



Commercial Tenant Program
Program Opportunity Notice (PON) 3308
REVISED April 2018

SUMMARY OF REVISIONS

The following updates have been made to the Commercial Tenant Program:

- For Customers requesting 100% cost share for their project, the Energy Consultant can be designated as the payee by filling out the proper section in Attachment F (Request for Disbursement of 100% Cost-Share.)
- Owner-occupied spaces are no longer eligible. They might be eligible for the FlexTech Program.
- Energy consultants can submit their qualifications criteria for review prior to submitting an application to the Program.
- A utility bill is no longer required to prove SBC contribution. Tenant must still certify that they pay into the electric SBC.
- Tenant spaces that have undergone substantial renovation within the last year are eligible, if they meet all other project requirements.
- The Applicant must be the Energy Consultant, who applies to the Program on behalf of the Tenant, Building Owner or the Property Manager.
- Qualifications requirements for Energy Consultants performing basic track and high performance track projects have been clarified.
- Measurement and Verification requirements have been reduced from five (5) years to three (3) years of utility bill analysis, and up to one year of system level technical review.
- Attachment A (Commercial Tenant Application Form) and Attachment B (Participant Letter of Commitment) have been combined into one application form. Other attachments have been added or updated/reformatted:
 - Attachment A.1 Commercial Tenant Project Application- Basic Project (new)
 - Attachment A.2 Commercial Tenant Project Application – High Performance Project (new)
 - Attachment B Scope of Work Requirements, Deliverables and Template (new)
 - Attachment C Proposed Budget Template (reformatted)
 - Attachment D.1 Final Report Requirements (new)
 - Attachment F Request for Disbursement of 100% Cost-Share (reformatted)
- At its sole discretion, NYSERDA reserves the right to limit the number of projects by any single building owner, property manager, tenant or energy consultant.
- Expenses are capped at 3% of total project cost
- Various programmatic clarifications have been made, including but not limited to, project eligibility, project requirements, and program procedures.

Commercial Tenant Program
Program Opportunity Notice (PON) 3308
\$5.75 million in available funds
REVISED April 2018

Applications accepted on a first-come, first-serve basis dependent on funding availability through July 31, 2019.

The goal of NYSERDA's Commercial Tenant Program (Program) is to integrate energy efficiency in commercial tenant office spaces (Office Space). Tenants consume more than half of all energy consumed in a typical commercial office building and represent a diverse market segment with a wide-ranging assortment of barriers and opportunities related to optimizing the energy efficiency of leased office spaces.

This Program is open to all commercial office tenants (Tenants) and commercial building owners and property managers (Landlords) at any stage of leasing who wish to improve their current or future Office Space. The Program encourages Tenants, Landlords and their consultants to work collaboratively to enhance the overall energy and environmental performance of commercial office buildings in New York State.

The Program provides funding to reduce the costs for Tenants and Landlords to obtain an actionable list of energy efficiency measures and a corresponding financial analysis. Funding ranges from 50% to 100% of the costs associated with this technical assistance effort.

By optimizing the energy performance of leased Office Spaces, Tenants can develop more supportive workplaces, achieve a competitive edge when it comes to attracting and retaining talent, increase the comfort and productivity of their employees, obtain recognition for leadership in energy efficiency, and realize energy bill savings. Landlords can increase the overall performance of a building, positioning it as an attractive, energy efficient asset that appeals to high quality, long-term, sophisticated tenants. Additionally, if base building systems run more efficiently, Landlords may see lower operating costs, and potentially, increased asset value. Architects, engineers and other third-party service providers that work with Tenants and Landlords to achieve the Program goals are also distinguishing themselves by offering a value-added service to their clients.

Architecture firms, engineering firms, energy consultants or other third-party entities well-versed in energy analysis and/or energy modeling can apply.

How to Apply:

- Funding requests may be submitted via NYSERDA's online application portal:
<https://nyserda-portal.force.com/login>
- For detailed application instructions, please refer to Section VI (Application Requirements & Process Overview).

Questions:

For questions regarding the Application process or program specific questions please contact commercialprograms@nyserda.ny.gov or Sophie Cardona (866-NYSERDA ext. 3590). All contractual questions should be directed to Venice Forbes (866-NYSERDA ext. 3507, Venice.Forbes@nyserda.ny.gov).

This Solicitation is divided into the following components:

Section I	Introduction
Section II	Eligibility
Section III	High Performance Track
Section IV	Basic Track
Section V	Project Payments
Section VI	Application Requirements & Process Overview
Section VII	General Conditions
Section VIII	Attachments

Incomplete or unsigned Applications will be returned. NYSERDA reserves the right to close or extend the Solicitation at any time and/or add funding to the Solicitation should other program funding sources become available. If changes are made to this solicitation, notification will be posted on NYSERDA's website at www.nyserda.ny.gov.

I. INTRODUCTION

Tenants occupying leased Office Space in commercial buildings can take advantage of opportunities to improve their work environments and generate value through strategic energy efficiency upgrades and thoughtful design solutions. In turn, Landlords intent on optimizing the performance of their buildings can engage their Tenants in energy efficiency activities for mutually beneficial outcomes.

The Program offers to cost share up to 100% of the expenses associated with conducting the energy analysis necessary to optimize Tenant Office Spaces. The information generated by the energy efficiency analysis can inform implementation decisions that optimize the energy performance of leased Office Space within a building. An Energy Consultant may use a variety of tools to identify such energy savings opportunities, from comprehensive energy modeling to a simple walk-through audit, depending on the needs of the Tenant and Office Space. Funding ranges from fifty percent (50%) to one hundred percent (100%) of the costs associated with this work depending on the analysis conducted.

There are two participation tracks, depending on the existing conditions of the Office Space and the Tenant's goals:

- 1. High Performance Track (Up to 100% cost share capped at \$50,000):** This track offers Tenants the option of developing an energy efficiency package for their Office Space. This package consists of a detailed energy analysis or energy model, a list of recommended energy efficiency and optimization measures for the Tenant Office Space, and a detailed financial analysis. The package presents various options or combinations of energy efficiency measures, taking into consideration their interactive effects, incremental cost impacts, and energy savings over the length of the lease. The track is appropriate for Tenants who are designing a new Office Space or planning a major renovation, or for Tenants who are looking to set and achieve higher energy performance targets in their current Office Space. This track assumes the Tenant is interested in taking a comprehensive approach to integrating energy efficiency in their Office Space, and considering "above code" solutions that will drive best practices in the industry. At the onset of a project, Energy Consultants must determine whether they will develop an energy efficiency package based on an energy model or use another energy analysis methodology.
- 2. Basic Track (100% cost share capped at \$5,000 per assessment per Office Space):** This track is best suited for Tenants who are interested in gaining a general understanding about their energy efficiency status and identify ways to improve their energy and environmental performance. This approach consists of a basic energy efficiency assessment to identify energy saving opportunities, benchmarking, goal setting and other relevant activities needed to help the Tenant plan their next steps in their energy efficiency improvement process. This track is appropriate for Tenants who may not have much time remaining on their lease, tenants occupying a small-to-medium size Office Space, or Tenants who wish to take a more incremental approach to implementing energy efficiency measures in their Office Space.

II. ELIGIBILITY

SITES

- The space must be a commercial tenant Office Space, located in an existing building.
- The Office Space must be currently leased by a Tenant, or in the process of being leased by a Tenant. However, Landlords wishing to develop an energy efficiency package for vacant Office Spaces in a building are eligible.
- The Tenant or the building where the leased Office Space is located must be a New York State electricity customer of a participating utility company and must pay into the System Benefits Charge (SBC). NYSERDA reserves the right to ask for a utility bill to verify SBC contribution.
- There is no minimum square footage threshold for eligible Tenant Office Spaces.

The following are NOT eligible:

- Buildings, either new or that have undergone substantial renovations, that have been occupied for less than one year.
- Tenants building out new Office Spaces where construction is advanced or substantially completed.
- Owner-occupied spaces

PROGRAM PARTICIPANTS

Eligible program participants include commercial office tenants, commercial building owners and property managers who occupy an eligible site, as defined above. Participants must select an Energy Consultant (i.e. an architecture firm, engineering firm, and other third-party entity well-versed in energy analysis and/or energy modeling) to perform the energy analysis and apply to the Program on their behalf. This Energy Consultant must meet the minimum requirements for qualification listed below, depending on the chosen participation track.

ENERGY CONSULTANTS

Energy Consultants qualified as FlexTech Consultants, or as Primary Energy Consultants approved to provide technical support services under NYSERDA's New Construction Program, are automatically eligible to apply to the Program.

All other Energy Consultants must meet the qualifications criteria listed below. Energy Consultants must meet the qualifications that correspond to the level of energy analysis they will be conducting for their customers. Proof of qualifications must be submitted prior to an Energy Consultant engaging in its first project under the Program.

A. Qualifications to Perform High Performance Track Projects

Energy Consultants wishing to perform comprehensive, detailed energy analyses (with or without energy modeling) must provide documentation that proves compliance with the following criteria:

- **Company experience:** At least five (5) years of energy efficiency experience (i.e. executed energy audits or demand response projects).
- **Staff:** Provide the resume(s) that highlight *recent* experience of the personnel who will be directly involved in providing the technical services.
- **Work Sample:** Submit two (2) final reports for energy related work *completed within the past two years*, for an existing and occupied facility. The associated project scope of work and budget must be attached. The report must include:
 - An executive summary that outlines the project background, results, and recommendations.
 - Detailed engineering calculations and data to support the energy savings estimates.
 - A list of personnel who completed the work sample.
 - The customer's contact information for reference checks.

NYSERDA reserves the right to request additional information and data to confirm compliance with these qualifications criteria. If an Energy Consultant wishes to use energy modeling for their energy analysis, NYSERDA also reserves the right to ask for additional documentation to confirm the firm's competencies in that area.

B. Qualifications to Perform Basic Track Projects

Energy Consultants wishing to perform basic energy assessments (ASHRAE Level 1 equivalent) must provide documentation that proves compliance with the following criteria:

- **Company experience:** At least three (3) years of energy efficiency experience (i.e. executed energy audits or demand response projects).
- **Staff:** Provide the resume(s) that highlight *recent* experience of the personnel who will be directly involved in providing the technical services.
- **Work Sample:** Submit two (2) final reports for energy related work *completed within the past two years*, for an existing and occupied facility. The associated project scope of work and budget must be attached. The report must include:
 - An executive summary that outlines the project background, results, and recommendations.
 - Appropriate calculations and data to support the energy savings estimates.
 - A list of personnel who completed the work sample.
 - The customer's contact information for reference checks.

NYSERDA reserves the right to request additional information and data to confirm compliance with these qualifications criteria.

The Energy Consultants must also provide documentation for any subcontractors involved in a study that demonstrates that the subcontractors have the necessary expertise and resources to execute the proposed work. All information related to the subcontractor must be included in the scope of work.

III. HIGH PERFORMANCE TRACK

This track offers Tenants the opportunity to develop an energy efficiency package for their Office Space. This package consists of a detailed energy analysis or energy model, a list of recommended energy efficiency and optimization measures for the Tenant Office Space, and a detailed financial analysis supporting the recommendations. The package presents various options or combinations of energy efficiency measures, taking into consideration their interactive effects, incremental cost impacts, and energy savings over the length of the lease. This track is appropriate for Tenants who are designing a new Office Space or planning a major renovation, or for Tenants who are looking to set and achieve higher energy performance targets in their current Office Space. This track assumes the Tenant is interested in taking a comprehensive approach to integrating energy efficiency in their Office Space, and considering “above code” solutions that will drive best practices in the industry.

The Program provides up to 100% funding for the development of two (2) different types of energy efficiency packages:

1. **Custom package:** A custom package is developed for a specific Tenant Office Space in a specific building. It includes a detailed energy analysis or energy model of the Office Space, a list of energy efficiency measures and a detailed financial analysis – and it is intended to inform the Office Space design or comprehensive improvement of the Office Space. It takes into account the Tenant’s unique programmatic requirements, performance targets and sustainability goals. Funding for this package ranges from 50% to 100% of eligible project costs. In the rare instance where a Building Owner commissions a Custom Energy Efficiency Package, the Energy Consultant should discuss project details with the NYSERDA Project Manager to verify eligibility.
- **Generic package:** A generic package is developed for a “typical” Office Space in a specific building. This option exists for Landlords who are interested in facilitating a conversation about energy efficiency with their Tenants – both new and existing. It includes a detailed energy analysis or energy model of a typical Office Space, a list of energy efficiency measures applicable to typical Tenant Office Spaces in the building (based on the characteristics of the base building systems), and a financial analysis. Funding for this package ranges from 50% to 100% of eligible project costs.

Some examples of how a Landlord might utilize a generic package include:

- Incorporating the package in standard leasing packets, illustrating a Landlord’s commitment to energy efficiency and optimization of Tenant Office Spaces. The package becomes an added amenity that can be provided to prospective and incoming Tenants. In turn, Tenants can use the recommendations contained to inform their Office Space design.
- Using the package as a tool for tenant engagement, to spark the conversation about energy efficiency with existing Tenants.
- Using the package as a tool to optimize the energy performance of pre-built Office Space or test fit-outs (built-to-suit Office Spaces).

- Commissioning the package to inform the development of energy efficiency standards for a building.

Note: For buildings where an energy model has been previously created, the model can be revised to create a generic package.

Scope of Work Requirements and Deliverables

For information on scope of work requirements and deliverables for High Performance track projects, please refer to Attachment B (Scope of Work Requirements and Deliverables). For more information on what information should be contained in the final report, see Attachment D.1 (Final Report Requirements).

Measurement and Verification for High Performance Projects

Tenants who install at least one (1) of the measures recommended in the energy efficiency package may receive measurement and verification (M&V) services **at no cost**. The purpose of this M&V is to measure actual energy performance after the energy efficiency measures are in place and verify the energy savings predicted by the custom energy model or detailed energy analysis. This will enable the Tenant to fully identify, understand and capitalize on the benefits of the work undertaken as part of this Program. To comply with the M&V requirements, Tenants selected to receive no cost M&V services shall allow NYSERDA and its Technical Reviewer to collect data and access the Tenant Office Space. Specifically:

1. The Tenant shall allow NYSERDA and its Technical Reviewer to conduct up to one (1) year of reasonable tenant system-level technical review. This includes energy metering of tenant-controlled systems and other sources of data gathering.
2. The Tenant shall provide NYSERDA and its Technical Reviewer reasonable access to sub-metered utility bill data (if available) for up to three (3) years to determine persistence of energy savings and energy savings above code. Ideally, the Tenant will provide NYSERDA and its Technical Reviewer direct access to the utility bills.
3. NYSERDA will provide the Tenant with a summary of the technical review and the results of the utility bill analysis and note any inconsistencies with the predicted savings from the energy analysis.
4. The analysis shall not be distributed or used by NYSERDA for any purpose other than the obligations under this Agreement without prior written approval of the Tenant.

Funding for High Performance Projects

- NYSERDA will not fund any work that has been completed prior to the receipt of an Application.
- No single Energy Consultant may receive more than 30% of total program funding (or \$1,725,000), regardless of the number of projects submitted.
- NYSERDA reserves the right to limit the number of high performance track projects conducted by any single Energy Consultant, Tenant, or Landlord or other eligible applicant as defined in Section II (Eligibility).

Eligible project costs are those incurred by the Energy Consultant in creating the energy efficiency package for the Tenant Office Spaces. The Energy Consultant shall provide a proposed budget outlining expected project costs, per Attachment C. NYSERDA's cost-share covers up to 100% of the cost to generate the energy efficiency package, not to exceed \$50,000 per project, whichever is lower.

1. Custom Energy Efficiency Package

- NYSERDA will provide up to 50% of the costs to generate the energy efficiency package, upon approval of the final report.
- If a Tenant installs recommended energy efficiency measures from the package, NYSERDA will reimburse Energy Consultants the remaining portion of the technical assistance costs, as follows:
 - NYSERDA will provide the remaining 50% of the eligible technical assistance costs, for a total of 100% cost share, if:
 1. the Tenant installs ALL recommended energy efficiency measures with a payback of less than 3 years, **OR**
 2. NYSERDA will reimburse the Tenant for the installation costs of any recommended energy efficiency measure, not to exceed the remaining 50% of the technical assistance costs, whichever is lower.
 - Implementation must occur within two years of purchase order issuance date. **No exceptions will be made.**
 - The Tenant must demonstrate that the energy efficiency measure(s) has been installed. This can be done via a site inspection (performed by the NYSERDA Project Manager or the Technical Reviewer assigned to the project), or by submitting invoices and pictures of the installation.
- In the case where a Building Owner commissions a Custom Energy Efficiency Package, the Energy Consultant should discuss project details with the NYSERDA Project Manager at the Application stage to verify if the project would be eligible for a 100% cost-share.

2. Generic Energy Efficiency Package

- NYSERDA will provide up to 50% of the costs to generate the energy efficiency package, upon approval of the final report.
- NYSERDA will provide up to an additional 50% -- for up to a total 100% of the costs to generate the energy efficiency package, if:
 - The Landlord submits a robust Tenant Engagement Plan (or comparable materials to engage tenants), outlining how the package will be used to engage existing and prospective Tenants in the building in discussions about energy efficiency in Tenant Office Spaces, **AND** fulfills at least one of the three options below:
 1. Landlord reaches out to Tenants occupying at least 50% of the building's rentable square footage.
 2. Landlord recruits at least one Tenant in the building to engage in documented energy efficiency activities in their Office Space.
 3. The generic package is included in the Landlord's leasing materials.

In order to qualify for the additional 50% reimbursement under this package, a Landlord must provide supporting documentation that demonstrates 1) what

outreach activities have been undertaken (including any email communications, letters, Tenant outreach campaigns, etc.), or 2) a letter from a Tenant in the building that has engaged in energy efficiency activities as a result of the generic package being presented to them, or 3) a copy of the building's leasing packet that includes the generic package.

