



Public Buildings Enhanced Energy Efficiency Program

2.2 SCREENING GUIDELINES

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1.0 Executive Summary

The *PBEEEP Screening Guidelines* are designed specifically for the Public Buildings Enhanced Energy Efficiency Program (“PBEEEP” or “Program”). The purpose of these guidelines is to establish a selection process that cost-effectively identifies Local Government buildings with sufficient potential energy savings opportunities to justify a full scale investigation (the next phase of the Program). The Program uses information gathered during the screening process to determine the best candidates for operational improvements and equipment retrofits and to help establish possible funding opportunities or financing options to facilitate and/or buy down the cost of measure implementation. In addition to limiting the Program to the best candidates, this information is used to create the detailed initial description of the investigation phase of the Project.

This document is one of several tools made available for Program and Provider use throughout different phases of the Program’s PBEEEP project. Other PBEEEP tools include the *PBEEEP Investigation Guidelines*, whose purpose is to promote rigor and consistency in the identification and calculation of energy savings for the PBEEEP, the *PBEEEP Findings Workbook*, which is one of the primary reporting tools during the investigation and implementation verification phases of the project, and the *PBEEEP Implementation Verification Guidelines*, whose purpose is to ensure that only approved measures are implemented and that Providers gather appropriate evidence to show that measures implemented are functioning as intended.

The *PBEEEP Screening Guidelines* contained in this document provide an overview of the screening process and the primary screening documents. Please note the *PBEEEP Screening Guidelines* and screening documentation forms cannot predict every question or issue uncovered during the screening process. These *Guidelines* and forms should be used as a general guide for gauging a facility’s suitability for retrocommissioning and retrofits.

2.0 Screening Overview

The screening phase is the first of four primary phases of a PBEEEP project. The phases are: screening, investigation, implementation, and verification of savings/follow-up. After buildings go through the screening process, where potential for energy savings and eligibility are determined, selected buildings will move into the investigation phase where the goal is to identify specific opportunities for operational and maintenance improvements and/or retrofits to reduce energy consumption. Once energy savings opportunities are identified, the final phases of the RCx project are to undergo implementation, verification of energy savings and follow-up activities.

The PBEEEP Screening Phase, as applied for the majority of projects, breaks down into five key tasks:

- A. Collect and review *Application* and utility data (by program), which then issues an RFP for Screening
- B. Conduct screening via site-walk through
- C. Complete *Screening Form(s)* (depending on which screening process is followed, this may be done by a Provider or by in-house building staff)
- D. Benchmarks the facility using ENERGY STAR and B3
- E. PBEEEP evaluates of the screening outputs of the Provider (*PBEEEP Screening Form(s)* and other information, as applicable) and in consultation with the Minnesota Department of Commerce, Office Of Energy Security (OES) makes recommendations regarding continued participation in PBEEEP.

2.1 Collect Program Application

The first step in PBEEEP is the *PBEEEP Program Application* which is prepared by the Local Government building owner or representative and submitted to the PBEEEP. The *PBEEEP Program*

Application includes utility authorization form to collect energy use data for the building over the last 36 months (minimum 12 months). The information on the *Application* is provided by the Program to the screening Provider. The *Application* includes general information to help establish candidacy and presents the requirements for Program eligibility.

Energy use data is typically collected (in order of preference) from 1) the building's utility (monthly data will be available; interval data may be available)¹, or 2) the building engineer or property manager. The Provider will need to complete data entry and validate the information submitted as part of the screening process (checking meter numbers, number of meters, and connection of the meters to the building to be studied, and so on) or, if data entry is complete, only do verification of the data in the system. If the energy use data cannot be obtained from the utility, the Provider or Owner in-house staff will need to collect and compile the building's monthly energy bills and/or review the building's ENERGY STAR® Portfolio Manager (if available) account or MN Energy Benchmarking B3 account. Collecting energy use data via self-report without validation is not acceptable.

