors not already certified to perform Energy Audits in an existing NYSERDA or utility program. NYSERDA suggests that any contractor that is certified to perform Energy Audits in a NYSERDA or utility program may also be automatically certified to perform commercial PACE Energy Audits. NYSERDA requires certifying entities to ensure that contractors seeking certification to perform audits submit documentation that identifies staff members who possess at least one of the following licenses or certifications:

³ No entity may be approved to certify itself to perform Energy Audits.

- New York State Licensed Professional Engineer (P.E.) or Registered Architect (R.A.)
- Association of Energy Engineers Certified Energy Manager (C.E.M.) or Certified Energy Auditor (C.E.A.)
- BPI Multifamily Building Analyst (multifamily audits only)

In addition, NYSERDA requires certifying entities to ensure that contractors seeking certification to perform PACE Energy Audits can demonstrate to the certifying entity that they⁴:

- have the personnel, technical and other expertise and capacity to perform audits in accordance with the requirements of [Section II](#) above;
- comply with any relevant state contractor code of conduct;
- maintain an active license, and be in good standing, with any relevant state or municipal licensing board with jurisdiction over the location in which the work is being performed;
- can maintain appropriate oversight and management of employees and subcontractors who perform PACE Energy Audits through provision of organizational structure and/or relevant terms and conditions of contractual arrangements, as applicable;
- meet any other state and local licensing, training and permitting requirements;
- maintain a valid completed W-9 form; proof of commercial general liability insurance, worker's compensation insurance, and disability benefits as required by New York State; and an ability to meet bonding requirements; and
- have three positive trade references and three positive customer references.

NYSERDA encourages certifying entities to pay attention to quality and satisfaction ratings for contractors, to the extent possible and as these become available and can reasonably be deemed reliable.

V. Cost-Effectiveness Criteria for Commercial PACE Energy Efficiency Improvements

The PACE Legislation requires NYSERDA to establish criteria for determining the cost-effectiveness of Energy Efficiency Improvements and to approve lists of cost effective Energy Efficiency Improvements for different building types. NYSERDA recommends that the criteria that may be used to determine whether an Improvement is cost-effective – and, thereby, to ensure that such Improvement is an Energy Efficiency Improvement that can be financed using PACE – is whether the proposed project (including all Energy Efficiency Improvements) has a savings to investment ratio (SIR) of 1.0 or greater. SIR divides the total savings (including energy, societal benefits and other project related benefits as described below) over the lifetime of the proposed project (present value) by the upfront cost of the proposed project, including the costs of necessary equipment, materials, labor, the costs of each related Energy Audit, and the cost of verification of such Energy Efficiency Improvements. NYSERDA requires contractors

⁴ The entities seeking certification to perform audits may, in many cases, be the same entities seeking certification to perform the project; for avoidance of doubt, these criteria are *only* those NYSERDA requires for contractors seeking certification to perform an audit – additional criteria would apply to those entities seeking to complete the project that may be recommended through the audit including the requirement to ensure the installation of equipment complies with all laws, codes, industry standards, and other applicable rules or regulations.

performing Energy Audits to use a 3% discount rate for determining the present value of benefits for an Energy Efficiency Improvement in the SIR calculation.⁵

This calculation may also consider reasonable expected increases in energy usage, inflation rates, changes in use of the building, the energy savings as compared to less efficient alternatives, and reasonable increases in energy prices. Additionally, this calculation may include the societal and other project related benefits associated with certain energy efficiency measures including, but not limited to, greenhouse gas emissions reductions; health and safety benefits; maintenance cost reductions; or other environmental benefits. For greenhouse gas emissions calculations, NYSERDA requires contractors to use NYSERDA's average emissions factors that are current at the time of the Energy Audit. NYSERDA will make these average emissions factors available to certifying entities for use by contractors upon request. NYSERDA has found that many products and services are cost-effective across a wide variety of applications, especially when including societal benefits.⁶

NYSERDA considers the savings methodologies included in the New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs (also known as the "Technical Resource Manual⁷"), as filed and effective pursuant to Public Service Commission Matter Number 15-01319: In the Matter of the Technical Resource Manual, one acceptable approach for calculating energy savings for the measures included within this manual.

NYSERDA considers "prescriptive measures," as defined in the Technical Resource Manual and approved by the Department of Public Service, cost-effective and eligible for commercial PACE financing without any additional energy savings calculations.

NYSERDA also recognizes that, in some cases, certain ancillary improvements must be accomplished for the Energy Efficiency Improvements to proceed. These may include, but are not limited to, mold mitigation, lead abatement, asbestos removal, flu repairs, and roof repairs. NYSERDA suggests that municipal corporations or their agents consider the costs and estimated savings associated with such ancillary and necessary improvements to be included in PACE financings. However, the ancillary costs should not extend the overall project payback period beyond the weighted average of the useful life of the systems included in the Energy Efficiency Improvements project.