Conditions and Limitations for High Performance Projects

For Custom Energy Efficiency Packages:

- The Tenant is not required to implement any of the energy saving measures provided in the energy efficiency package. If the Tenant does not implement any of the improvements suggested in the energy efficiency package, NYSERDA may survey the Tenant to understand why none of the recommended energy efficiency measures were installed. This feedback will provide valuable input for future commercial tenant initiatives.
- The Custom Package should be completed in agreement with the project's Office Space design and construction schedule to ensure Tenants have the option of implementing measures if desired.
- If the Tenant implements at least one of the energy saving measures, the Tenant will be highly encouraged to provide NYSERDA with pre- and post-occupancy evaluations of employee satisfaction, productivity, absenteeism, performance, and health metrics. NYSERDA may work with a Tenant's or Landlord's Human Resources Department to support this process as needed.
- The Custom Package must be completed within two years of Purchase Order (PO) issuance. Failure to complete the energy efficiency package within the two-year timeframe will result in project cancellation. Cancelled projects may reapply if funds remain available.
- NYSERDA reserves the right to limit the number of energy efficiency packages created in any building or portfolio of buildings.

For Generic Energy Efficiency Packages:

- The energy analysis or energy model produced for a generic project must include at least one (1) typical floor of leased Tenant Office Space and the energy efficiency package must provide energy savings measures applicable to more than one (1) typical Tenant within the building.
- The Landlord or manager must be willing to provide the Generic Package to all Tenants.
- The Generic Package must be completed within two years of Purchase Order (PO) issuance. Failure to complete the energy efficiency package within the two-year timeframe will result in project cancellation.
- NYSERDA reserves the right to limit the number of energy efficiency packages created in any building or portfolio of buildings.

IV. BASIC TRACK

This track is best suited for Tenants who are interested in gaining a general understanding about their energy efficiency status and identify ways to improve their energy and environmental performance. This approach consists of a basic energy efficiency assessment to identify energy saving opportunities,

benchmarking, goal setting and other relevant activities needed to help the Tenant decide and plan for next steps in their energy efficiency improvement process. This track is appropriate for Tenants who may not have much time remaining on their lease, Tenants occupying a small-to-medium size Office Space, or Tenants who wish to take a more incremental approach to implementing energy efficiency in their Office Space. The goal is to identify or no-to-low cost, site-specific measures in addition to operations and maintenance improvements. Recommendations may include Tenant system adjustments to achieve performance as intended in the original design or to optimize or improve the performance of existing systems. The primary objective is to optimize daily operations, thereby reducing energy consumption without significant capital investment. Potential capital improvements, which may include replacement, upgrade, or retrofit of Tenant systems or equipment may also be identified.

Scope of Work Requirements and Deliverables for Basic Track Projects

For information on scope of work requirements and deliverables for basic track projects, see Attachment B (Scope of Work Requirements, Deliverables and Template). For more information on what information should be contained in the final report, see Attachment D.1 (Final Report Requirements)

Measurement and Verification for Basic Track Projects

There are no measurement and verification requirements for this track.

Funding for Basic Track Projects

- NYSERDA will not fund work completed prior to NYSERDA's receipt of the Application.
- No single Energy Consultant may receive more than 30% of total program funding (or \$1,725,000), regardless of the number of projects submitted
- NYSERDA reserves the right to limit the number of basic track projects conducted by any single Energy Consultant, Tenant or Landlord or other eligible applicant as defined in Section II (Eligibility).

NYSERDA will provide up to 100% of the costs to conduct a basic energy assessment of the Tenant Office Space, capped at five thousand dollars (\$5,000) per Tenant Office Space, whichever is lower.

Eligible project costs are those incurred by the Energy Consultant in conducting the energy efficiency assessment and developing the final report for the Tenant Office Space. The Energy Consultant shall provide a proposed budget outlining expected project costs, per Attachment C (Proposed Budget Template)

Conditions and Limitations for Basic Track Projects

- The Tenant is not required to implement any of the energy saving measures provided in the energy assessment. If the Tenant does not implement any of the improvements suggested in the energy efficiency package, NYSERDA may survey the Tenant to understand why none of the recommended energy efficiency measures were installed. This feedback will provide valuable input for future commercial tenant initiatives.

- Basic energy assessment must be completed within one year of Purchase Order (PO) issuance. A one-time extension of up to twelve (12) months may be requested. Failure to complete the assessment and submit a final report within the one-year timeframe or approved extension timeframe will result in project cancellation.

V. PROJECT PAYMENTS

- All invoices and other reimbursement documentation must be uploaded to the online application portal (<https://nyserda-portal.force.com/login>)
- Progress payments will be approved upon discretion of the NYSERDA project manager. No more than 80% of NYSERDA's cost share will be issued until a final report is approved.
- Expenses are capped at 3% of total project cost.

FOR PROJECTS IN THE HIGH PERFORMANCE TRACK

- NYSERDA will contribute up to 50% of the project cost directly to the Energy Consultant, subject to the maximum dollar amount listed in the issued Purchase Order, and not to exceed the \$50,000 cap.
- The Customer under contract with the Energy Consultant is responsible for paying the remaining balance of the project costs, under the terms and conditions to be negotiated by the Energy Consultant and the Customer. As proof that the Customer has paid their portion of the cost-share, NYSERDA may require a copy of the Customer's canceled check.
 - **If the Tenant installs recommended energy efficiency measures from a custom package:**
 - At the conclusion of the installation and upon receipt of the required documentation, NYSERDA will reimburse the Tenant up to the remaining 50% of the project costs, subject to the maximum dollar amount listed in the issued purchase order, and not to exceed the total project incentive of \$50,000.
 - Reimbursement will be based on the energy efficiency measures installed, invoices and other documentation deemed necessary by NYSERDA.
 - As proof that the Tenant has installed the energy efficiency measures, NYSERDA may require a copy of the installation invoices, pictures of the installed systems or equipment, and/or request a site inspection.
 - In order to request the full 100% cost share, the Tenant must submit Attachment F (Request for Disbursement of 100% Cost-Share)
 - Unless otherwise noted, payments will be sent to the Tenant listed in the Commercial Tenant Project Application.
 - The Tenant can designate the Energy Consultant as the Payee. This should be done in Attachment F (Request for Disbursement of 100% Cost-Share).

Required Documentation: To process payment, NYSERDA must receive the following documentation: 1) an invoice from the Tenant to NYSERDA (or from the Energy Consultant to NYSERDA, if the Energy Consultant is designated as the Payee by the Tenant), and 2) a copy of the invoice(s) for the installation of the energy efficiency measures (including labor and non-labor costs). As proof of payment, if applicable, NYSERDA may require a copy of the Tenant's canceled check indicating the total amount paid for the installation of the energy efficiency measures. NYSERDA reserves the right to ask for additional information to corroborate compliance with Program rules.

- **If the Landlord conducts Tenant engagement activities as part of a generic package:**
 - At the conclusion of the project and upon receipt of the required documentation, NYSERDA will reimburse the Landlord up to the remaining 50% of the project costs, subject to the maximum dollar amount listed in the issued purchase order, and not to exceed the total project incentive of \$50,000.
 - Reimbursement will be based on the delivery of a Tenant Engagement Plan (or comparable materials), and documentation of other completed tenant engagement activities as listed in Section II (High Performance Track).
 - In order to request the full 100% cost share, the Landlord must submit Attachment F (Request for Disbursement of 100% Cost-Share)
 - Unless otherwise noted, payments will be sent to the Landlord listed in the Commercial Tenant Project Application
 - The Landlord can designate the Energy Consultant as the Payee. This should be done in Attachment F (Request for Disbursement of 100% Cost-Share).

Required Documentation: To process payment, NYSERDA must receive the following documentation: 1) an invoice from the Landlord to NYSERDA (or from the Energy Consultant to NYSERDA, if the Energy Consultant is designated as the Payee by the Landlord, and 2) a Tenant Engagement Plan (or comparable materials), 3) and, either materials detailing the outreach activities that have been undertaken (including any email communications, letters, Tenant outreach campaigns, etc.); or a letter from a Tenant in the building that has engaged in energy efficiency activities as a result of the Generic Energy Efficiency Package being presented to them; or a copy of the building's leasing packet including the Generic Energy Efficiency Package. NYSERDA reserves the right to ask for additional information to corroborate compliance with Program rules.

FOR PROJECTS IN THE BASIC TRACK

Upon receipt and approval of all required deliverables by the NYSERDA Project Manager, NYSERDA will contribute up to 100% of the project cost directly to the Energy Consultant, subject to the maximum dollar amount listed in the issued Purchase Order, and not to exceed the \$5,000 cap. The Customer under contract with the Energy Consultant is responsible for paying the remaining balance of the project costs, if any, under the terms and conditions to be negotiated by the Energy Consultant and the Customer.

VI. APPLICATION REQUIREMENTS & PROCESS OVERVIEW

ONLINE APPLICATION PORTAL

Energy Consultants should submit funding requests via NYSERDA's online application portal. In order to use the portal, Energy Consultants must first register by following these steps:

1. Register for the application portal here: http://nyserda-site.force.com/Core_Registration_Page?programName=Commercial_Tenant
2. Validate email address and company address.

3. Upon approval by NYSERDA, the Energy Consultant receives a username.
4. Once the Energy Consultant is a registered user, applications and all required documents can be submitted online. The system will also allow the Energy Consultant's appointed contacts and signatories to access the application and electronically sign.
5. Returning users can access the application portal here: <https://nyserda-portal.force.com/login>

Electronic submission: If the online portal isn't available, Energy Consultants can submit applications electronically, by sending all required documentation to commercialprograms@nyserda.ny.gov:

- Proof of Qualifications of Energy Consultant (if required)
- Commercial Tenant Project Application (Attachment A.1 or A.2)
- Scope of work
- Proposed Budget (Attachment C)

Mail: Applications may be mailed to NYSERDA, Commercial Tenant Program, 17 Columbia Circle, Albany, N.Y. 11203

APPLICATION REVIEW PROCESS

Once NYSERDA receives an application, the following will occur:

1. NYSERDA will review the Application and all required documentation. Additional information may be requested at NYSERDA's discretion. All Applications will be reviewed on a first-come, first-served basis dependent on funding availability.
2. After the Energy Consultant submits the Application and all required documentation, a NYSERDA Project Manager will be assigned to review the Application package. If the Application package is incomplete, the NYSERDA Project Manager will notify the Energy Consultant of any missing documentation. The Energy Consultant will then have two weeks to complete the Application package, otherwise the Application will be cancelled and the Energy Consultant will be encouraged to apply again once all necessary documentation is ready for submission.
3. A NYSERDA Project Manager or a Technical Reviewer is responsible for ensuring the Energy Consultant has the required qualifications to participate in the Program.
4. Upon review and approval of the Application, NYSERDA will notify the Energy Consultant that the Application is approved.
5. NYSERDA will issue a Purchase Order committing its funding. NYSERDA is not committed to funding a project until a purchase order is issued.

VII. GENERAL CONDITIONS

Proprietary Information - Careful consideration should be given before confidential information is submitted to NYSERDA as part of your proposal. Review should include whether it is critical for evaluating a proposal, and whether general, non-confidential information, may be adequate for review purposes.

The NYS Freedom of Information Law, Public Officers Law, Article 6, provides for public access to information NYSERDA possesses. Public Officers Law, Section 87(2)(d) provides for exceptions to disclosure for records or portions thereof that "are trade secrets or are submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Information submitted to NYSERDA that the proposer wishes to have treated as proprietary, and confidential trade secret information, should be identified and labeled "Confidential" or "Proprietary" on each page at the time of disclosure. This information should include a written request to except it from disclosure, including a written statement of the reasons why the information should be excepted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501 <http://www.nyserda.ny.gov/About/-/media/Files/About/Contact/NYSERDA-Regulations.ashx>. However, NYSERDA cannot guarantee the confidentiality of any information submitted.

Omnibus Procurement Act of 1992 - It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises, as bidders, subcontractors, and suppliers on its procurement Agreements.

Information on the availability of New York subcontractors and suppliers is available from: Empire State Development
Division For Small Business
625 Broadway
Albany, NY 12207

A directory of certified minority- and women-owned business enterprises is available from: Empire State Development
Minority and Women's Business Development Division 625 Broadway
Albany, NY 12207

State Finance Law sections 139-j and 139-k - NYSERDA is required to comply with State Finance Law sections 139-j and 139-k. These provisions contain new procurement lobbying requirements which can be found at <https://online.ogs.ny.gov/legal/lobbyinglawfaq/default.aspx>. The attached Proposal Checklist calls for a signature certifying that the proposer will comply with State Finance Law sections 139-j and 139-k and the Disclosure of Prior Findings of Non-responsibility form includes a disclosure statement regarding whether the proposer has been found non-responsible under section 139-j of the State Finance Law within the previous four years.

Tax Law Section 5-a - NYSERDA is required to comply with the provisions of Tax Law Section 5-a, which requires a prospective contractor, prior to entering an agreement with NYSERDA having a value in excess of \$100,000, to certify to the Department of Taxation and Finance (the "Department") whether the contractor, its affiliates, its subcontractors and the affiliates of its subcontractors have registered with the Department to collect New York State and local sales and compensating use taxes. The Department has created a form to allow a prospective contractor to readily make such certification. See, ST-220-TD (available at http://www.tax.ny.gov/pdf/current_forms/st/st220td_fill_in.pdf). Prior to contracting with

NYSERDA, the prospective contractor must also certify to NYSERDA whether it has filed such certification with the Department. The Department has created a second form that must be completed by a perspective contractor prior to contacting and filed with NYSERDA. See, ST-220-CA (available at https://www.tax.ny.gov/pdf/current_forms/st/st220ca_fill_in.pdf).

The Department has developed guidance for contractors which is available at <http://www.tax.ny.gov/pdf/publications/sales/pub223.pdf>.

Contract Award - NYSERDA anticipates making multiple awards under this solicitation. NYSERDA may award a Purchase Order based on Applications without discussion, or following limited discussion. NYSERDA may request additional data or material to support submissions including scope of work modifications or negotiations before issuing a Purchase Order. Each offer should be submitted using the most favorable cost and technical terms. A sample Purchase Order is available on request. NYSERDA expects to notify customers in approximately three (3) weeks from the receipt of a complete project package whether the submission has been selected to receive an award.

Limitation - This solicitation does not commit NYSERDA to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. NYSERDA reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in NYSERDA's best interest.

Disclosure Requirement - The proposer shall disclose any indictment for any alleged felony, or any conviction for a felony within the past five (5) years, under the laws of the United States or any state or territory of the United States, and shall describe circumstances for each. When a proposer is an association, partnership, corporation, or other organization, this disclosure requirement includes the organization and its officers, partners, and directors or members of any similarly governing body. If an indictment or conviction should come to the attention of NYSERDA after the award of a contract, NYSERDA may exercise its stop-work right pending further investigation, or terminate the agreement; the contractor may be subject to penalties for violation of any law which may apply in the particular circumstances.

Proposers must also disclose if they have ever been debarred or suspended by any agency of the U.S. Government or the New York State Department of Labor.

VIII. ATTACHMENTS

- Attachment A.1 Commercial Tenant Project Application- Basic Project
- Attachment A.2 Commercial Tenant Project Application – High Performance Project
- Attachment B Scope of Work Requirements, Deliverables and Template
- Attachment C Proposed Budget Template
- Attachment D.1 Final Report Requirements
- Attachment D.2 Basic Energy Assessment Report Checklist - Basic Track Project
- Attachment E Energy Modeling Guidelines
- Attachment F Request for Disbursement of 100% Cost-Share
- Attachment G Terms and Conditions

Attachment A.1 – Commercial Tenant Application Form for Basic Track Projects (p. 1 of 2)

Energy Consultant Information (The Energy Consultant is the Applicant and receives the incentive)	
Company Name	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Fed Tax ID**	
Is the Energy Consultant a FlexTech Consultant?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, contract # _____
Is the Energy Consultant a Primary Energy Consultant? (New Construction)	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, contract # _____
Customer Information (Tenant or Landlord commissioning the work)	
Company Name	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Site Information (Building or Tenant Office Space information)	
Address	
City, State, Zip	
Square footage	
Electric Distribution Provider (Company Name)	
Site contributes to the electric System Benefit Charge (SBC)	<input type="checkbox"/> yes <input type="checkbox"/> no
Payment Information (If different than information provided in Energy Consultant section above)	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Certification	
I certify that all statements made in this Application and required documents provided are true and correct to the best of my knowledge. I agree to the terms and conditions of the Program set forth in this Application.	
SIGNATURE	
NAME AND TITLE	
DATE	

** Fed ID number not required for FlexTech Consultants, Primary Energy Consultants for NYSERDA's New Construction Program, or consultants already qualified to perform work in the Commercial Tenant Program, or other NYSERDA programs.

Attachment A.1 – Commercial Tenant Application Form for Basic Track Projects (p. 2 of 2)

Terms for Tenants	
Please check all the appropriate boxes.	
<input type="checkbox"/> I certify that I will be renewing a lease, signing a lease, or currently occupy the commercial real estate Office Space named in the Application. The Office Space is within a commercial building located within New York State.	
<input type="checkbox"/> I am a customer of an investor-owned utility and I contribute to the System Benefits Charge.	
<input type="checkbox"/> I certify that I have engaged a third-party Energy Consultant to perform a basic energy assessment of the Office Space named in the Application.	
<input type="checkbox"/> I will not apply for or receive an incentive or other compensation from an energy efficiency program administered by a New York State investor-owned utility or from NYSERDA for the <i>same</i> energy analysis that is covered by this Application.	
Authorized Tenant (or Tenant Representative) Signature	
SIGNATURE	
NAME AND TITLE	
DATE	
Terms for Landlords	
Please check all the appropriate boxes.	
<input type="checkbox"/> I certify that I own or manage the building named in the Application. I certify that the building is a New York State electricity distribution customer of a participating utility company that pays into the Systems Benefits Charge.	
<input type="checkbox"/> I certify that I have engaged a third-party Energy Consultant to perform a basic energy assessment of one or more Tenant Office Spaces in the building named in the Application.	
<input type="checkbox"/> I will not apply for or receive an incentive or other compensation from an energy efficiency program administered by a New York State investor-owned utility or from NYSERDA for the <i>same</i> energy analysis that is covered by this Application.	
Authorized Landlord (or Landlord Representative) Signature	
SIGNATURE	
NAME AND TITLE	
DATE	

Attachment A.2 – Commercial Tenant Application Form for High Performance Track Projects (p. 1 of 2)

Energy Consultant Information (The Energy Consultant is the Applicant and receives the incentive)	
Company Name	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Fed Tax ID**	
Is the Energy Consultant a FlexTech Consultant?	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, contract # _____
Is the Energy Consultant a Primary Energy Consultant? (New Construction)	<input type="checkbox"/> yes <input type="checkbox"/> no If yes, contract # _____
Customer Information (Tenant or Landlord)	
Company Name	
Contact Name and Title	
Phone//Fax	
Email Address	
Customer Address	
City, State, Zip	
Site Information (Building or Tenant Office Space information)	
Address	
City, State, Zip	
Square footage	
Electric Distribution Provider (Company Name)	
Site contributes to the electric System Benefit Charge (SBC)	<input type="checkbox"/> yes <input type="checkbox"/> no
Payment Information (if different than information provided above in Energy Consultant section above)	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Certification	
I certify that all statements made in this Application and required documents provided are true and correct to the best of my knowledge. I agree to the terms and conditions of the Program set forth in this Application.	
SIGNATURE	
NAME AND TITLE	
DATE	

** Fed ID number not required for FlexTech Consultants, Primary Energy Consultants for NYSERDA's New Construction Program, or consultants already qualified to perform work in the Commercial Tenant Program, or other NYSERDA programs.