Following Program processing of the *Application*, the site will be notified of the status of screening for the site. For larger buildings (>50,000 ft²), the screening phase will be bid out with RFPs sent to three Providers on the qualified master list maintained by PBEEEP. Once the contract is awarded and processing is complete, the next step will generally be a site visit, arranged by the Provider, to meet with the building staff and begin the screening process. For smaller buildings and those that are not part of a campus (<50,000 ft²) the screening work may be competitively bid or may be completed by Owner in-house staff using the *Small Building Screening Form(s)* as a more cost-effective project approach.

2.2 Conduct Screening

The overall purpose of site screening is to confirm eligibility for the Program and assess the building's potential for cost-effective retrocommissioning and retrofit opportunities. Screening helps document building system and equipment information and helps identify any issues that may preclude Program participation. The screening process also results in a benchmark being developed for the building through the ENERGY STAR Portfolio Manager and/or B3 Public Building Benchmarking database to rate the building's performance at project start and provide the baseline for on-going performance evaluation and tracking.

2.2.1 On-site Screen

As discussed above, a Provider and/or the LGU Owner in-house staff will conduct the screen to identify key characteristics about the building that reveal its potential as a cost-effective retrocommissioning project. All parts of a facility that are served by the meter(s) specified on the application must be included in the screening. If individual buildings are not sub-metered, the provider should contact the program immediately for guidance (unless this was expected).

The screening procedure should be planned by the Provider in advance and with suitable arrangements made with the facility manager. The Provider should spend time with the LGU Owner's facility staff to understand the general approach to operations and maintenance and get an overall impression of how the building is performing. The data required (such as what equipment to inventory, and what details to collect) to complete the screening form will help define the work plan of the Investigation Phase.

¹ The Owner's utility should be contacted for more information. An additional utility-specific authorization form may be required.

2.3 Complete Screening Form

PBEEEP has developed the *PBEEEP Screening Form(s)* as a tool for the Provider (or Owner) to use during screening. The *PBEEEP Screening Form(s)* represents the minimum level of information that must be collected before a building can be assessed for participation in PBEEEP. For campus projects consisting of multiple buildings, the Provider must submit both Part A and Part B of the *Screening Form*. Note that an independent Part B should be completed for each building. For non-campus projects, Part A is not required; however Part B must be completed and submitted to the Program.

The Program requires the *PBEEEP Screening Form(s)* be submitted electronically. PBEEEP will utilize a system called WorkZone for the submission and repository of Screening Phase documentation. Refer to Section of this document for additional information.

2.4 Benchmark Facility

As part of the PBEEEP screening process, to obtain a final assessment for the building, the LGU Owner's facility must be benchmarked.

2.4.1 Benchmarking Background

Energy benchmarking a building can give an indication of its suitability for retrocommissioning. Benchmarking is often used to set investment priorities and track energy use over time, but it can also be used to give a rough potential of success for energy efficiency projects. If a facility uses more energy than its peers (i.e. buildings of similar use and size in a similar climate zone) or model (theoretical model of similar building designed to current energy code), it may have a greater opportunity for energy savings. Conversely, if a facility uses much less energy than its peers or model, then a comprehensive retrocommissioning and/or retrofit project may not be cost-effective. The benchmarks are normalized values that represent the building energy consumption per unit area per year often expressed as kWh/ft², therms/ft², or kBtu/ft².

The two benchmarking tools that will be used by PBEEEP are the ENERGY STAR® *Portfolio Manager* and the State of Minnesota's Building, Benchmarking and Beyond (B3) Energy Benchmarking Tool. The ENERGY STAR® *Portfolio Manager* is one of the most widely used energy benchmarking tools, suitable for buildings throughout the U.S. The State of Minnesota's B3 Public Building Benchmarking tool is a similar tool specifically available for existing public buildings in Minnesota. Portfolio Manager compares the building with a climate normalized database of existing building stock. B3 compares the building's energy performance to a theoretical model built to 1991 building code. These tools will be used to benchmark a building for two primary purposes: 1) give a better idea of its energy savings potential, and, 2) provide a consistent and standardized way to evaluate on-going energy usage performance.