VI. NYSERDA's Approval of Additional Renewable Energy Systems

The PACE Legislation defines a Renewable Energy System that may be financed with PACE as,

⁵ Department of Public Service. (2016, January 21). Order Establishing the Benefit Cost Analysis Framework. <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/C12C0A18F55877E785257E6F005D533E?OpenDocument>

⁶ It should be noted that while Energy Efficiency Improvements are generally cost-effective, local energy prices, energy usage patterns and needs of the building occupants, changes in occupancy, starting, ending or changing business operations including home businesses, changing weather patterns, and the age and condition of equipment being replaced may all impact actual savings to investment ratios.

⁷ Department of Public Service. (2018, January 1). Technical Resource Manual. <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/72C23DECF52920A85257F1100671BDD?OpenDocument>

“an energy generating system for the generation of electric or thermal energy, to be used primarily at such property, by means of solar thermal, solar photovoltaic, wind, geothermal, anaerobic digester gas-to-electricity systems, fuel cell technologies, or other renewable energy technology approved by the authority not including the combustion or pyrolysis of solid waste.”

For purposes of making determinations of what renewable technologies may meet the standard of a Renewable Energy System under the PACE Legislation, NYSERDA adopts the framework and definition of “investment eligibility” approved by the New York Public Service Commission in its January 21, 2016 “Order Authorizing the Clean Energy Fund Framework” (CEF Order).

In the CEF Order, the PSC defined eligible technologies as those related to “on-site renewable energy sources, energy efficiency, energy storage, smart grid, demand response, distributed generation, renewable thermal and other low carbon technologies.” NYSERDA interprets that definition as including not only the complete energy systems referred to, but also the components and subcomponents of those systems.

Using these over-arching criteria and NYSERDA’s interpretation of them, NYSERDA hereby approves the following renewable technologies not enumerated in the PACE Legislation:

- air source heat pumps;
- high efficiency, low emission wood heating systems; and
- energy storage systems (including electrochemical and thermal energy storage systems).

NYSERDA will publish on its website a complete list of eligible technologies, and will update such list if it approves additional technologies over time.

VII. NYSERDA’s Approval of Entities to Certify Contractors to Perform Renewable Energy System Feasibility Studies

The PACE Legislation provides that the Renewable Energy System Feasibility Study must be performed by a contractor who is certified by NYSERDA or a certifying entity approved by NYSERDA for this purpose. As in the context of Energy Audits, NYSERDA will not directly certify contractors to perform Renewable Energy System Feasibility Studies (as described in [Section VIII](#)). However, NYSERDA suggests that any contractor that is certified to perform Renewable Energy System Feasibility Studies in a NYSERDA or utility program may also be automatically certified to perform commercial PACE Renewable Energy System Feasibility Studies.

NYSERDA has established a process for approving entities that can certify contractors to perform Renewable Energy System Feasibility Studies. Entities that would like to certify contractors to perform Renewable Energy System Feasibility Studies – which entities may include, as in the energy efficiency context, PACE providers, municipal corporations, industry based credentialing organizations or installers themselves – must be able to establish to NYSERDA that they have the ability to determine whether contractors are at a minimum able to perform the feasibility study in accordance with the Commercial PACE Technical Guidance

Document for Renewable Energy System Feasibility Studies found on NYSERDA’s website, and to continue to monitor such compliance. Entities must submit an application to NYSERDA (www.nyserdera.ny.gov/cpace-guidelines) showing that they meet the requirements listed below.⁸ NYSERDA will review the application and make a final determination within sixty (60) days as to whether the entity is an approved entity for purposes of certifying contractors to perform commercial PACE Renewable Energy System Feasibility Studies.

The list of factors that NYSERDA will consider when determining whether to approve an entity as an approved entity for purposes of certifying contractors to perform Renewable Energy System Feasibility Studies is the same non-exhaustive, non-exclusive list as NYSERDA will use for purposes of assessing approved entities in the energy efficiency context, as enumerated in [Section III](#) above.

For solar photovoltaic installations of 25kW or less, the municipal corporation or its agent may authorize the use of alternative calculation methods, such as the National Renewable Energy Laboratory’s PVWatts® Calculator, which can serve to satisfy the Renewable Energy System Feasibility Studies requirement in its program requirements. NYSERDA’s approval of a certifying entity for such program will include a review of the entity’s experience with use and monitoring of this and other alternative calculation methods.