Attachment A.2 – Commercial Tenant Application Form for High Performance Track Projects (p. 2 of 2)
Terms for Tenants

Please check all the appropriate boxes.

- ☐ I certify that I will be renewing a lease, signing a lease, or currently occupy the commercial real estate Office Space named in the Application. The Office Space is within a commercial building located within New York State.
- ☐ I am a customer of an investor-owned utility and I contribute to the System Benefits Charge.
- ☐ I certify that I have hired a third-party Energy Consultant to perform an energy analysis and develop an energy efficiency package for the Office Space named in the Application.
- ☐ By participating in the Commercial Tenant Program, I agree to allow NYSERDA and its contractors access to my Office Space if applicable, and access to the metered and sub-metered utility data for up to three (3) years.
- ☐ I also agree to allow NYSERDA and its contractors access to my Office Space to enable up to one (1) year of system level technical review (which may require data logging of equipment), if applicable per the Commercial Tenant Program requirements.
- ☐ I will not apply for or receive an incentive or other compensation from an energy efficiency program administered by a New York State investor-owned utility or from NYSERDA for the *same* energy analysis that is covered by this Application.

Authorized Tenant (or Tenant Representative) Signature

SIGNATURE

NAME AND TITLE

DATE

Terms for Landlords

Please check all the appropriate boxes.

- ☐ I certify that I own or manage the building named in the Application. I certify that the building is a New York State electricity distribution customer of a participating utility company that pays into the Systems Benefits Charge.
- ☐ I certify that I have hired a third-party Energy Consultant to perform an energy analysis and develop an energy efficiency package specific to the building named in the Application.
- ☐ I will not apply for or receive an incentive or other compensation from an energy efficiency program administered by a New York State investor-owned utility or from NYSERDA for the *same* energy analysis that is covered by this Application.

Authorized Landlord (or Landlord Representative) Signature

SIGNATURE

NAME AND TITLE

DATE

Attachment B - Scope of Work Requirements, Deliverables and Template

HIGH PERFORMANCE PROJECTS

The scope of work, to be submitted with the Application, is a concise document containing 1) project background and the type of energy efficiency package being proposed, 2) a description of the site – including square footage, a description of existing conditions and systems, 3) a description of the tasks required to develop the energy efficiency package and the methodology used for analysis (energy modeling, excel spreadsheet analysis, etc.), 4) roles and responsibilities of subcontractors, if any, 5) a project timeline, and 6) a budget (see Attachment C). These tasks are applicable to the development of a custom and generic energy efficiency packages.

Note: *All energy modeling tasks shall follow the guidelines outlined in the Program's Energy Modeling Guidelines (Attachment E). All modeled / proposed energy efficiency measures must exceed the current energy code.*

- 1. Site Visit and Data Collection:** Onsite building survey, including a walkthrough of the Tenant Office Space, and data collection
- 2. Coordination meeting(s):** The Energy Consultant will participate in the Tenant Office Space design process and assist in identifying potential energy efficiency measures. The Energy Consultant shall hold kick-off discussions, meetings, and/or review of early stage project documentation relevant to the most significant areas of Tenant Office Space energy use.
- 3. Development of energy model baseline (for energy modeling projects only):** If an energy model is pursued, the Energy Consultant shall develop the baseline energy model of the Tenant Office Space. For all new Tenant fit-outs and major renovation projects, the baseline shall be in accordance with ASHRAE Standard 90.1 2013, the Energy Efficiency Construction Code of New York State, and NYSERDA Program requirements (see the Program Energy Modeling Guidelines in Attachment E).

Deliverable: Baseline energy model including schedule of assumptions used in the modeling, reference to applicable energy code, energy model tool defaults, and/or existing building conditions baseline parameters, as relevant.

- 4. Development of design options:** The Energy Consultant will develop a list of design options for consideration in the energy model if one is developed, or through other means of detailed energy analysis, including: high efficiency systems, external and internal load reduction, lighting, plug load, and other energy savings opportunities. This will result in the development of a preliminary list of energy efficiency measures to be fully evaluated. The Energy Consultant shall then model or analyze the energy efficiency measures as adaptations of the baseline case. By considering a variety of options that can be combined in different ways and include interactive effects among measures, a Tenant can select the most appropriate options for final modeling or analysis.

The energy efficiency package must include measures that exceed the current Energy Conservation and Construction Code of New York State (ECCCNYS) requirements for at least two (2) of the

following five (5) building systems: lighting, heating, ventilation and air conditioning (HVAC), service water heating, unregulated loads and process loads, or building envelope.

Deliverable: The list of the preliminary energy efficiency measures proposed to the client shall be provided to the NYSERDA Project Manager. This list shall also be shared with the Landlords when the Landlord is leading the Tenant Office Space fit-out process.

- 5. Detailed energy analysis or development of final model (for energy modeling projects only):** The Energy Consultant will work with the Project Team to review the results from the design development phase and develop the final list of energy efficiency measures for consideration in the final energy efficiency package for the Tenant Office Space. This package will include the final list of recommended energy efficiency measures the Tenant selected. For energy modeling projects, this will include developing the final energy model based on this final list of measures. The schedule of modeling assumptions shall be updated as appropriate.

Deliverable: Final energy model (for energy modeling projects only); the final list of recommended energy efficiency measures should be provided to the Customer and the NYSERDA Project Manager.

- 6. Financial analysis:** The Energy Consultant shall perform a detailed financial analysis based on the final energy efficiency package proposed for the project; model outputs (for energy modeling projects); incremental cost estimates for each measure; energy savings and load reduction; and payback period, return on investment, net present value, and internal rate of return. The financial analysis will be included in the final report and will include, at minimum:

- The incremental cost for each measure
- The incremental energy savings above code for each measure
- The incremental annual operational cost savings and savings over the lease term
- Simple payback period, net present value, and internal rate of return.

- 7. Final Report:** The Energy Consultant will develop a final report which shall include, at minimum:

- An executive summary, including project background, results and recommendations
- A description of each recommended energy efficiency measure
- Detailed energy savings calculations and data to support the energy savings estimates
- Financial Analysis

- 8. Close out meeting:** Meeting with the Tenant and Project team to review the final results of the project.

Deliverable: To enable NYSERDA to gain real-time feedback on the outcomes of the program, the NYSERDA Project Manager shall be invited to attend the project close-out meeting.

The Energy Consultant must submit all deliverables outlined above to the NYSERDA Project Manager via the online application portal. The Technical Reviewer will also review the deliverables and comments will be provided to the Energy Consultant within fifteen (15) business days of receipt of each deliverable. The Energy Consultant shall prepare revisions to the deliverable reflecting the NYSERDA Project Manager's comments

and resubmit the revised deliverable within fifteen (15) business days after receipt of comments. If the deliverable is acceptable, the NYSERDA Project Manager shall provide final approval.

BASIC TRACK PROJECTS

The scope of work, to be submitted with the Application, is a concise document containing 1) project background and goals and the type energy analysis being proposed, 2) a description of the site – including square footage, a description of existing conditions and systems, 3) a description of the tasks required to meet the project goals, 4) roles and responsibilities of subcontractors, if any, 5) a project timeline, and 6) a budget (see Attachment C). At minimum, these tasks shall include:

1. **Site Visit and Data Collection:** The Energy Consultant shall conduct a walk-through audit (ASHRAE Level I equivalent) of the Tenant Office Space to identify energy savings opportunities, conduct interviews with the appropriate staff members, and collect the Tenant's energy bills and all other data necessary to conduct the energy assessment.
2. **Benchmarking:** The Energy Consultant shall benchmark the Tenant's energy consumption through to determine the Office Space's energy use intensity.
3. **Identification of energy conservation opportunities:** The Energy Consultant will identify low/no-cost measures and operational improvements in the Tenant Office Space that will yield energy savings in a cost-effective manner. Potential capital improvements should also be identified.
4. **Energy savings analysis:** For all identified energy conservation opportunities with quantifiable energy efficiency impacts, the energy and cost savings, implementation costs and payback periods will be calculated. Based on the analysis, the Energy Consultant shall provide guidance on goal setting and prioritization of energy efficiency measure implementation. Any identified capital cost measures will be described in qualitative terms, with recommendation for further study or guidance on best practice measures where appropriate. Directional energy and cost savings, implementation costs and payback periods should be provided for these capital measures.
5. **Final report:** The Energy Consultant shall develop a draft report containing the final energy efficiency recommendations, basic simple payback information, and a plan to guide the Tenant's next steps in achieving higher levels of energy efficiency. Specifically:
 - A summary of the recommendations will be presented in a project summary table.
 - All assumptions and/or background data used to generate savings for identified energy conservation measures will be described in the report.
 - All supporting calculations and generalizations will be submitted.
 - The Basic Energy Assessment Report Checklist (Attachment D) must be attached to the final report.

For more information on final report requirements, refer to Attachment D.1 (Final Report Requirements)

The Energy Consultant must submit all deliverables outlined above to the NYSERDA Project Manager via the online application portal. A Technical Reviewer will also review the deliverables and comments will be provided to the Energy Consultant within fifteen (15) business days of receipt of each deliverable. The Energy Consultant shall prepare revisions to the deliverable reflecting the NYSERDA Project Manager's comments and resubmit the revised deliverable within fifteen (15) business days after receipt of comments. If the deliverable is acceptable, the NYSERDA Project Manager shall provide final approval.

A scope of work template is provided below as guidance. To ensure your projects are approved in a timely manner, please include the information in the format below. While the exact format of the scope of work template is not required, all information requested within the scope of work template must be included in some form in the project scope of work.

###

SCOPE OF WORK TEMPLATE

(This template is provided as a guide as is not required)

Introduction

- *Project background and a brief description of your company as the primary energy consultant.*
- *If any subconsultants are engaged on the project, provide a breakdown of roles and responsibilities for each party.*
- *Clearly state which project type you are pursuing (basic, custom or generic high performance project).*
- *Brief background on tenant motivation for conducting the audit and expected outcomes*

Site Description

Basic overview of the site to include:

- *Building description, including square footage*
- *Site address (tenant space)*
- *Tenant space type (e.g. office space; office space with a data center)*
- *Description of the energy-using systems that serve the space*
- *Breakout of tenant space(s) and square footage*

Tasks

- *List all tasks to be carried out as part of the project. At minimum, all tasks listed in the Scope of Work Requirements listed above should be included.*
- *Briefly describe your activities associated with each task.*
- *Include a list of systems and preliminary energy conservation measures that will be investigated. Discuss type of improvements identified (e.g. capital improvements vs. low-cost/ no-cost).*
- *With respect to the Energy Savings Analysis: include a description of the analysis that will be conducted, including energy efficiency impacts, cost savings, and payback periods.*

Deliverables

Briefly describe the deliverables for the project and ensure they align with the tasks and requirements listed in the Scope of Work Requirements above. For further guidance on final report requirements, refer to Attachment D.1 (Final Report Requirements).

- A draft report must be submitted for review and comment by NYSERDA and the Technical Reviewer assigned to the project. A final report addressing all comments must then be submitted for approval.

Schedule

Please include a project schedule (sample table below), including preliminary dates for all deliverables.

Task	Anticipated Completion Date

Budget

Please include a detailed project budget, following the budget template provided in Attachment C (Proposed Budget Template). If conducting a multi-site project, include a site-by-site budget as well as a total, rolled up budget, clearly indicating the total project cost and the requested NYSERDA cost-share.

Attachment C - Proposed Budget Template

Energy Consultants may create their own budget table, however all information contained in the table below must be provided.

Energy Consultant					Proposed Budget Template: Basic Track					
Project Name (Customer, Building Name)										
Date										
Commercial Tenant Program										
Task	Task Description	Title								Totals
		Rate (\$/Hour)								
1	Site Visit and Data Collection	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Benchmarking	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Identification of energy conservation opportunities	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4	Energy savings analysis	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Final report	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Other Task	# of hours								\$ -
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7	Other Task	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Hours		# of hours	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Project Expenses*

Item	Amount	Unit	(\$/unit)	Total
Expenses				\$ -
Mileage		Miles		\$ -
Total Expenses				\$ -

*Project expenses are capped at 3% of total project cost

Labor Effort	\$ -
Expenses	\$ -
Total Project Budget	\$ -
Customer Share	
NYSERDA Share	\$ -

Attachment C - Proposed Budget Template

Energy Consultants may create their own budget table, however all information contained in the table below must be provided.

Energy Consultant					Proposed Budget Template: High Performance Track					
Project Name (Customer, Building Name)										
Date										
Commercial Tenant Program										
Task	Task Description	Title								Totals
		Rate (\$/Hour)								
1	Site Visit and Data Collection	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Coordination Meetings	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Energy Model Baseline(for modeling projects only)	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4	Design Options Development	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	Detailed Energy Analysis or Final Model Development	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Financial Analysis	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7	Draft and Final Report Development	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8	Close Out Meeting	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	Other Task	# of hours								\$ -
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	Other Task	# of hours								0
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Hours		# of hours	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
		Dollars	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Project Expenses*

Item	Amount	Unit	(\$/unit)	Total
Expenses				\$ -
Mileage		Miles		\$ -
Total Expenses				\$ -

*Project expenses are capped at 3% of total project cost

Labor Effort	\$ -
Expenses	\$ -
Total Project Budget	\$ -
Customer Share	
NYSERDA Share	\$ -

Attachment D.1 - Final Report Requirements

General

- Confirm that the tasks in the scope of work are all included within the report and/or discuss any discrepancies
- Ensure costs and savings are reported consistently throughout the report.

BASIC TRACK PROJETS

The following components should be included in a final report for basic track projects. The report should reflect the standards associated with an ASHRAE Level I Audit.

- **Executive Summary**
 - Brief description of building (location and primary uses)
 - List of energy conservation measures
 - Summary table listing expected energy savings (kWh, Gas, Steam and other fuels, peak Summer kW), energy cost savings, estimated implementation costs, simple payback, and potential reduction in Energy Use Intensity (EUI) for ECM's
- **Description of Building and Tenant Space**
 - If the Office Space occupies only part of a building, define scope of the project
 - Table listing the square footage and use of each audited space
 - Brief summary of building systems investigated as a part of this assessment
- **Benchmarking/baselining**
 - Provide existing utility analysis for electricity, steam, gas, etc. for systems in the tenant space, as applicable.
- **Energy Savings Opportunities**
 - Description of existing conditions
 - Description of opportunities for savings
 - Rough cost estimate for energy savings measures
 - Expected savings based on simple calculation, but with quantified examples (avoid % savings), list all assumptions and performance data used. Include calculation steps.
 - Simple payback of each ECM, with explanations for long payback recommendations
 - Identify potential capital improvements for further study, described in qualitative terms
- **Complete and append Attachment D** (Basic Energy Assessment Report Checklist) to the report.

HIGH PERFORMANCE TRACK PROJETS

The following components should be included in a final report for high performance track projects. The report should reflect the standards associated with an ASHRAE Level II Audit. The items below

are required for projects that pursue energy modeling as well as projects using excel spreadsheet-based calculation methodologies.

- **Executive Summary**
 - Brief description of building
 - List of energy conservation measures
 - Summary of expected savings
 - Summary of simple payback of ECMS, with explanations for long payback recommendations
 - A summary table listing the estimated costs, energy savings (kWh, Steam, Gas, peak Summer kW), energy cost savings, financial performance indicators as listed in the Scope of Work
- **Description of Building and Tenant Space(s)**
 - If the Office Space occupies only part of a building, define scope of the project
 - Size, space use, occupancy
 - Space functional analysis
 - Detailed existing building systems summary
 - HVAC equipment, lighting, envelope, etc.
- **Summary of design tenant systems**
 - Lighting- LPD, Occupancy Sensors, Daylight Sensors
 - Envelope
 - Equipment
 - Service Water
 - Air Side HVAC systems
 - Other Miscellaneous loads
- **Benchmarking/baselining**
 - If available, provide existing utility analysis for electricity, steam, gas, etc. for systems in the tenant space, as applicable.
 - Provide estimates for energy consumption for various end use (lighting, cooling, heating, etc.)
- **Recommendations**
 - Provide initial list of design options developed for tenant consideration.
 - Describe the preliminary packages of energy efficiency options developed for the tenant, and the option selected by the tenant for final analysis.
 - Discuss any potential capital-intensive measures that may require additional analysis
 - Discuss operations and maintenance measures
- **Energy Conservation Measure descriptions**
 - Detailed descriptions of energy conservation measures.
 - Cost estimates for each measure.
- **Energy Savings Analysis**
 - Annual savings from each ECM (peak load and total savings)
 - Simple payback based on cost estimates (without incentives)
 - Return on Investment
 - Annual total savings with package implemented.
 - EUI after the ECM's are implemented.

- End Use Consumption analysis after ECM's are implemented
- **Financial analysis**
 - The incremental cost estimates for each measure
 - The incremental energy savings above code for each measure
 - The incremental annual operational cost savings and savings over the lease term
 - Simple payback period, return on investment, net present value, and internal rate of return.