2.4.2 Benchmarking Requirements

The benchmarks are highly dependent upon an accurate assessment of the square footage dedicated to different uses within the building in many cases (examples include buildings containing data centers, parking garages or swimming pools); therefore, accurate reporting of this information is a critical part of the screening process. Entering the building usage information and energy history from utility bills into the benchmarking databases is necessary to complete benchmarking.

2.4.3. Adjusting the Benchmark

The calculation for benchmarking is usually straight forward: divide the energy use by the conditioned building area. However, there are circumstances where adjustments may be made to the index during the screening process.

Adjustment of the benchmark is recommended when large energy consuming equipment that is tied to the same meter as the rest of the building will not be addressed during retrocommissioning.

The calculations and justification for any adjustments must be submitted to the program for approval. Examples of large load categories that might not be included in the scope of a PBEEEP project include data centers in commercial office buildings and lighting in parking garages. The effect of power intensive equipment that will not be commissioned might provide a false indication of a building's suitability for the Program. The adjustment to the benchmark involves extracting the square footage and energy consumption from the building total for these spaces.

The building's benchmark score can be adjusted as follows:

Data Centers. Data centers are often metered separately. When data center electricity use data is available and obtained during the screening, this should be included on the screening forms as well as which loads are included (e.g. just plug loads, or also lighting and HVAC). If the HVAC systems serving these data centers are to be not included in the project, then the data center electricity usage should be backed out of the calculation. When electricity use is not known /available, just knowing the area of the data centers and the HVAC systems serving these areas may be useful for making an estimate. Since Data center Energy Use Indexes (EUIs) for example, can range from 30 kWh/sf to 300 kWh/sf, a default value cannot be used with confidence.

Parking Garages. If a facility includes a parking garage, it would be useful to know not only the garage floor area but also if there are any exhaust fans that serve the garages. Above grade parking garages often do not have exhaust fans, but below-grade ones do, and these could yield a good retrocommissioning/retrofit opportunity. Parking facility lighting usually cannot be retrocommissioned due to security concerns, even though parking garage electricity use can be significant, especially for larger parking garages. If the entire facility is only on one electric meter that serves both the occupied spaces and the parking garage, then the parking garage lighting usage can be backed out of the total energy use to get an idea of what the occupied-area EUI would be. The following can be used to estimate parking garage EUI per the Commercial End Users Survey:

Garage Size	EUI, kWh/sf	EUI, kBTU/sf
<5k and <20k sf	3	10
>20k and <50k sf	2.5	8.5
>50k sf	2	7

2.5 Evaluation of Screening

PBEEEP will evaluate the building(s) based on information provided from the *PBEEEP Screening Form(s)*. A scoring system is used to help rate a building's qualifications as a good candidate for retrocommissioning or retrofits. The final recommendation for Program participation or disqualification is at the discretion of the OES

If the screening identifies sufficient potential for energy savings, it will be accepted into the Program and will be qualified to enter into the Investigation phase upon approval. If the building's potential energy savings does not merit an offer of Program services, the Program may work with the customer to identify alternative energy savings programs or opportunities. This would be determined on an individual case basis.

The experience based scoring is not intended to provide a hard threshold for PBEEEP participation; a score will not be used as a hard metric to pass/fail a building. The scoring is intended to summarize key participation metrics that indicate a strong opportunity for retrocommissioning and/or retrofit. The data collected from the entire screening process will be used to make a "best judgment" on the potential success of the building if allowed entry into PBEEEP.

3.0 Provider's Responsibilities

It is the responsibility of the Provider to record all information as requested on the PBEEEP Screening Form and make all collected information available to the Program. If the building is found to be a good candidate for the next phase of the program, the investigation phase, the information collected as part of the screening will be used as a basis for the RFP for investigation. In the event that information is withheld from the Program by the Provider in order to gain a competitive advantage in the RFP for investigation, the Provider will be recommended for removal from the list of approved providers maintained by the Department of Administration, Real Estate Construction Services and the Program.