VIII. State-Wide Criteria for Certifying Contractors to Perform Renewable Energy System Feasibility Studies

The PACE Legislation requires NYSERDA to adopt state-wide criteria for certifying contractors to perform PACE Renewable Energy Feasibility Studies. Under the PACE Legislation, no financing shall be made for Renewable Energy Systems unless determined to be feasible through a Renewable Energy System Feasibility Study. The PACE Law defines a Renewable Energy System Feasibility Study as: “a written study...for the purpose of determining the feasibility of installing a renewable energy system.” NYSERDA suggests that minimum requirements for contractors seeking to perform commercial PACE Renewable Energy Feasibility Studies should be the same as those required for Energy Audits as described in [Section IV](#) above and shall also include example experience specific to renewable energy systems.

In addition, NYSERDA suggests that entities certifying contractors to perform Renewable Energy System Feasibility Studies assess the criteria for certifications, expertise or experience included in the “Commercial PACE Contractor Requirements for Renewable Energy System Feasibility Studies.” Upon certification, NYSERDA also suggests that contractors follow the guidelines for performing commercial PACE Renewable Energy System Feasibility Studies included in the “Commercial PACE Technical Guidance Document for Renewable Energy System Feasibility Studies.” Both documents can be found on NYSERDA’s website at www.nyserdera.ny.gov/cpace-guidelines.

IX. Guidance Related to Verification and Reporting on Installation and Performance

⁸ No entity may be approved to certify itself to perform Renewable Energy System Feasibility Studies.

The PACE Legislation requires NYSERDA to establish the form and manner by which municipal corporations or their agents can verify and report on the installation and performance of the Improvement(s) and Renewable Energy System(s) (“System(s)”) installed in their districts. To meet this requirement, municipal corporations or their agents are required to verify and report “on the installation and performance” of Improvement(s) and System(s) that are financed through a municipal sustainable energy loan program in their district.

As part of this verification and performance reporting, NYSERDA suggests that the municipal corporation or its agent shall establish a process to ensure that a financing is not finalized until after the property owner has verified that the Improvement(s) and/or System(s) were installed. Proof of installation can be confirmed through:

- confirmation from a NYSERDA or utility program that the Improvement(s) and/or System(s) were installed; or
- receipt of paid invoices for the cost of the Improvement(s) and/or System(s), and a site inspection by a municipal corporation-approved inspector or a certificate of completion signed by the installer and the property owner.

NYSERDA further suggests that the municipal corporation or its agent establish a reporting system to report annually on the activity of financings issued through its program including but not limited to:

- number of financings issued (reported annually);
- total dollar amount of financings issued/closed/disbursed;
- total cumulative dollar amount billed for financing repayments;
- total cumulative dollar amount collected for financing repayments;
- total future financing repayments assessed but unpaid;
- specific characteristics of the Improvements or Systems being financed (e.g. number, size, efficiency, etc.); and
- projected energy savings (kWh, kW, MMBtu), project savings, project cost, and projected energy cost savings.

To support municipal corporation reporting requirements, all data and information that is collected should be in an accessible electronic format.

The following may be included in the PACE finance agreement to confirm that the Improvement(s) and System(s) being installed are operational:

- Property Owner Covenants in Finance Agreement:
 - the property owner shall have the Improvement(s) and System(s) maintained in good condition and repair within the benefited property;
 - if requested, property owner shall promptly deliver or cause to be promptly delivered a written status report of the Improvement(s) and System(s) to the municipal corporation or its agents and representatives; and
 - for purposes of examining the workmanship of the Improvement(s) and System(s), observing the quality of and otherwise evaluating Improvement(s) and System(s), the property owner grants the municipal corporation, its agents and representatives the right to enter and visit the property at any reasonable time, after giving reasonable notice to the property owner, for a period of two (2) years

from the completion of the Improvement(s) and System(s). The property owner also agrees to participate in all surveys conducted about the program.

- 3rd Party Ownership: In addition to the above, provisions confirming:
 - the Improvements will remain operational and cannot be removed through the term of the PACE finance agreement; and
 - the Improvement(s) and System(s) and all agreement(s) and/or contract(s) creating a third-party arrangement are to be transferable to any new property owner, fourth party (e.g., tenant) and/or Improvement(s) and System(s) owner for the duration of the term of the PACE finance agreement.

X. Data Release Forms, Data Collection and Property Access

To allow for municipal corporations to verify and report on the installation and performance of the Improvement(s) and System(s), all financing recipients should be asked to sign an energy data release form, allowing the municipal corporation or its agent to receive from the property owner's electric and gas utilities or non-regulated fuel provider two-years pre- and two-years post-project implementation energy usage and other related information. Additionally, all PACE financing recipients should be asked to agree to allow the municipal corporation or its agent to access the property where the Improvement(s) or System(s) are installed to inspect and measure operation/performance of the installed Improvements and/or Systems. This access may occur before, during or up to two (2) years following project implementation.

Additionally, the municipal corporation or its agent should require financing recipients to identify whether they received any NYSERDA or utility funding for their project and, if so, through what program. A municipal corporation or its agent may be able to use verification and performance reporting done by NYSERDA or the utility to satisfy their own verification and performance reporting requirements.