Appendices:

- Energy Conservation Measure Calculations
- Occupancy Schedules
- Lighting and Equipment Schedules
- Cost Estimate Calculations and Assumptions

ENERGY MODELING

For projects that use energy modeling, please also provide the following, in addition to the requirements listed above:

- Energy Model program used, weather file, utility data
- Energy Conservation Measure descriptions, including exceptional calculations for measures where savings are not calculated by the energy modeling software.
- Summary of input parameters (provide for baseline and design building models) (Either in the main report or as an appendix)
 - Lighting- LPD, Occupancy Sensors, Daylight Sensors
 - Exterior Lighting if applicable
 - Envelope
 - Fenestration
 - Equipment
 - Service Water
 - Waterside HVAC systems
 - Air Side HVAC systems
 - Other Miscellaneous loads
- Energy Model Results
 - Building Energy Performance
 - Energy Cost Summary
 - Energy End Use by Category with Peak load

Attachment D.2 - Basic Energy Assessment Report Checklist

This form must be attached to the final report for all basic track projects.

General

Tenant Name	
Address	
Contact Person	
Title	
Telephone	
Email	
Lease Type	(Full service gross, modified gross, triple net, rent inclusion, etc.)
Metering Configuration	(Master metered, individual, submeter)
Floor Area/ # of floors	
Business Type	(Office use type, i.e. law firm, tech/media firm, financial firm, etc.)
Total # of occupants	
Typical hours of operation	

Benchmarking information

Benchmarking tool used	
Energy Use Intensity (MMBtu/sq. ft.)	
Total yearly electricity consumption (Kwh)	
Total yearly fuel consumption (MMBtu)	

Low/no cost Energy Conservation Measures

For each low/no-cost measure identified, the energy saving/cost associated must be included. If the measure does not have any associated energy savings, please use zeros. Energy savings calculations should be provided; the complexity of the energy savings calculations should be commensurate with the magnitude of the energy savings.

Measure description	Measure status*	Fuel Type saved**	Electric savings (kWh)	Fuel savings (MMBtu)	Annual Cost savings	Estimated implementation cost	Simple payback (years)	Benefits ***

* Measure Status: Implemented (I); Recommended (R); Further Study Recommended (RS); Not Recommended (NR); Recommended Mutually Exclusive (RME).

** Fuel Saved Type: Elec, NGas, Oil2, Oil4, Oil6, Coal, LPG. MMBtu = 1,000,000 Btu

*** E= Improved energy efficiency; C= Improved comfort; M= Reduced maintenance; O= Improved operation efficiency

Capital Energy Conservation Measures

Capital measures may include replacement, upgrade, or retrofit of tenant systems or equipment. For each identified capital measure, the energy saving/cost associated must be included. Energy savings calculations should be provided; the complexity of the energy savings calculations should be commensurate with the magnitude of the energy savings.

Measure description	Measure status*	Fuel Type saved**	Electric savings (KWh)	Fuel savings (MMBtu)	Annual Cost savings	Estimated implementation cost	Simple payback (years)

* Measure Status: Implemented (I); Recommended (R); Further Study Recommended (RS); Not Recommended (NR); Recommended Mutually Exclusive (RME).

** Fuel Saved Type: Elec, NGas, Oil2, Oil4, Oil6, Coal, LPG. MMBtu = 1,000,000 Btu

Tenant Systems

Which tenant systems were assessed during the audit? Check all that apply.

System	Check if yes	Tenant controlled? (Check if yes)	Comments
Space Cooling/heating systems			
Space temperature control method			
Chilled water/condenser water systems			
Air distribution system/Major air-handling units			
Domestic water systems			



Lighting and lighting control systems			
EMS and/or control systems			
Plug Loads			
Other (please add lines as necessary)			

Miscellaneous

Is the space conditioning adequate?	(Over/Under Heating/Cooling)
Are setpoints in the space adequate?	
Is Energy Star equipment prevalent?	
Additional plug loads beyond PCs and Printers?	
Other	

Attachment E - Energy Modeling Guidelines

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Commercial Tenant Program Energy Modeling Guidelines

October 3, 2016

1 Purpose

The Commercial Tenant Program (Program) Simulation Guidelines (SG) outline the energy modeling methodology for projects that participate in the Program. This Program is specifically for tenant office spaces in existing buildings. It shall be used by Modeling Entities, and may be shared with developers, building owners and managers, future tenants, design teams, and other team members as required.

The Commercial Tenant Program focuses on tenant office fit-outs and renovations in existing buildings. It is assumed that the majority of these projects will incorporate some use of existing equipment (central plant, air handlers, etc.) while others may incorporate new equipment into their design (i.e. a large tenant incorporating a new chiller for their load, etc.). While these guidelines attempt to incorporate all potential tenant fit-out scenarios, project specific items and modeling parameters (i.e. baseline systems) that are not addressed here may need to be reviewed and approved by NYSERDA.

Updates to the SG will be released as needed, and will include clarifications and updates to the Program modeling policies, supporting calculations, and modeling methods based on references such as Commercial Buildings Energy Modeling Guidelines [3] and the ASHRAE 90.1-2013 User's Manual [2].

An important goal of the SG is to share peer-reviewed modeling approaches to help improve accuracy, consistency, and productivity of energy modeling, and to publish exceptional calculation methods that NYSERDA approves for use in the Program.

The intent of the Program is to provide a custom energy model resulting in a list of energy efficiency measures tailored to the unique needs and requirements of a tenant. This tenant-specific package includes a financial analysis to allow the tenant to choose the options that work best for its business. The Program also provides a modified package applicable to the remainder of the tenant spaces in the building. This building-tenant package is created for the building owner/manager to use in future lease negotiations and fit-out designs for tenants. The building-tenant package includes a list of energy saving opportunities applicable to tenant spaces within that specific building. This will allow for new tenants to use the building-tenant package and may eliminate the need for additional tenant-specific energy modeling. This Program will test the ability to standardize energy efficiency packages for tenant spaces within commercial buildings. These guidelines address the requirements of both of these energy modeling packages.

2 Scope and Applicability

The energy modeling approach is applicable to tenant fit-outs and major renovations of commercial tenant spaces that satisfy Program eligibility requirements as outlined in PON 3308 and summarized below. Refer to the PON for complete requirements.

- Commercial real estate office space that is currently leased by a tenant or will be leased by a tenant.
- The tenant or the facility where the leased space is located must be a New York State electricity distribution customer of a participating utility company who pays into the System Benefit Charge.
- There is no square footage threshold for eligible tenants, however the tenant space cannot occupy more than fifty percent (50%) of the building's total square footage.
- If the tenant is renovating a space, the renovation must be significant enough to trigger code compliance and the recommended package(s) must include **measures that exceed the current code requirements** for at least two of the following five building systems: lighting, HVAC, service water heating, plug and process loads, and building envelope.

Projects must follow the Simulation Guidelines version that was in effect when the project was scoped. Modeling Entities may use a more recent version of the Simulation Guidelines retro-actively for older projects; however, the selected version of the Simulation Guidelines must be followed in its entirety.

3 General Approach

3.1 Deliverables Related to the Energy Model (per PON 3308)

Refer to PON 3308 for information related to required deliverables related to the energy models for tenant-specific and building-tenant packages. The following lists the models required:

- Baseline Energy Model
- Design Options Modeling (Tenant-Specific)
- Final Energy Model (Tenant-Specific)
- Building-Tenant Package Development

3.2 Simulation Methodology

- a) Projects shall be simulated following ASHRAE/IESNA Standard 90.1-2013 (ASHRAE 90.1) [1] Normative Appendix G Performance Rating Method (Appendix G, PRM) and as described in this document. The simulations developed must reflect the following:

The baseline case (the baseline):

- Shall be modeled as described in Appendix G.
- Shall not include end uses that do not exist in the proposed building, with the exception of space cooling that must be modeled where required per Table G3.1-10.d. See example 3-1.

The proposed design (including the Design Options Model and the Final Design Model):

- Shall be modeled as described in Appendix G.
- Must reflect the specified building components except where required otherwise in this document.
- Must comply with the mandatory provisions in Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4 of ASHRAE 90.1, including but not limited to demand control ventilation for high occupancy areas (section 6.4.3.8), automatic receptacle control (Section 8.4.2), electrical energy monitoring (Section 8.4.3), etc. Mandatory provisions adjusted by local authorities (i.e. plug load monitoring in 2014 NYCECC Appendix A Amendment) to prescriptive requirements do not need to be in the design,¹ but will be in the baseline (i.e. these items can be considered trade-offs).

- b) Addenda to ASHRAE 90.1 may be used, but must be explicitly referenced in the submittals and followed in their entirety. One addendum or several addenda may be used without having to use all the addenda.

- c) Simulation software must comply with the requirements outlined in Appendix G Section G2.2. Approval for use in LEED v4 for Building Design and Construction, LEED v4 for Interior Design and Construction or

EXAMPLE 3-1 - No Cooling Specified

Q. A project involves an office that includes offices, common corridors, stairwells, tenant storage and mechanical/utility rooms. No cooling is specified for the building. Should cooling be modeled in either the baseline or the proposed design model?

A. Based on Table G3.1 Design Model, cooling must be modeled in all *conditioned* spaces in both the baseline and proposed models, except for in thermal blocks served by Baseline System types 9 and 10.

Based on the definition of *space* in ASHRAE 90.1 Section 3 and heating output of the equipment specified in the proposed design, the offices, corridors, and tenant storage are conditioned spaces. Tenant storage must be modeled with System 9/10 and no cooling based on G3.1.1 Exception 5. Offices and corridors have baseline System 1/2, and thus must be modeled with cooling in both the baseline and proposed design.

Stairwells and mechanical/utility rooms fall into unconditioned or semi-heated categories based on 90.1 definitions, and are thus also modeled with no cooling.

¹ Applicants wishing to apply for implementation incentives through the Commercial New Construction Program should be aware that they must comply with mandatory provisions adjusted by local code and ensure they meet eligibility requirements of both the Commercial Tenant Program and the Commercial New Construction Program. Engaging NYSERDA program staff early in the design process is highly recommended.

EPAct Tax Deduction for Commercial Buildings may serve as proxy for software admittance into the Program. Examples of allowed tools include eQUEST, DOE2.1, Energy Plus, Carrier HAP, and Trane Trace 700.

- d) If an approved simulation tool used for the project does not have the capability to calculate energy usage/savings for a design feature allowed by Appendix G protocol and the Program, supplemental calculations may be used. All such calculations must be documented in the report appendix following requirements of 90.1 Section G2.5.
- e) Baseline and proposed design models shall include all the energy costs within and associated with the tenant space. This includes loads that are not regulated by ASHRAE 90.1, except where explicitly required otherwise. It is assumed that the models shall generate results and costing for the tenant space only.
- f) If available and provided by the building owner, utility information may be used to inform the overall modeling procedure in an order of magnitude comparison. For example, if the existing building operates at 100 kBtu/ft² and \$3/ft², these metrics can be used to inform the model. Modifications can be made to bring the model in line with these values, but specific calibrations to existing utility consumption and costs is not expected. The baseline and design models shall be developed according to Appendix G.

3.3 District Systems & Central Plants

It is understood that most projects will use existing central plant equipment and larger base building air handlers outside of the scope of their projects. Some tenants may incorporate new terminal units and central plant equipment (fan coils, DX cooling, heat pumps, new chillers, etc.).

3.3.1 Existing Systems

When a building utilizes an existing district or central heating and/or cooling system/plant, the existing system must be held energy-neutral (equally efficient) in the baseline and proposed models. Only equipment included in the scope of the project may vary between the two models. One of the following analysis options may be used for such projects:

- a) Follow modeling requirements of G3.1.1.3.
- b) Complete modeling as described in option (a). Convert purchased energy/central plant usage/savings into the equivalent electric or fossil fuel savings in order to capture associated savings.

Conversion factors must be the same in the baseline and proposed models, and either based on the known efficiency and losses of the central plants, or the following defaults when the actual performance is unknown [7]. See Example 3-2.

- i. District chilled water generated by electric chiller: COP 3.3 chiller efficiency, 2.5% distribution loss, with the overall system performance of COP 3.2.

EXAMPLE 3-2 - Converting Central Plant

Q. A project has a proposed cooling system that utilizes chilled water, and is connected to an existing central plant comprised of electric chillers with unknown efficiency. The project includes a lighting EEM that will cause a reduction in the cooling load for the building. An energy simulation is performed for the building. According to the simulation, the lighting EEM saved 65 MMBtu of chilled water, and reduced summer peak chilled water demand by 100 kBtu/hr. How can electrical savings from the reduction in the cooling load be determined?

A. The equivalent electricity savings are calculated as $65,000/(3.2 \times 3.412) = 5,953$ kWh and $100/(3.2 \times 3.412) = 9.2$ kW

- ii. District chilled water generated by gas chiller: COP 0.95 chiller efficiency, 2.5% distribution loss, with the overall system performance of COP 0.93.

- iii. District steam generated using conventional boiler technology: 80% boiler efficiency, 7.5% distribution loss, with the overall system performance of 74%.
 - iv. District steam generated using combined heat and power: 106.9% generation efficiency, 7.5% distribution loss, with the overall system performance of 98.9%.
 - v. District steam generated with unknown technology: 82.6% weighted average overall efficiency based on 41.35% CHP market share.
 - vi. District hot water: 80% boiler efficiency, 2.5% distribution loss, with the overall system performance of 78%.
- c) Model a virtual plant representative of the existing district/central plant system. For example, a virtual chiller may be modeled to convert reduction in purchased chilled water to equivalent kWh/kW savings. Parameters of the virtual plant must be the same in the baseline and proposed models, and documented in the report. If the actual central plant efficiencies are unknown, the default efficiencies described under option (b) must be used.

3.3.2 New Systems

When a tenant project utilizes a new district/central heating and/or cooling plant, the new plant may be included in the scope of the project. In these cases, the baseline model would be determined by the requirements of ASHRAE 90.1-2013 Appendix G.

If the new plant is intended to service existing and/or future loads not included in the scope of the application, the energy model and savings must be based only on the new load within the scope of the project.

3.4 Process and Plug Loads

The process and plug loads category includes systems and equipment that affect building energy consumption but are not regulated by ASHRAE Standard 90.1. As a general rule, such loads must be modeled as energy-neutral (identical) in the baseline and proposed design, but some unregulated systems such as major ENERGY STAR labeled appliances and plug load management beyond code requirements may show energy savings.

The process and plug loads must be reasonably captured in the models to account for their impact on regulated systems due to the added internal heat gains.

3.4.1 Baseline Process and Plug Loads

The typical energy use intensity (EUI) of unregulated loads for different building types based on Pacific Northwest National Laboratory (PNNL) prototype models of commercial building stock compliant with 90.1-2013 is shown in SG Appendix A. Projects with a process and plug load EUI of 80% or less of the typical must justify the related modeling assumptions in the report. Automated receptacle controls required by the mandatory provisions Section 8.4.2 must be included in the baseline, except where these requirements are adjusted by local authorities (i.e. 2014 NYCECC Appendix A Amendment).

3.4.2 Proposed Process and Plug Loads

If the process and plug loads are not included in an Energy Efficiency Measure (EEM), they must be kept energy neutral, and must be modeled the same in the proposed design as in the baseline. If the process and plug loads are modeled as an EEM, the baseline must be established based on the applicable state, local, or national codes. Below are several examples of EEMs related to plug loads.

a) ENERGY STAR Appliances:

Savings from Energy Star appliances should be calculated using the latest version of the appliance calculator published by the EPA on the Energy Star website. Savings given by the

appliance calculator should be converted into model inputs to show the interaction between plug loads and heating/cooling energy.

b) Additional Automated Receptacle Controls:

Savings for automated receptacle controls in addition to those required by 90.1 Section 8.4.2 may be modeled by adjusting proposed plug load schedule (Option 1) or plug load power density (Option 2) as follows:

Baseline Design:

- PL_B [W/SF] - Plug Load Power Density (PPD) based on values in Default Power Density column and Space-by-Space Classification for the appropriate space (lower portion of the table) of COMNET Appendix B.
- Plug Loads Schedule - based on the plug load schedule for appropriate building type from COMNET Appendix C.

Proposed Design (including the Design Options Model and the Final Design Model):

Option 1:

- In all thermal blocks where no automatic receptacle controls are specified, PPD and schedule must be the same as in the baseline
- In all thermal blocks where additional automatic receptacle controls are specified beyond mandatory requirements for some of the receptacles, plug loads must be separated into two components:

$$PL_{P,AC} = PL_B * F$$

$$PL_{P,NC} = PL_B * (1 - F)$$

Where:

$PL_{P,AC}$ [W/SF] – PPD affected by automatic controls

$PL_{P,NC}$ [W/SF] – PPD not affected by automatic controls

F- ratio of the total rating of the controlled receptacles to the total rating of all receptacles in the appropriate thermal blocks

- PPD not affected by automatic controls ($PL_{P,NC}$) must be modeled with the same schedule in the proposed design as in the baseline
- PPD affected by automatic controls ($PL_{P,AC}$) must be modeled with the following schedule:
 - Zero schedule fraction during un-occupied hours (hours with 0 Occupancy Schedule fraction in COMNET Appendix C for the appropriate building type).
 - Schedule fraction for all other hours must be reduced by 20%.

Exception: With prior NYSEDA approval, alternative schedules may be used to demonstrate greater than 20% savings during occupied hours. Acceptable sources include measurements performed on similar completed projects or peer-reviewed studies.

Option 2:

- In all thermal blocks where no automatic receptacle controls are specified, PPD and schedule must be the same as in the baseline
- In all thermal blocks where automatic controls are specified for some of the receptacles PPD must be modeled as follows:

$$PL_P = PL_B * (1 - F * 0.2)$$

PL_P [W/SF] – proposed PPD; must be modeled with the same schedule as in the baseline

F- ratio of the total rating of the controlled receptacles to the total rating of all receptacles in the appropriate spaces / thermal blocks

3.5 Modeling Existing and Future Components

Parameters related to *unmodified* existing conditions or future building components must be identical in the baseline and proposed design models, as described in Section G1.3.

- Future building components must be modeled as meeting applicable requirements of ASHRAE 90.1.
- Un-modified existing components must reflect the existing conditions where the existing conditions are known and documented in the report, or as meeting applicable requirements of ASHRAE 90.1.

The baseline design for systems and components that are altered as part of the project must be modeled as meeting appropriate requirements of Appendix G as applicable.

3.6 Energy Rates

Annual energy cost must be based either on the actual rates of purchased energy, state average energy prices (G2.4.2), or rates provided in COMNET Chapter 5 for the appropriate climate zone. The selected source must be used for all fuels in the project, except when a project elects to use actual utility tariffs, but actual tariffs are not available for one of the fuels in the project, average rates may be used for that fuel.

3.7 Simulated Schedules

Modeled lighting, occupancy, HVAC, and other schedules must be in line with Tables G-E to G-O of 90.1 – 2013 User's Manual, and COMNET Commercial Buildings Energy Modeling Guidelines and Procedures Appendix C, as applicable, except as described in Sections 3.5.2 and 4.1.5 of this document.

Simulated schedules must support realistic demand reporting.

Alternative schedules may be modeled to reflect project-specific design requirements such as 24/7 operation in data centers and security areas.

4 Specific Requirements

4.1 Building Envelope

Refer to example 4-1.

4.1.1 Baseline Model

The *baseline* model must reflect surface type, solar and thermal properties as required in Appendix G Table G3.1-5.

Exception: Parameters relating to unaltered portions of existing building envelopes must be identical in the baseline and proposed design models, and shall be modeled to reflect the existing conditions where the existing conditions are known and documented in the report per section 3.7 of this document (90.1 G1.3). Where the proposed design includes alterations listed as exceptions to 90.1-2013 Section 5.1.3 Envelope Alterations, the baseline and proposed design shall be modeled identically to reflect these alterations.

4.1.2 Proposed Model

- a) Thermal properties of steel-framed assemblies must be determined using ASHRAE 90.1 Appendix A to capture thermal bridging through steel members.
- b) Fenestration must be modeled to reflect whole window assembly U-values (including frame) and not the center-of-glass U-value. Acceptable sources for overall fenestration U-value include:
 - NFRC rating from the window manufacture for the entire fenestration unit. (This is usually available only for standard window sizes.)
 - LBNL WINDOW software <http://windows.lbl.gov/software/window/window.html>
 - Model the frame and glazing explicitly in the simulation tool used for the project based on the known thermal properties and dimensions of the frame and glazing

- ASHRAE 2009 Fundamentals [6], Chapter 15 Table 4.

EXAMPLE 4-1- Existing Envelope Components

Q. A project includes a major renovation of a 40,000 ft² office space located in ASHRAE Climate Zone 5a. As part of the renovation, the total window area in the existing space is increased from 1,000 ft² to 1,500 ft² and the existing windows (NFRC U-0.9/SHGC-0.68) are all replaced. Exterior walls in the renovated portion are left as is. The new windows installed in the renovated portion are metal-frame with a NFRC rating of U-0.50 /SHGC 0.4. Windows account for 25% of gross exterior wall area of the addition. How would the envelope be modeled in the baseline and proposed design?

A. Project inputs are shown in the table below.

	Renovated Portion	
	Baseline	Proposed
Window Area, ft ²	1,000 ft ² (match pre-retrofit condition)	1,500 ft ² (as specified)
Window U-value	U-0.5/SHGC-0.4/VT-0.44 (Table 5.5-5)	U-0.50 / SHGC-0.4 (as specified)
Wall Area	match pre-retrofit	As specified (500 ft ² less)

4.1.3 Reflective Roof

All roof surfaces in the baseline must be modeled with a reflectance of 0.30 and a thermal emittance of 0.90. In the proposed design, the exterior roof surface shall be modeled using the aged solar reflectance and thermal emittance determined in accordance with Section 5.5.3.1.1(a). Where aged test data are unavailable, the roof surface may be modeled with a reflectance of 0.30 and a thermal emittance of 0.90, as described in Table G3.1-5, Proposed Design column, Exception 3 to (a).

4.1.4 Exposure-Neutral Baseline

The baseline for projects involving renovations and additions must reflect the actual building orientation since these projects will be in existing buildings.

4.1.5 Infiltration

Infiltration rates must be modeled the same in the baseline and proposed design models, and must be calculated following G3.1.1.4.

Infiltration must be modeled at 100% (i.e. with schedule fraction of 1) during un-occupied hours when HVAC systems are off, and at 25% during occupied hours (i.e. with schedule fraction of 0.25) [9]. Infiltration can be ignored during occupied hours by modeling infiltration schedule fraction of 0 when fans are on if simulation tool restricts changes to infiltration schedule.

4.2 Heating, Ventilation, and Air Conditioning

4.2.1 Baseline HVAC System Efficiency and Extracting Fan Power from Efficiency Ratings

Fan power must be excluded from the efficiency ratings including EER, SEER, COP, and HSPF following equations provided in G3.1.2.1. Refer to example 4-2.

EXAMPLE 4-2 - Extracting Fan Power from Baseline SEER Rating

Q. If a baseline HVAC system for a project is determined to be System 3 – PSZ with a capacity range of <65,000 Btu/h, what are the inputs for the system efficiency?

A. Based on ASHRAE 90.1 Table 6.8.1A, the baseline system efficiency is 14.0 SEER for the selected capacity. Baseline efficiency excluding supply fan power based on G3.1.2.1 is:

$$\text{COP}_{\text{nfcooling}} = -0.0076 \times \text{SEER}^2 + 0.3796 \times \text{SEER} = 3.8248$$

If eQUEST is used to perform simulation, system efficiency is modeled as follows:

$$\text{EIR} = 1 / \text{COP}_{\text{nfcooling}} = 0.2615$$

4.2.2 Ventilation Control for High Occupancy Areas

Mandatory Section 6.4.3.8 requires that demand control ventilation (DCV) is specified for spaces larger than 500 ft² and with a design occupancy greater than 25 people per 1,000 ft² of floor area and served by systems with one or more of the following:

- An air-side economizer
- Automatic modulating control of the outdoor air damper or
- A design outdoor airflow greater than 3000 CFM

Due to this requirement, spaces such as auditoriums, conference rooms, lecture halls, multipurpose rooms, etc., may have demand control ventilation in the baseline design unless baseline has energy recovery per section G3.1.2.11. This requirement is mandatory, thus in order to comply with ASHRAE 90.1, the proposed design must also have demand control ventilation unless exceptions to Section 6.4.3.8 apply.

If project's occupant density in spaces that are typically subject to the DCV requirement is less than the defaults listed in ASHRAE 62.1 Table 6-1 making DCV not required, the source of the project's data must be documented. Refer to example 4-3.

EXAMPLE 4-3 - DCV in the Baseline

Q. A proposed design for an office building in Albany (climate zone 5a) includes a 1,000 ft² conference room with a design occupant density of 160 people and a design ventilation rate of 2,400 CFM. In the proposed design, the space is served by a dedicated air handling unit with DCV. The simulation run for the baseline model showed that the cooling load in the lecture hall differs by more than 10 Btu/hr-ft² from the average for the building. How should the system be modeled in the baseline?

A. Because of the difference in load, the system should be modeled with a dedicated System 3 – PSZ (Section G3.1.1 Exception b) that has an economizer (Table G3.1.2.6A). Since the space occupant density is greater than the 25 people per 1,000 ft² limit (set in Section 6.4.3.8), AND the space area is greater than 500 ft², AND the system has an economizer, AND energy recovery is not required in the baseline (by section G3.1.2.1), AND none of the exceptions to 6.4.3.9 apply to the baseline system, the baseline system must be modeled with demand control ventilation.

4.2.3 Mechanical Ventilation Rate

Following G3.1.2.6 Exception #3, if the minimum outdoor air intake flow in the proposed design exceeds the amount required by applicable building code, such as in Mechanical Code of New York State Table 403.3, then the baseline building design shall be modeled to reflect the code requirements and will be less than the proposed design, resulting in a penalty for over-ventilation. An Exception to this requirement will be made in the Program for projects that do not include changes to existing air handling systems. These projects shall use the existing ventilation rates (if known) in the baseline & design. If unknown, ventilation code requirements will be used.

4.2.4 Dedicated Make-up Air Systems

Heating, cooling, and ventilation in the baseline model must be provided by the HVAC system selected as described in G3.1.1. Dedicated make-up air systems must not be modeled in the baseline even when they are specified for the proposed design. There is no additional fan power allowance in the baseline for projects with dedicated make-up air systems in the proposed design.

4.2.5 Baseline Heat Pump Efficiency

Baseline Systems 2 – PTHP and System 4 – PSZ-HP must be modeled with electric auxiliary heat controlled as required by G3.1.3.1 [8]. The electric auxiliary heat may not be used in the model at temperatures above 40°F.

PTHP must be modeled to allow operation in conjunction with the auxiliary heat at temperatures of 25°F and higher; below 25°F, only the auxiliary heat should be modeled. PSZ-HP must be modeled to allow operation in conjunction with the auxiliary heat at temperatures of 10°F and higher; below 10°F, only the auxiliary heat should be modeled. For example, eQUEST users must set “Minimum HP Heat Temp” to 25°F and “Maximum HP Supp Temp” to 40°F when modeling PTHP.

4.2.6 Fan Power

4.2.7.1 Extracting Supply Fan Power from Efficiency Ratings

- a. Modeled Baseline HVAC system efficiency must be calculated as described in section G3.1.2.1, which provides equations for extracting fan power at the rated conditions from the rated efficiencies.

When calculating $COP_{NFCOOLING}$, Q must be capped at the minimum capacity of the highest capacity bracket for the applicable equipment type in Tables 6.8.1-1 and 6.8.1-4. For example, if System 5 (Packaged VAV) is modeled in the baseline and the capacity of one of the baseline systems is 1,400,000 btu/h, $COP_{NFCOOLING}$ must be calculated assuming Q = 760,000 btu/h.

When calculate $COP_{NFCOOLING}$ and $COP_{NFHEATING}$ for baseline System 1 & 2 (PTAC and PTHP), Q shall be capped at 15,000 btu/h and shall be no less than 7,000 btu/h.

- b. Modeled Proposed HVAC system efficiency must be calculated as follows:

Packaged Air Conditioner and Heat Pump Cooling Equations:	
$EER = \text{Net Cooling [Btu/h]} / \text{Total Input Power [W]}$	(Equation 4.1.1)
$\text{Indoor Fan Power [W]} = (\text{Gross Cooling [Btu/h]} - \text{Net Cooling [Btu/h]}) / 3.412 [\text{Btu/h} \times \text{W}]$	(Equation 4.1.2)
$COP_{NFCOOLING} = \text{Gross Cooling [Btu/h]} / (\text{Total Input Power [W]} - \text{Indoor Fan Power [W]}) \times 3.412 [\text{Btu/h} \times \text{W}]$	(Equation 4.1.3)

Packaged Air Conditioner and Heat Pump Heating Equations:	
$COP_{HEATING} = \text{Net Heating [Btu/h]} / (\text{Total Input Power [W]} \times 3.412 [\text{Btu/h} \times \text{W}])$	(Equation 4.2.1)
$\text{Indoor Fan Power [W]} = (\text{Net Heating [Btu/h]} - \text{Gross Heating [Btu/h]}) / 3.412 [\text{Btu/h} \times \text{W}]$	(Equation 4.2.2)
$COP_{NFCOOLING} = \text{Gross Heating [Btu/h]} / (\text{Total Input Power [W]} - \text{Indoor Fan Power [W]}) \times 3.412 [\text{Btu/h} \times \text{W}]$	(Equation 4.2.3)

All inputs in the equations for the proposed design must be based on manufacturer’s data for the specified equipment at the AHRI rated conditions.

4.2.7.2 Baseline System Fan Power

- a. The system baseline fan power must be calculated according to Appendix G section G3.1.2.10, and represents the total fan power allowance including supply, return, and exhaust fans, central and zonal.

- b. Baseline fan power allowance should be allocated to supply, return and exhaust in the same proportion as in the proposed design, per G3.1.2.10.1.
- c. The preferred method for modeling baseline fan power is by specifying Watt per CFM of air flow in the model, as this avoids the need to adjust fan power whenever flow rates change when evaluating EEMs. If a software tool does not allow inputting power per unit flow, the same purpose can be achieved by defining the total static pressure drop and overall fan efficiency fraction (including motor, drive, and mechanical efficiencies). Use equation 4.3 to convert from kW/cfm (power per unit flow) to in wg (TSP).

$$Power_{kW/CFM} = \frac{TSP_{in.wg}}{8520 \times \eta_{overall}} \quad (\text{Equation 4.3})$$

If overall fan efficiency fraction $\eta_{overall}$ is unknown, 0.55 can be used. The accuracy of this estimate does not affect the results of the simulation, since adjusting the efficiency fraction when using equation 4.3 will cause an offsetting adjustment in total static pressure.

For existing air handlers not included in the tenant design, existing fan power energy shall be used.

Refer to Example 4-4.

EXAMPLE 4-4 - Fan Power and Cooling Efficiency

Q. A 10,000 square foot office building has three thermal blocks, each served by a packaged rooftop unit with a gas furnace. The rooftop units have fully ducted return, MERV 13 filters, and sound attenuation sections. Each unit is identical and has a design supply flow of 4500 CFM, an ARI net cooling capacity 144,000 btu/h, and an EER of 11.5. Gross capacity at ARI conditions listed by the manufacturer is 151,000 btu/h. Supply and return fan BHP at design conditions for each unit are 2.8 and 1.1 respectively. Flow rate across the return fan is 90% of supply flow. Each thermal block also includes a restroom with a 200 CFM continuously running exhaust fan with a 75W motor (~1/10 hp). How should fan power and cooling efficiency be modeled for the baseline and proposed designs?

A. Baseline: According to Table G3.1.1A, the baseline is System 3, Packaged Single Zone with Fossil Fuel Furnace. Baseline thermal blocks are the same as in the proposed design. System auto-sizing, in the simulation tool gives cooling capacity of 165,000 Btu/h with design flow rate of 4850 CFM.

The baseline system efficiency from ASHRAE 90.1 2013 Table 6.8.1-1 is 11 EER. This rating includes supply fan power, which needs to be removed from the descriptor using equations from G3.1.2.1:

$$COP_{nfc} = 7.84E-8 \times EER \times Q + 0.338 \times EER = 7.84E-8 \times 11 \times 165,000 + 0.338 \times 11 = 3.86$$

In eQUEST the system will be modeled with $EIR = 1/COP_{nfc} = 1/3.86 = 0.259$

To calculate baseline fan power, first determine total baseline fan power allowance according to section G3.1.2.10:

$$A = (.5 + .15 + .9) \times 4850 / 4131 = 1.82 \text{ [Table 6.5.3.1-2]}$$

$$BHP = .00094 \times CFM + A = .00094 \times 4850 + 1.8 = 6.4 \text{ [Table G3.1.2.10]}$$

$$P_{fan} = bhp \times 746 / \text{Fan Motor Efficiency} = 6.4 \times 746 / 0.895 = 5335 \text{ W [G3.1.2.10, Table 10.8-2]}$$

The final step in determining baseline fan power is to apportion the total system P_{fan} to supply, return, and exhaust applications, directly proportional to the apportionment in the Proposed Design using the Application Ratios described above. For this example, total proposed fan bhp for each system is $2.8 + 1.1 + 75 / 746 = 4 \text{ bhp}$. Application ratios and their usage in calculating power per unit flow for this example are listed in the table below.

	Proposed Application Ratio	Total Baseline Fan Power W	Baseline Fan Power kW	Baseline Flow CFM	Baseline kW/CFM
Supply Fan	$2.8 / 4 = .7$	5335	$.7 \times 5335 = 3.73$	4850	.000770
Return Fan	$1.1 / 4 = .275$		$.275 \times 5335 = 1.47$	4365	.000336
Bathroom Exhaust	$(75 / 746) / 4 = .025$		$.025 \times 5335 = .133$	200	.000667

This calculation need only be performed once, for the fully configured baseline design, and should not be redone for individual EEM runs. The result of this calculation, the Baseline kW/CFM column, should either be entered directly into the modeling tool, or first converted into TSP and efficiency fraction inputs using equation 4.3. Thermodynamically equivalent approaches that use modified versions of the concepts and equations outlined above are also acceptable.

For the Proposed: To extract proposed fan power, use equations 4.1.1-3 For BHP_{supply} , take the difference between gross and net cooling capacities and convert to HP. For this example, equation 4.1 simplifies as follows:

$$\text{Total Input Power [W]} = \text{Net Cooling [Btu/h]} / EER = 144,000 / 11.5 = 12,522 \text{ [W]}$$

$$\text{Indoor Fan Power [W]} = (\text{Gross Cooling [Btu/h]} - \text{Net Cooling [Btu/h]}) / 3.412 [\text{Btu/h} \times \text{W}] = (151,000 - 144,000) / 3.412 = 2,052 \text{ [W]}$$

$$COP_{nfc} = \text{Gross Cooling [Btu/h]} / (\text{Total Input Power [W]} - \text{Indoor Fan Power [W]}) / 3.412 = 151,000 / (12,522 - 2,052) / 3.412 = 4.23$$

Had the performance of specified units at ARI rating conditions been unavailable, we would have had to resort to equations in G3.1.2.1 for extracting fan power from efficiency ratings. Proposed fan power should be modeled based on design documents, including all fan applications.

4.3 Service Water Heating

4.3.1 Baseline Hot Water Demand

Hot water demand in the Baseline Building Design shall be determined based on average daily hot water usage indicated in Table 4.3-1 below, based on Table 7 from Chapter 50: Service Water Heating of the 2015 ASHRAE Applications Handbook.

Table 4.3-1 - Hot-Water Demands and Use for Various Types of Buildings*

Type of Building	Average Daily Usage
Office Buildings	1.0 Gal/Person

For building types not included in Table 4.3-1, hot water demand may be established using other information given in Chapter 50: Service Water Heating of the 2015 ASHRAE Applications Handbook, such as Table 10 which provides hot water demand in gallons per hour per fixture for various types of buildings. Hourly demand must be coupled with the appropriate hourly schedules, such as those listed in [2] and [3].

4.3.2 Proposed Hot Water Demand

Technologies demonstrating a reduction in hot water usage can be modeled as reduced hot water demand in the Proposed Design based on Equation 4.4.

$$HWD_{PROP} = HWD_{BASE} * (1 - R) \quad (\text{Equation 4.4})$$

$$R = \sum R_A * F_A \quad (\text{Equation 4.5})$$

where

HWD_{BASE} baseline consumption [gal/day]

R - % reduction from baseline to proposed.

R_A - % reduction in hot water usage for a particular hot water application

F_A - hot water usage for the particular application as a fraction of total usage.

Table 4.3-2 shows R_A and F_A values for common building types and technologies. Values for other technologies must be documented and included in the modeling submittal. F_A values must reflect realistic run-time based on the number of fixtures specified for the project. See Example 4-8.

Table 4.3-2 - F_A and R_A values for calculating reductions in hot water usage

Application/ Technology	F_A	R_A	Notes
Low flow faucets (residential)	1 0 %	1 - F R / 2 . 5	FR = average flow rate of installed faucets (GPM); 2.5 GPM = EPA maximum
Low flow showerheads (residential)	5 4 %	1 - F R / 2 . 5	FR = average flow rate of installed showerheads (GPM); 2.5 GPM = EPA Maximum
Energy Star Appliances	$\frac{APPL_{BASE}}{HWD_{BASE}}$	W S	$APPL_{BASE}$ = Baseline water usage for the appliance from the Energy Star Calculator, in the same units as HWD_{BASE} ; WS = % Water Savings from the Energy Star Calculator
Low flow faucets (commercial)	Es ti m at e	1 - F R / 2	FR = average flow rate of installed faucets (GPM); 2.5 GPM = EPA maximum

		· 5	
Low flow showerheads (commercial)	Estimate	1 - FR / 2 · 5	FR = average flow rate of installed showerheads (GPM); 2.5 GPM = EPA Act Maximum

*sum of all F_A values must not exceed 100%

4.4 Lighting

4.4.1 Baseline Lighting Power Density Calculation Method

Baseline Lighting Power Density (LPD) must meet ASHRAE requirements in Table 9.5.1 or Table 9.6.1. The selected table must be used for all spaces in the project.

4.4.2 Lighting Exempt from Standard 90.1

Section 9.1.1 exception (3) excludes lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation from the scope of the Standard 90.1. The space-by-space method must be used to establish the baseline for both regulated and un-regulated lighting in such a project with exempt to lighting. The baseline for unregulated lighting must be established based on the illuminance levels and lighting power density of similar space types that are regulated by Standard 90.1. If the lighting design is required to provide higher illuminance levels compared to those used in IESNA 90.1 lighting models, as published at <http://lpd.ies.org/cgi-bin/lpd/ShowSpaceTypes.pl>, the baseline LPD may be increased in proportion to the increase in the illuminance.

4.4.3 Fixture Sampling

ASHRAE 90.1 Table G3.1 states that in the proposed design model “where a complete lighting system exists, the actual lighting power for each thermal block shall be used in the model.” Following this requirement, use of representative spaces (sampling) for establishing lighting power density in the proposed design is not allowed.

4.4.4 Interior Lighting Controls

4.4.4.1 Occupancy sensors and timers

The following automatic occupancy lighting controls are required by ASHRAE 90.1:

- Automatic Partial Off (bi-level lighting) occupancy sensors are required by Section 9.4.1.1 (g) for all space types that have REQ in Table 9.6.1 Column (g)
- Automatic Full-Off occupancy sensors are required by Section 9.4.1.1 (h) for all space types that have “REQ” in Table 9.6.1 Columns (h)

Since these are mandatory provisions (except where changed to prescriptive requirements by local authorities), where such controls are required (if exceptions to these sections do not apply), they must be specified in the proposed design and included in both the baseline and proposed models. Table 4.4.4.1 below describes which spaces qualify for performance credit. Modeled proposed LPD in such spaces should be reduced by full or partial Control Factors (CF) based on Table 4.4.4.1.

Table 4.4.4.1

Automatic Full Off Required in Table 9.6.1 Columns (h)?	Automatic Partial Off Required in Table 9.6.1 Columns (g)?	Credit Allowed for Automatic Bi-Level Controls?	Credit Allowed for Full Off Controls?
Yes	NA	No	No

No	Yes	No	Yes, 50% of CF
No	No	Yes, 50% of CF	Yes, full CF

CF=10% for all qualified spaces except for shared sporadically used spaces

CF=40% for qualified sporadically used spaces such as stairs, restrooms or storage [4],[5].

In addition, credit may be claimed by reducing proposed lighting by Additional Interior Lighting Power Allowance calculated using Control Factors provided in 90.1 Table 9.6.3 for control strategies included in the table.

4.4.4.2 Daylighting

If a simulation tool does not have the capability to model daylighting, a specialized daylighting tool must be used. The savings projected by the external analysis must be incorporated into the simulation tool as an equivalent adjustment to the lighting schedule or lighting power density. The summary outputs from the daylighting software and explanation on how the findings were incorporated into the simulation tool must be included in the appendix to the report.

Visual light transmittance of specified windows will affect daylighting savings and must be captured in the tool used to calculate savings and included in the report.

Daylighting is a mandatory requirement of 90.1 2013 for many space types and configurations, and thus must be modeled in the baseline where applicable (see 90.1 Section 9.4.1.1 and Table 9.6.1). For these applications daylighting must be specified in the proposed design but will not contribute to energy savings.

4.4.5 Decorative Lighting

Additional interior lighting power allowed by Section 9.6.2 (a) cannot be used to increase the baseline allowance for spaces where decorative lighting is not essential to space function, including but not limited to corridors of office buildings and hotels/motels. Examples of spaces where decorative lighting is permitted include but are not limited to theaters, galleries, and conference centers.

5 Measure Modeling

5.1 Background

In a typical project there are many areas where the proposed design differs from the baseline. Many of these differences involve improvements in the performance of like components. For example, the proposed design may have a higher thermal resistance of exterior walls compared to the baseline. Since the ASHRAE 90.1 modeling protocol allows performance trade-offs, some of the components in the proposed design may be less efficient than like components in the baseline. For example, the proposed design may exceed prescriptive lighting power density requirements of ASHRAE 90.1 in some or all spaces. The proposed design may also include equipment and systems that are not present in the baseline. For example, a project with an all-air baseline HVAC system may have pumps, boilers or chillers in the proposed design.

Following the ASHRAE modeling protocol, all the differences between the baseline and proposed design are captured by only two models – the proposed design model and the baseline design model. For reporting, additional models must be developed to reflect the impact of individual systems on the performance of the proposed design. These additional models help determine cost-effectiveness of systems to verify energy savings and support reporting requirements.

5.2 Measure Modeling Methodology

5.2.1 General

EEMs must be evaluated in the project as follows:

- Identify all areas where the proposed design differs from the baseline.
- Mark the differences that are modeled as EEMs with an EEM number.
- Model each EEM using either the *stacked or top-down* approach as described in this section.

The energy impact of each difference between the baseline and proposed design must be captured only once to avoid double-counting savings.

An example of applying the stacked and top-down approaches to a sample project is included in Appendix B.

5.2.2 Stacked Approach

With the stacked approach, EEM savings are modeled by starting with the proposed design model, and gradually transforming it into the baseline design by subtracting the EEMs one-by-one in the following order:

- a) HVAC measure(s)
- b) Base load measure(s) such as lighting, process loads, plug loads, etc.
- c) Envelope measure(s)
- d) Non-interactive measures such as service water heating

If there are several EEMs of the same type, for example several HVAC EEMs, the order in which they are modeled relative to each other is not prescribed to allow flexibility in supporting the specific project circumstances, and may be determined by the Modeling Entity based on communications with the customer. For example, if a design includes a high efficiency make-up air unit, and energy recovery is considered as a design alternative, the energy recovery EEM should be modeled (subtracted from the proposed design) first, to show the added energy savings for this option, with the unit efficiency EEM modeled (subtracted) second.

With the stacked approach, the difference between the sum of EEM savings and the total savings of the proposed design relative to the baseline is attributed entirely to the impact of components that differ between the baseline and proposed models but are not included in any EEM.

5.2.3 Top-Down Approach

With the top-down approach, savings of each EEM are modeled by starting with the proposed design model, reverting the components included in the EEM to their corresponding baseline, and comparing the resulting usage to the energy consumption of the proposed design model. *The difference between the sum of EEM savings and the total savings of the proposed design relative to the baseline is attributed to interactive effects (typically between 5% and 15%) and to the impact of components that differ between the baseline and proposed models but are not included in any EEM.*

For projects with different HVAC system types in the proposed design versus the baseline, the top-down approach may not directly support EEM granularity required without double-counting energy savings. In these instances, EEM savings must be isolated and reported as described in Example 5-1.

EXAMPLE 5-1 - Top-Down Approach ECM Modeling

Q. A project has a water-source heat pump (WSHP) with VSDs on cooling tower fans. The baseline HVAC includes packaged single-zone systems with DX cooling and a fossil fuel furnace (PSZ-AC). The VSDs are a design alternative and must be individually evaluated based on the TWO, in addition to WSHP ECM.

The stand-alone savings from the VSD and WSHP EEMs cannot be modeled directly with the top-down approach because it is impossible to model an EEM that changes the HVAC system type in the proposed design model to PSZ-AC, but still includes a VSD on the cooling tower fan. Therefore if the EEM modeling results are entered directly into the Incentive Calculator, the savings from the VSDs would be counted twice, first as part of the WSHP EEM, modeled by reverting the as-designed WSHP system to the baseline PSZ-AC (Model A), and then again as a VSD EEM, modeled by removing the VSD from the cooling tower fan (Model B).

How could the savings from the VSD EEM be calculated in this case?

A. The Savings from the VSD EEM are calculated as the difference between the usage of Model B and the proposed design model. Usage of Model B can be entered directly into the incentive calculator for the VSD EEM. However, these savings must be subtracted from the usage of Model A to obtain the value that must be entered into the incentive calculator for WSHP EEM without VSD.

5.2.4 Considerations in Selecting Measure-Modeling Approach

With the top-down approach, the outcome for most projects will be an overly conservative (lower) EEM savings compared to the stacked approach. In summarizing the results from several case

studies, the sum of EEM savings modeled with the top-down approach was 5%-7% less than the savings of the proposed design relative to the baseline, compared to the savings obtained with the stacked approach. This penalty is not distributed evenly between the measures, hurting some EEMs more than others. For example, the kWh savings from envelope measures in the case studies were 28%+ higher with the stacked approach compared to the top-down approach.

The origins of this trend are easy to understand by considering savings from a fenestration improvement in a project with a high efficiency HVAC system. With the top-down approach, the fenestration EEM is modeled by reverting the window properties in the proposed design model to the baseline U-value/SHGC. The resulting increase in the heating/cooling load is satisfied by an efficient proposed HVAC system, reducing the fenestration EEM savings. Similarly, the HVAC EEM is modeled by reverting the HVAC in the proposed design model to the Appendix G baseline. The more efficient envelope in the proposed design lowers the HVAC system load, reducing the savings projected for the HVAC EEM. With the stacked approach, the HVAC EEM is modeled first, by reverting the proposed system to the Appendix G baseline in the model with the efficient envelope. The fenestration EEM is modeled next, by changing the proposed windows to the baseline U-value/SHGC in the model that has the baseline HVAC (because the HVAC EEM is modeled before the envelope based on Section 5.2.2). Since the envelope loads in the model are met by a less efficient baseline HVAC, the resulting savings are higher. Thus, the top-down approach double-counts interactivity resulting in the lower total EEM savings. An example of applying the stacked and top-down approaches is included in Appendix B.

6 Modeling Submittals

The simulation reports with the following information for the baseline, proposed design, and each energy measure model must be included in the report appendix:

- Monthly Energy End-use Summary (such as PS-E)
- Overall annual building energy consumption including all fuels and meters (such as BEPS and BEPU)
- Energy cost summary (such as ES-D)
- Information on hours when space/system loads are not met (such as BEPS/BEPU)
- System design parameters report (SV-A)

Some simulation tools may produce reports that show the required data points for multiple runs in a compact format. For example, <*- Parms.csv> and <*-Parms-Mtr.csv> reports will satisfy the reporting requirements above for eQUEST models.

7 References

- [1] ANSI/ASHRAE/IESNA Standard 90.1 -2013 Energy Standard for Buildings Except Low-Rise Residential Buildings
- [2] ASHRAE 90.1-2013 User's Manual
- [3] COMNET Commercial Buildings Energy Modeling Guidelines and Procedures (MGP). Green Building Ratings Based on Standard 90.1 – 2010 October 27 2014, <http://www.comnet.org/mgp>
- [4] "Reducing Barriers to Use of High Efficiency Lighting System", Lighting Research Center, RPI. Final report: March 2002 to January 2003, sponsored by US Department Of Energy.
- [5] An analysis of the energy and cost savings potential of occupancy sensors for commercial lighting systems. Bill VonNeida, Dorene Maniccia, Allan Tweed; Lighting Research Center School of Architecture Rensselaer Polytechnic Institute and US Environmental Protection Agency Energy Star Buildings Program.
- [6] 2009 ASHRAE Handbook Fundamentals IP, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

- [7] ENERGY STAR Performance Ratings Methodology for Incorporating Source Energy Use
http://www.energystar.gov/ia/business/evaluate_performance/site_source.pdf?ab4e-daed
- [8] Interpretation 90.1-2007-09 – January 22, 2012 (Refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-2007, Section G3.1.3.1, regarding heat pump operation.)
- [9] Infiltration Modeling Guidelines for Commercial Building Energy Analysis, K Gowri, D Winiarski, R Jarnagin, September 2009 PNNL-18898

Appendix A: End Use Detail for Standard 90.1 2013 kBtu/SF/Yr

	Interior Lighting	Exterior Lighting	SHW	Heating	Cooling	
Large Office	6	1	1	9	9	
Medium Office	6	2	1	8	4	
Small Office	8	2	3	2	2	

Based on PNNL 2013EndUseTables_2014jun20.xls derived from DOE building prototypes and related analysis
<http://www.energycodes.gov/commercial-prototype-building-models>
http://www.energycodes.gov/development/commercial/cost_effectiveness

Appendix B: Tenant-Space Package EEM Modeling Example

An office renovation project has additional insulation added to the existing façade and high efficiency lighting with code required lighting controls. Heating, ventilation, and air conditioning are provided by existing air handlers and central plant equipment. In addition, the renovation includes high efficiency supplemental cooling units. The scope of work requires that the following EEMs are evaluated:

EEM1 – Supplemental cooling

EEM2 – High efficiency lighting

EEM3 – Wall insulation

The modeler starts identifying all differences between the baseline and proposed design, and marking them as EEMs (1, 2, 3). The modeling steps for the project using the top-down and stacked approaches are described below.

Stacked Approach

Step 1: Develop the proposed design model.

Step 2: EEM1 is modeled by starting with the Step 1 model and replacing the specified supplemental AC units with units that meet efficiency requirements of ASHRAE Standard 90.1 for its class.

Step 3: EEM2 is modeled by changing the lighting power density in the Step 2 model to match the Appendix G baseline.

Step 4: EEM3 is modeled by changing the wall properties in the Step 3 model to reflect the baseline U-value and SHGC.

Savings for each EEM are calculated as the difference between the usage of the EEM run and the usage of the immediately preceding run that this EEM run is based on. For example, EEM2 savings are calculated as the difference between the Step 2 model (EEM1) and Step 3 model (EEM2).

Top-Down Approach

Step 1: Develop the proposed design model.

Step 2: EEM1 is modeled by starting with the proposed design and replacing the supplemental AC units with units that meet the efficiency requirements of ASHRAE Standard 90.1 for its class. EEM1 savings are calculated by subtracting the Step 1 model results from the results of this run.

Step 3: EEM2 is modeled by starting with the proposed design and changing the lighting power density to match the baseline. EEM2 savings are calculated by subtracting the Step 1 model results from the results of this run.

Step 4: EEM3 is modeled by starting with the proposed design model in Step 1 and changing the wall U-value to the baseline values. EEM3 savings are calculated by subtracting usage of the Step 1 model from the results of this run.

Appendix C: Building Tenant Package EEM Modeling

The Building-Tenant Package includes measures in addition to the tenant-specific package as described in the guidelines and the PON. The following is a list of potential EEMs for this package which include but are not limited to the following:

HVAC Measures:

- EEM1 – Supplemental AC (multiple efficiencies to be analyzed)
- EEM2 – New Terminal Devices (Induction Units, etc.)
- EEM3 – HVAC Controls (DCV, etc.)
- EEM4 – New Air Handling Equipment
- EEM5 – New Heating and Cooling Plants

Base Load (Electrical) Measures:

- EEM6 – High Efficiency Lighting (varying LPD levels)
- EEM7 – Lighting Controls Beyond Code Requirements
- EEM8 – Reduced Plug Loads
- EEM9 – Additional Plug Load Controls

Envelope Measures:

- EEM10 – Additional Envelope Insulation
- EEM11 – Window Film

Non-Interactive Measures:

- EEM12 – High Efficiency Service Water Heating
- EEM13 – Domestic Hot Water Load Reduction

Attachment F – Request for Disbursement of 100% Cost-Share

FOR TENANTS INSTALLING RECOMMENDED ENERGY EFFICIENCY MEASURES AS PART OF A CUSTOM PACKAGE:

Please check all the boxes that apply, fill in the table on the next page and sign the application below. Please append your W-9 with this application if you are the designated payee.

☐ I, the Tenant, certify that I have installed energy efficiency measures recommended in the Custom Energy Efficiency package developed through the Program's High Performance Track in my Office Space. The Office Space is within a commercial building located within New York State and I or the facility is a New York State electricity distribution customer of a participating utility company who pays into the Systems Benefits Charge (SBC).

☐ I, the Tenant, certify that the installed energy efficiency measures include all recommended energy efficiency measures with a payback of less than three (3) years, OR that I have installed other energy efficiency measures also recommended in the Custom Energy Efficiency Package. I understand that the total cost-share I receive based on this installation cannot exceed more than 100% of the project costs, and shall not to exceed a total project incentive of \$50,000.

☐ I, the Tenant, agree to allow NYSERDA and its contractors access to my Office Space, access to the metered and sub-metered utility data for up to three (3) years, and access to the Office Space to enable up to one (1) year of system level technical review (which will require data logging of equipment) for these installed energy efficiency measures. This will be at no cost to me, the Tenant.

☐ I, the Tenant, have provided supporting documentation as proof that the chosen recommended energy efficiency measures have been installed. This might include, but is not limited to, a copy of the installation invoices and/or pictures of the installed systems or equipment. I understand that NYSERDA and/or its contractors may request additional documentation and/or a site inspection to verify installation of the energy efficiency measures prior.

Attachment F – Request for Disbursement of 100% Cost-Share

Tenant Information (The Applicant is the Tenant or Tenant Representative)	
Company Name	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Fed Tax ID**	
Site Information (The Site is the location where the project is taking place)	
Address	
City, State, Zip	
Floors	
Payee Information (If different than information provided in Tenant Information section above)	
Company Name	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Agreement and Tenant (or Tenant Representative) Signature	
I certify that all statements made in this Application and required documents provided are true and correct to the best of my knowledge. I agree to the terms and conditions of the Program set forth in this Application.	
SIGNATURE	
NAME AND TITLE	
DATE	

** Fed ID number not required if the designated payee is the Energy Consultant that developed the energy efficiency package.

Attachment F – Request for Disbursement of 100% Cost-Share

FOR LANDLORDS/BUILDING MANAGERS CONDUCTING TENANT ENGAGEMENT ACTIVITIES AS PART OF THE GENERIC PACKAGE:

Please check all the boxes that apply, fill in the table on the next page and sign the application below. Please append your W-9 with this application, if you are the designated payee.

☐ I am the Landlord and certify that I own the building listed in this Application and that the building is a New York State electricity distribution customer of a participating utility company who pays into the Systems Benefits Charge (SBC).

OR

☐ I am the Building Manager and certify that I manage the building listed in this Application and that the building is a New York State electricity distribution customer of a participating utility company who pays into the Systems Benefits Charge (SBC).

☐ I, Landlord/Building Manager certify that I have completed a Generic or Custom Energy Efficiency Package in the Program's High Performance Track and submitted a Tenant Engagement Plan (or comparable materials) to NYSERDA.

☐ I, Landlord/Building Manager certify that I have conducted at least one of the three following activities (please check all that apply):

- ☐ I have reached out to Tenants occupying at least 50% of the building's rentable square footage.
- ☐ I have recruited at least one Tenant in the building to engage in documented energy efficiency activities in their Office Space.
- ☐ I have included the Generic Energy Efficiency Package in the building's leasing materials.

☐ I, Landlord/Building Manager, have provided supporting documentation as proof that I have complied with the Program's rules. This might include, but is not limited to, materials detailing the outreach activities that have been undertaken (including any email communications, letters, Tenant outreach campaigns, etc.); a letter from a Tenant in the building that has engaged in energy efficiency activities as a result of the Generic Energy Efficiency Package being presented to them; or a copy of the building's leasing packet including the Generic Energy Efficiency Package.

☐ I, Landlord/Building Manager, understand that the total cost-share I receive based on conducting this Tenant engagement effort cannot exceed more than 100% of the project costs, and shall not to exceed a total project incentive of \$50,000.

Attachment F – Request for Disbursement of 100% Cost-Share

Landlord Information (The Applicant is the Landlord or Landlord Representative)	
Company Name	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Fed Tax ID**	
Site Information (The Site is the location where the project is taking place)	
Address	
City, State, Zip	
Floors	
Payee Information (If different than information provided in the Landlord Information section above)	
Company Name	
Contact Name and Title	
Phone/Fax	
Email Address	
Address	
City, State, Zip	
Agreement and Landlord (or Landlord Representative) Signature	
I certify that all statements made in this Application and required documents provided are true and correct to the best of my knowledge. I agree to the terms and conditions of the Program set forth in this Application.	
SIGNATURE	
NAME AND TITLE	
DATE	

** Fed ID number not required if the designated payee is the Energy Consultant that developed the energy efficiency package.

Attachment G - Terms and Conditions

1. Approval

Incentives are not payable unless NYSERDA has approved the Energy Efficiency Package developed under the High Performance Track or the Energy Assessment developed under the Basic Track, and approved the other activities and documentation provided by the Applicant.

2. Amounts Payable

The Purchase Order is a not-to-exceed amount, based on the budget and scope of work provided. Payment will be based on completion of the required documents as outlined in the Solicitation and upon request by the Applicant. NYSERDA also reserves the right to seek a refund for incentives paid if, at any time, it learns that the Project was actually completed prior to application.

3. Inspections, Follow-up Visits and On-Site Monitoring

(a) NYSERDA reserves the right to make a reasonable number of pre- and post-installation visits to the facility. Such visit(s) will be at a time convenient to the Applicant, building owner, manager or tenant and made with at least one-week advance notice to all parties by NYSERDA.

(b) Generally, the purpose of the follow-up visit(s) is to evaluate the installed Project, speak with the Applicant and site staff to learn about the project implementation and utilization, and help validate the actual energy savings for program evaluation purposes, which may occur well after the project is completed.

(c) The scope of review by NYSERDA of the design and installation of the Project is limited to solely determining the energy savings and whether program conditions have been met. It does not include any kind of safety, quality or other review.

4. Cost and Invoice Documentation

Upon completion of the post-installation site visit and data collection, and at any other time upon NYSERDA's request, the Applicant shall provide NYSERDA copies of all invoices (including all materials, labor, and equipment discounts) reflecting the costs of conducting the model and creation of the energy efficiency package. The invoices shall include a breakdown of all tasks under this Purchase Order (the application and these Terms and Conditions). In addition, NYSERDA may request any other reasonable documentation or verification of the cost to the Applicant.

5. Incentive Payments

NYSERDA shall pay the incentive in accordance with and subject to the provisions of NYSERDA's Prompt Payment Policy upon the applicants' meeting the requirements of Commercial Tenant Program. This includes, but is not limited to: (1) installation of the Project in the identified building is completed; (2) all necessary documentation is provided; and (3) NYSERDA has verified installation costs and satisfactory installation of the Project, all in accordance with the specifications.

6. Changes in the Program

Notwithstanding paragraph 21 (b), the program and these Terms & Conditions may be changed by NYSERDA at any time without notice. Approved applications, however, will be processed to completion under the Terms & Conditions in effect at the time of application to NYSERDA.

7. Indemnification

The Applicant shall protect, indemnify and hold harmless NYSERDA and the State of New York from and against all liabilities, losses, claims, damages, judgments, penalties, causes of action, costs and expenses (including, without limitation, attorneys' fees and expenses) imposed upon or incurred by or asserted against NYSERDA or the State of New York resulting from, arising out of or relating to Applicant's or its subcontractors' performance of this Purchase Order. The obligations of the Applicant under this Article shall survive any expiration or termination of this Purchase Order, and shall not be limited by any enumeration herein of required insurance coverage.

8. Insurance

8.01. Maintenance of Insurance; Policy Provisions. The Applicant, at no additional direct cost to NYSERDA, shall maintain or cause to be maintained throughout the term of this Purchase Order, insurance of the types and in the



amounts specified in the Section hereof entitled Types of Insurance. All such insurance shall be evidenced by insurance policies, each of which shall:

- (a) except policies in evidence of insurance required under Section 8.02(b), name or be endorsed to cover NYSEDA and the State of New York as additional insureds;
- (b) provide that such policy may not be cancelled or modified until at least 30 days after receipt by NYSEDA of written notice thereof; and
- (c) be reasonably satisfactory to NYSEDA in all other respects.

8.02. Types of Insurance. The types and amounts of insurance required to be maintained under this Article are as follows:

- (a) Commercial general liability insurance for bodily injury liability, including death, and property damage liability, incurred in connection with the performance of this Purchase Order, with minimum limits of \$1,000,000 in respect of claims arising out of personal injury or sickness or death of any one person, \$1,000,000 in respect of claims arising out of personal injury, sickness or death in any one accident or disaster, and \$1,000,000 in respect of claims arising out of property damage in any one accident or disaster; and
- (b) Workers Compensation, Employers Liability, and Disability Benefits as required by New York State.

8.03. Delivery of Policies; Insurance Certificates. Prior to commencing the Work, the Applicant shall deliver to NYSEDA certificates of insurance issued by the respective insurers, indicating the Purchase Order number thereon, evidencing the insurance required hereof. In the event any policy furnished or carried pursuant to this section will expire on a date prior to acceptance of the Work by NYSEDA, the Applicant, not less than 15 days prior to such expiration date, shall deliver to NYSEDA certificates of insurance evidencing the renewal of such policies, and the Applicant shall promptly pay all premiums thereon due. In the event of threatened legal action, claims, encumbrances, or liabilities that may affect NYSEDA hereunder, or if deemed necessary by NYSEDA due to events rendering a review necessary, upon request the Applicant shall deliver to NYSEDA a certified copy of each policy.

9. No Warranties

- (a) NYSEDA does not endorse, guarantee, or warrant any particular manufacturer or product, and NYSEDA provides no warranties, expressed or implied, for any product or services. The Applicant's reliance on warranties is limited to any warranties that may arise from, or be provided by contractors, vendors, etc.
- (b) The Applicant acknowledges that neither NYSEDA nor any of its consultants are responsible for assuring that the design, engineering and construction of the Project is proper or complies with any particular laws (including patent laws), codes, or industry standards. NYSEDA does not make any representations of any kind regarding the results to be achieved by the Project or the adequacy or safety of such measures.

10. Limit of Incentive Payments

NYSEDA reserves the right, for any reason, to stop approving incentive applications and limit or stop making incentive payments at any time without notice.

11. Release by the Applicant

The acceptance by the Applicant of final payment shall release NYSEDA from any and all claims and liability the applicant, its representatives, and assigns might otherwise have relating to this award.

12 Vendor Selection

NYSEDA has the right not to allow a vendor or contractor to participate in this program.

13. Miscellaneous

- (a) This Purchase Order (the Application, Program Opportunity Notice 3308 and these Terms and Conditions) is the entire agreement between the parties and supersedes all other communications and representations.

(b) If either NYSERDA or the Applicant desires to modify this Purchase Order, the modification must be in writing and signed by an authorized representative of both parties.

14. Audit

The Applicant shall keep, maintain, and preserve at its principal office throughout the term of the Purchase Order and for a period of three (3) years after acceptance of the Work, full and detailed books, accounts, and records pertaining to this Purchase Order, including without limitation, all data, bills, invoices, payrolls, time records, expense reports, subcontracting efforts and other documentation evidencing, or in any material way related to, Applicant's performance under this Purchase Order.

NYSERDA shall have the right from time to time and at all reasonable times during this period to inspect and audit any and all books, accounts and records related to this Purchase Order or reasonably necessary to the performance of an audit at the office or offices of the Applicant where they are then being kept, maintained and preserved. Any payment made under the Purchase Order shall be subject to retroactive reduction for amounts included therein which are found by NYSERDA on the basis of any audit of the Applicant by NYSERDA, the State of New York or an agency of the United States not to constitute an allowable charge or cost hereunder.

18. Stop Work Order

(a) NYSERDA may at any time, by written Order to the Applicant, require the Applicant to stop all or any part of the Work called for by this Purchase Order for a period of up to ninety (90) days after the Stop Work Order is delivered to the Applicant, and for any further period to which the parties may agree. Any such order shall be specifically identified as a Stop Work Order issued pursuant to this Section. Upon receipt of such an Order, the Applicant shall forthwith comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the Work covered by the Order during the period of work stoppage consistent with public health and safety. Within a period of ninety (90) days after a Stop Work Order is delivered to the Applicant, or within any extension of that period to which the parties shall have agreed, NYSERDA shall either:

(i) by written notice to the Applicant, cancel the Stop Work Order, which shall be effective as provided in such cancellation notice, or if not specified therein, upon receipt by the Applicant, or

(ii) terminate the Work covered by such order as provided in the Termination Section of this Purchase Order.

(b) If a Stop Work Order issued under this Section is cancelled or the period of the Order or any extension thereof expires, the Applicant shall resume Work. An equitable adjustment shall be made in the delivery schedule, the estimated cost, the fee, if any, or a combination thereof, and in any other provisions of the Purchase Order that may be affected, and the Purchase Order shall be modified in writing accordingly, if:

(i) the Stop Work Order results in an increase in the time required for, or in the Applicant's cost properly allocable to, the performance of any part of this Purchase Order, and

(ii) the Applicant asserts a claim for such adjustments within 30 days after the end of the period of Work stoppage; provided that, if NYSERDA decides the facts justify such action, NYSERDA may receive and act upon any such claim asserted at any time prior to final payment under this Purchase Order.

(c) If a Stop Work Order is not cancelled and the Work covered by such Order is terminated, the reasonable costs resulting from the Stop Work Order shall be allowed by equitable adjustment or otherwise.

(d) Notwithstanding the provisions of this Section, the maximum amount payable by NYSERDA to the Applicant pursuant to this Section shall not be increased or deemed to be increased except by specific written amendment hereto.

19. Termination

(a) This Purchase Order may be terminated by NYSERDA at any time during the term of this Purchase Order with or without cause, upon ten (10) days prior written notice to the Applicant. In such event, payment shall be paid to the Applicant for Work performed and expenses incurred prior to the effective date of termination in accordance with the



provisions of the Article hereof entitled Incentive Payment and in reimbursement of any amounts required to be paid by the Applicant pursuant to Subcontracts; provided, however, that upon receipt of any such notice of termination,

the Applicant shall cease the performance of Work, shall make no further commitments with respect thereto and shall reduce insofar as possible the amount of outstanding commitments (including, to the extent requested by NYSDERDA, through termination of subcontracts containing provisions therefor).

(b) NYSDERDA specifically reserves the right to terminate this Purchase Order in the event that the certification filed by the Applicant in accordance with State Finance Law Sections 139-j and 139-k is found to have been intentionally false or intentionally incomplete, or that the certification filed by the Applicant in accordance with New York State Tax Law Section 5-a is found to have been intentionally false when made. Terminations under this subsection (b) will be effective upon Notice.

(c) Nothing in this Article shall preclude the Applicant from continuing to carry out the Work called for by the Purchase Order after receipt of a Stop Work Order or termination notice at its own election, provided that, if the Applicant so elects: (i) any such continuing Work after receipt of the Stop Work Order or termination notice shall be deemed not to be Work pursuant to the Purchase Order, and (ii) NYSDERDA shall have no liability to the Applicant for any costs of the Work continuing after receipt of the Stop Work Order or termination notice.

20. Suspension or Termination for Non-Responsibility

(a) Suspension. NYSDERDA, in its sole discretion, reserves the right to suspend any or all activities under this Purchase Order, at any time, when it discovers information that calls into question the Responsibility of the Applicant. In the event of such suspension, the Applicant will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the Applicant must comply with the terms of the suspension order. Contract activity may resume at such time as NYSDERDA issues a written notice authorizing a resumption of performance under the Contract.

(b) Termination. Upon written notice to the Applicant, and a reasonable opportunity to be heard with appropriate NYSDERDA officials or staff, this Purchase Order may be terminated by NYSDERDA at the Applicant's expense where the Applicant is determined by NYSDERDA to be non-Responsible. In such event, NYSDERDA may complete the contractual requirements in any manner it may deem advisable and pursue available legal or equitable remedies for breach.

Incentives are not payable unless NYSDERDA has approved the Engineering Analysis, conducted site visits, and approved the other activities and documentation provided by the applicant.

21. Independent Contractor

(a) The status of the Applicant under this Purchase Order shall be that of an independent contractor and not that of an agent, and in accordance with such status, the Applicant, the subcontractors, and their respective officers, agents, employees, representatives and servants, including the Project Director, shall at all times during the term of this Purchase Order conduct themselves in a manner consistent with such status and by reason of this Purchase Order shall neither hold themselves out as, nor claim to be acting in the capacity of, officers, employees, agents, representatives or servants of NYSDERDA nor make any claim, demand or application for any right or privilege applicable to NYSDERDA, including, without limitation, vicarious liability, professional liability coverage or indemnification, rights or privileges derived from workers' compensation coverage, unemployment insurance benefits, social security coverage and retirement membership or credit. It is understood and agreed that the personnel furnished by Applicant to perform the Work shall be Applicant's employee(s) or agent(s), and under no circumstances are such employee(s) to be considered NYSDERDA's employee(s) or agent(s), and shall remain the employees of Applicant, except to the extent required by section 414(n) of the Internal Revenue Code.

(b) Applicant expressly acknowledges NYSDERDA's need to be advised, on an immediate basis, of the existence of any claim or event that might result in a claim or claims against NYSDERDA, Applicant and/or Applicant's personnel by virtue of any act or omission on the part of NYSDERDA or its employees. Accordingly, Applicant expressly covenants and agrees to notify NYSDERDA of any such claim or event, including but not limited to, requests for accommodation and allegations of harassment and/or discrimination, immediately upon Applicant's discovery of the same, and to fully and honestly cooperate with NYSDERDA in its efforts to investigate and/or address such claims or events, including but not limited to, complying with any reasonable request by NYSDERDA for disclosure of information concerning such claim or event even in the event that this Purchase Order should terminate for any reason.



EXHIBIT B

REVISED 5/12

STANDARD TERMS AND CONDITIONS
FOR ALL NYSEDA AGREEMENTS

(Based on Standard Clauses for New York State Contracts and Tax Law Section 5-a)

The parties to the Agreement agree to be bound by the following clauses which are hereby made a part of the Agreement:

1. **NON-DISCRIMINATION REQUIREMENTS.** To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Applicant will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, sexual orientation, age, disability, genetic predisposition or carrier status, or marital status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is an Agreement for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this Agreement shall be performed within the State of New York, Applicant agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this Agreement. If this is a building service Agreement as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Applicant agrees that neither it nor its subcontractors shall, by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Applicant is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this Agreement and forfeiture of all moneys due hereunder for a second subsequent violation.

2. **WAGE AND HOURS PROVISIONS.** If this is a public work Agreement covered by Article 8 of the Labor Law or a building service Agreement covered by Article 9 thereof, neither Applicant's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Applicant and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Applicant understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by NYSEDA of any NYSEDA-approved sums due and owing for work done upon the project.

3. **NON-COLLUSIVE BIDDING REQUIREMENT.** In accordance with Section 2878 of the Public Authorities Law, if this Agreement was awarded based upon the submission of bids, Applicant warrants, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Applicant further warrants that, at the time Applicant submitted its bid, an authorized and responsible person executed and delivered to NYSEDA a non-collusive bidding certification on Applicant's behalf.

4. **INTERNATIONAL BOYCOTT PROHIBITION.** If this Agreement exceeds \$5,000, the Applicant agrees, as a material condition of the Agreement, that neither the Applicant nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the Federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Applicant, or any of the aforesaid affiliates of Applicant, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the Agreement's execution, such Agreement, amendment or modification thereto shall be rendered forfeit and void. The Applicant shall so notify NYSEDA within five (5) business days of such conviction, determination or disposition of appeal. (See and compare Section 220-f of the Labor Law, Section 139-h of the State Finance Law, and 2 NYCRR 105.4).



5. SET-OFF RIGHTS. NYSERDA shall have all of its common law and statutory rights of set-off. These rights shall include, but not be limited to, NYSERDA's option to withhold for the purposes of set-off any moneys due to the Applicant under this

Agreement up to any amounts due and owing to NYSERDA with regard to this Agreement, any other Agreement, including any Agreement for a term commencing prior to the term of this Agreement, plus any amounts due and owing to NYSERDA for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto.

6. PROPRIETARY INFORMATION. Notwithstanding any provisions to the contrary in the Agreement, Applicant and NYSERDA acknowledge and agree that all information, in any format, submitted to NYSERDA shall be subject to and treated in accordance with the NYS Freedom of Information Law ("FOIL," Public Officers Law, Article 6). Pursuant to FOIL, NYSERDA is required to make available to the public, upon request, records or portions thereof which it possesses, unless that information is statutorily exempt from disclosure. Therefore, unless the Agreement specifically requires otherwise, Applicant should submit information to NYSERDA in a non-confidential, non-proprietary format. FOIL does provide that NYSERDA may deny access to records or portions thereof that "are trade secrets or are submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." [See Public Officers Law, § 87(2)(d)]. Accordingly, if the Agreement specifically requires submission of information in a format Applicant considers a proprietary and/or confidential trade secret, Applicant shall fully identify and plainly label the information "confidential" or "proprietary" at the time of disclosure. By so marking such information, Applicant represents that the information has actual or potential specific commercial or competitive value to the competitors of Applicant. Without limitation, information will not be considered confidential or proprietary if it is or has been (i) generally known or available from other sources without obligation concerning its confidentiality; (ii) made available by the owner to others without obligation concerning its confidentiality; or (iii) already available to NYSERDA without obligation concerning its confidentiality. In the event of a FOIL request, it is NYSERDA's policy to consider records as marked above pursuant to the trade secret exemption procedure set forth in 21 New York Codes Rules & Regulations § 501.6 and any other applicable law or regulation. However, NYSERDA cannot guarantee the confidentiality of any information submitted. More information on FOIL, and the relevant statutory law and regulations, can be found at the website for the Committee on Open Government (<http://www.dos.state.ny.us/coog/foil2.html>) and NYSERDA's Regulations, Part 501 (<http://www.nyserda.ny.gov/en/About/~media/Files/About/Contact/NYSERDARegulations.ashx>).

7. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION. (a) FEDERAL EMPLOYER IDENTIFICATION NUMBER and/or FEDERAL SOCIAL SECURITY NUMBER. As a condition to NYSERDA's obligation to pay any invoices submitted by Applicant pursuant to this Agreement, Applicant shall provide to NYSERDA its Federal employer identification number or Federal social security number, or both such numbers when the Applicant has both such numbers. Where the Applicant does not have such number or numbers, the Applicant must give the reason or reasons why the payee does not have such number or numbers.

(b) PRIVACY NOTIFICATION. The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by Applicant to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law.

8. CONFLICTING TERMS. In the event of a conflict between the terms of the Agreement (including any and all attachments thereto and amendments thereof) and the terms of this Exhibit B, the terms of this Exhibit B shall control.

9. GOVERNING LAW. This Agreement shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

10. NO ARBITRATION. Disputes involving this Agreement, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily required) without the NYSERDA's written consent, but must, instead, be heard in a court of competent jurisdiction of the State of New York.



11. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law and Rules ("CPLR"), Applicant hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Applicant's actual receipt of process or upon NYSEDA's receipt of the return thereof

by the United States Postal Service as refused or undeliverable. Applicant must promptly notify NYSEDA, in writing, of each and every change of address to which service of process can be made. Service by NYSEDA to the last known address shall be sufficient. Applicant will have thirty (30) calendar days after service hereunder is complete in which to respond.

12. CRIMINAL ACTIVITY. If subsequent to the effectiveness of this Agreement, NYSEDA comes to know of any allegation previously unknown to it that the Applicant or any of its principals is under indictment for a felony, or has been, within five (5) years prior to submission of the Applicant's proposal to NYSEDA, convicted of a felony, under the laws of the United States or Territory of the United States, then NYSEDA may exercise its stop work right under this Agreement. If subsequent to the effectiveness of this Agreement, NYSEDA comes to know of the fact, previously unknown to it, that Applicant or any of its principals is under such indictment or has been so convicted, then NYSEDA may exercise its right to terminate this Agreement. If the Applicant knowingly withheld information about such an indictment or conviction, NYSEDA may declare the Agreement null and void and may seek legal remedies against the Applicant and its principals. The Applicant or its principals may also be subject to penalties for any violation of law which may apply in the particular circumstances. For an Applicant which is an association, partnership, corporation, or other organization, the provisions of this paragraph apply to any such indictment or conviction of the organization itself or any of its officers, partners, or directors or members of any similar governing body, as applicable.

13. PERMITS. It is the responsibility of the Applicant to acquire and maintain, at its own cost, any and all permits, licenses, easements, waivers and permissions of every nature necessary to perform the work.

14. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Applicant certifies and warrants that all wood products to be used under this Agreement will be in accordance with, but not limited to, the specifications and provisions of State Finance Law Section 165 (Use of Tropical Hardwoods), which prohibits purchase and use of tropical hardwoods, unless specifically exempted by NYSEDA.

15. OMNIBUS PROCUREMENT ACT OF 1992. It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business
30 South Pearl St -- 7th Floor
Albany, New York 12245
Telephone: 518-292-5220
Fax: 518-292-5884
<http://www.esd.ny.gov>

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
30 South Pearl St -- 2nd Floor
Albany, New York 12245
Telephone: 518-292-5250
Fax: 518-292-5803
<http://www.empire.state.ny.us>

The Omnibus Procurement Act of 1992 requires that by signing this Agreement, Applicants certify that whenever the total amount is greater than \$1 million:



(a) The Applicant has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;

(b) The Applicant has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Applicant agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Applicant agrees to document these efforts and to provide said documentation to the State upon request; and

(d) The Applicant acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

16. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 15, 2002, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii. Contact NYS Department of Economic Development for a current list of jurisdictions subject to this provision.

17. COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH AND NOTIFICATION ACT. Applicant shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).

18. PROCUREMENT LOBBYING. To the extent this Agreement is a "procurement contract" as defined by State Finance Law Sections 139-j and 139-k, by signing this Agreement the Applicant certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, NYSDERDA may terminate the agreement by providing written notification to the Applicant in accordance with the terms of the agreement.

19. COMPLIANCE WITH TAX LAW SECTION 5-a. The following provisions apply to Applicants that have entered into agreements in an amount exceeding \$100,000 for the purchase of goods and services:

- a) Before such agreement can take effect, the Applicant must have on file with the New York State Department of Taxation and Finance an Applicant Certification form (ST-220-TD).
- b) Prior to entering into such an agreement, the Applicant is required to provide NYSDERDA with a completed Applicant Certification to Covered Agency form (Form ST-220-CA).
- c) Prior to any renewal period (if applicable) under the agreement, the Applicant is required to provide NYSDERDA with a completed Form ST-220-CA.

Certifications referenced in paragraphs (b) and (c) above will be maintained by NYSDERDA and made a part hereof and incorporated herein by reference.

NYSDERDA reserves the right to terminate this agreement in the event it is found that the certification filed by the Applicant in accordance with Tax Law Section 5-a was false when made.

20. IRANIAN ENERGY SECTOR DIVESTMENT. In accordance with Section 2879-c of the Public Authorities Law, by signing this contract, each person and each person signing on behalf of any other party certifies, and in the case of a joint bid or partnership each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not on the list created pursuant to paragraph (b) of subdivision 3 of [section 165-a of the State Finance Law](#) (See www.ogs.ny.gov/about/regs/ida.asp).

EXHIBIT C

NYSERDA PROMPT PAYMENT POLICY STATEMENT

504.1. Purpose and Applicability. (a) The purpose of this Exhibit is to provide a description of Part 504 of NYSERDA's regulations, which consists of NYSERDA's policy for making payment promptly on amounts properly due and owing by NYSERDA under this Agreement. The section numbers used in this document correspond to the section numbers appearing in Part 504 of the regulations.¹

(b) This Exhibit applies generally to payments due and owing by the NYSERDA to the Applicant pursuant to this Agreement. However, this Exhibit does not apply to Payments due and owing when NYSERDA is exercising a Set-Off against all or part of the Payment, or if a State or Federal law, rule or regulation specifically requires otherwise.

504.2. Definitions. Capitalized terms not otherwise defined in this Exhibit shall have the same meaning as set forth earlier in this Agreement. In addition to said terms, the following terms shall have the following meanings, unless the context shall indicate another or different meaning or intent:

(a) "Date of Payment" means the date on which NYSERDA requisitions a check from its statutory fiscal agent, the Department of Taxation and Finance, to make a Payment.

(b) "Designated Payment Office" means the Office of NYSERDA's Controller, located at 17 Columbia Circle, Albany, New York 12203.

(c) "Payment" means payment properly due and owing to Applicant pursuant to Exhibit A of this Agreement.

(d) "Prompt Payment" means a Payment within the time periods applicable pursuant to Sections 504.3 through 504.5 of this Exhibit in order for NYSERDA not to be liable for interest pursuant to Section 504.6.

(e) "Payment Due Date" means the date by which the Date of Payment must occur, in accordance with the provisions of Sections 504.3 through 504.5 of this Exhibit, in order for NYSERDA not to be liable for interest pursuant to Section 504.6.

(f) "Proper Invoice" means a written request for Payment that is submitted by an Applicant setting forth the description, price or cost, and quantity of goods, property or services delivered or rendered, in such form, and supported by such other substantiating documentation, as NYSERDA may reasonably require, including but not limited to any requirements set forth in Exhibits A or B to this Agreement; and addressed to NYSERDA's Controller, marked "Attention: Accounts Payable," at the Designated Payment Office.

(g)(1) "Receipt of an Invoice" means:

(i) if the Payment is one for which an invoice is required, the later of:

(a) the date on which a Proper Invoice is actually received in the Designated Payment Office during normal business hours; or

(b) the date by which, during normal business hours, NYSERDA has actually received all the purchased goods, property or services covered by a Proper Invoice previously received in the Designated Payment Office.

(ii) if the Agreement provides that a Payment will be made on a specific date or at a predetermined interval, without having to submit a written invoice the 30th calendar day, excluding legal holidays, before the date so specified or predetermined.

(2) For purposes of this subdivision, if the Agreement requires a multifaceted, completed or working

¹ This is only a summary; the full text of Part 504 can be accessed at:
<http://www.nyserda.ny.gov/en/About/~media/Files/About/Contact/NYSERDARegulations.ashx>



system, or delivery of no less than a specified quantity of goods, property or services and only a portion of such

systems or less than the required goods, property or services are working, completed or delivered, even though the Applicant has invoiced NYSEDA for the portion working, completed or delivered, NYSEDA will not be in Receipt of an Invoice until the specified minimum amount of the systems, goods, property or services are working, completed or delivered.

(h) "Set-off" means the reduction by NYSEDA of a payment due an Applicant by an amount equal to the amount of an unpaid legally enforceable debt owed by the Applicant to NYSEDA.

504.3. Prompt Payment Schedule. Except as otherwise provided by law or regulation or in Sections 504.4 and 504.5 of this Exhibit, the Date of Payment by NYSEDA of an amount properly due and owing under this Agreement shall be no later than thirty (30) calendar days, excluding legal holidays, after Receipt of a Proper Invoice.

504.4. Payment Procedures.

(a) Unless otherwise specified in this Agreement, a Proper Invoice submitted by the Applicant to the Designated Payment Office shall be required to initiate payment for goods, property or services. As soon as any invoice is received in the Designated Payment Office during normal business hours, such invoice shall be date-stamped. The invoice shall then promptly be reviewed by NYSEDA.

(b) NYSEDA shall notify the Applicant within fifteen (15) calendar days after Receipt of an Invoice of:

- (1) any defects in the delivered goods, property or services;
- (2) any defects in the invoice; or
- (3) suspected improprieties of any kind.

(c) The existence of any defects or suspected improprieties shall prevent the commencement of the time period specified in Section 504.3 until any such defects or improprieties are corrected or otherwise resolved.

(d) If NYSEDA fails to notify an Applicant of a defect or impropriety within the fifteen (15) calendar day period specified in subdivision (b) of this section, the sole effect shall be that the number of days allowed for Payment shall be reduced by the number of days between the 15th day and the day that notification was transmitted to the Applicant. If NYSEDA fails to provide reasonable grounds for its contention that a defect or impropriety exists, the sole effect shall be that the Payment Due Date shall be calculated using the original date of Receipt of an Invoice.

(e) In the absence of any defect or suspected impropriety, or upon satisfactory correction or resolution of a defect or suspected impropriety, NYSEDA shall make Payment, consistent with any such correction or resolution and the provisions of this Exhibit.

504.5. Exceptions and Extension of Payment Due Date. NYSEDA has determined that, notwithstanding the provisions of Sections 504.3 and 504.4 of this Exhibit, any of the following facts or circumstances, which may occur concurrently or consecutively, reasonably justify extension of the Payment Due Date:

(a) If this Agreement provides Payment will be made on a specific date or at a predetermined interval, without having to submit a written invoice, if any documentation, supporting data, performance verification, or notice specifically required by this Agreement or other State or Federal mandate has not been submitted to NYSEDA on a timely basis, then the Payment Due Date shall be extended by the number of calendar days from the date by which all such matter was to be submitted to NYSEDA and the date when NYSEDA has actually received such matter.

(b) If an inspection or testing period, performance verification, audit or other review or documentation independent of the Applicant is specifically required by this Agreement or by other State or Federal mandate, whether to be performed by or on behalf of NYSEDA or another entity, or is specifically permitted by this Agreement or by other State or Federal provision and NYSEDA or other entity with the right to do so elects to have such activity or documentation undertaken, then the Payment Due Date shall be extended by the number of calendar days from the date of Receipt of an Invoice to the date



when any such activity or documentation has been completed, NYSEERDA has actually received the results of such activity or documentation conducted by another entity, and any deficiencies identified or issues raised as a result of such activity or documentation have been corrected or otherwise resolved.

(c) If an invoice must be examined by a State or Federal agency, or by another party contributing to the funding of the Contract, prior to Payment, then the Payment Due Date shall be extended by the number of calendar days from the date of Receipt of an Invoice to the date when the State or Federal agency, or other contributing party to the Contract, has completed the inspection, advised NYSEERDA of the results of the inspection, and any deficiencies identified or issues raised as a result of such inspection have been corrected or otherwise resolved.

(d) If appropriated funds from which Payment is to be made have not yet been appropriated or, if appropriated, not yet been made available to NYSEERDA, then the Payment Due Date shall be extended by the number of calendar days from the date of Receipt of an Invoice to the date when such funds are made available to NYSEERDA.

504.6. Interest Eligibility and Computation. If NYSEERDA fails to make Prompt Payment, NYSEERDA shall pay interest to the Applicant on the Payment when such interest computed as provided herein is equal to or more than ten dollars (\$10.00). Interest shall be computed and accrue at the daily rate in effect on the Date of Payment, as set by the New York State Tax Commission for corporate taxes pursuant to Section 1096(e)(1) of the Tax Law. Interest on such a Payment shall be computed for the period beginning on the day after the Payment Due Date and ending on the Date of Payment.

504.7. Sources of Funds to Pay Interest. Any interest payable by NYSEERDA pursuant to Exhibit shall be paid only from the same accounts, funds, or appropriations that are lawfully available to make the related Payment.

504.8. Incorporation of Prompt Payment Policy Statement into Contracts. The provisions of this Exhibit shall apply to all Payments as they become due and owing pursuant to the terms and conditions of this Agreement, notwithstanding that NYSEERDA may subsequently amend its Prompt Payment Policy by further rulemaking.

504.9. Notice of Objection. Applicant may object to any action taken by NYSEERDA pursuant to this Exhibit that prevents the commencement of the time in which interest will be paid by submitting a written notice of objection to NYSEERDA. Such notice shall be signed and dated and concisely and clearly set forth the basis for the objection and be addressed to the Vice President, New York State Energy Research and Development Authority, at the notice address set forth in this Agreement. The Vice President of NYSEERDA, or his or her designee, shall review the objection for purposes of affirming or modifying NYSEERDA's action. Within fifteen (15) working days of the receipt of the objection, the Vice President, or his or her designee, shall notify the Applicant either that NYSEERDA's action is affirmed or that it is modified or that, due to the complexity of the issue, additional time is needed to conduct the review; provided, however, in no event shall the extended review period exceed thirty (30) working days.

504.10. Judicial Review. Any determination made by NYSEERDA pursuant to this Exhibit that prevents the commencement of the time in which interest will be paid is subject to judicial review in a proceeding pursuant to Article 78 of the Civil Practice Law and Rules. Such proceedings shall only be commenced upon completion of the review procedure specified in Section 504.9 of this Exhibit or any other review procedure that may be specified in this Agreement or by other law, rule, or regulation.

504.11. Court Action or Other Legal Processes.

(a) Notwithstanding any other law to the contrary, the liability of NYSEERDA to make an interest payment to an Applicant pursuant to this Exhibit shall not extend beyond the date of a notice of intention to file a claim, the date of a notice of a claim, or the date commencing a legal action for the payment of such interest, whichever occurs first.

(b) With respect to the court action or other legal processes referred to in subdivision (a) of this section, any interest obligation incurred by NYSEERDA after the date specified therein pursuant to any provision of law other than Public Authorities Law Section 2880 shall be determined as prescribed by such separate provision of law, shall be paid as directed by the court, and shall be paid from any source of funds available for that purpose.