

# EQUIPMENT & SYSTEMS PERFORMANCE OPTIMIZATION PROGRAM

## PROJECT CHECKLIST FOR TARGETED SYSTEMS AND WHOLE BUILDING & PROCESS TUNING TRACKS

### 1. Confirm Eligibility

If you have any questions on whether a project is eligible for this Retrofit Program, please contact your PA before continuing with the application or beginning the work.

To qualify for the Equipment & Systems Performance Optimization Program, projects must:

- Be in an existing commercial, industrial, institutional, educational, or municipal building
- Be in a Mass Save Electric Program Administrator's service territory
- Be on systems/facilities that average 2,000 or more operating hours per year
- Not be at the end of life or nearing planned retirement
- Not be part of a larger, time-dependent, new construction or major renovation project
- Not be on a system or facility that has participated in the Custom Retro-commissioning or Pay-for-Performance programs within the past five years

### 2. Pre-Approval for Investigation

- I. Complete & Submit Part 1 of the Application including the Track Screening Questionnaire
  - Fill out Part 1 of this application in its entirety & Submit 1 to your PA
- II. Work with PA to Identify Vendor & Track
  - Select Vendor(s)
    - If a Vendor is already engaged, please share this with the PA.
    - Investigation Vendors are expected to identify opportunities and quantify savings.
    - For the Targeted Systems and Whole Building & Process Tuning Tracks, Investigation Vendors will need to submit a **Tuning Investigation Proposal**. Please see the expectations for these proposals on page 4 of this document.
  - Collaboratively Select Appropriate Track
    - Customers will be asked to commit to a certain level of implementation resulting from the funded investigation. Terms will be negotiated and established based on individualized criteria.
- III. Define Relevant Baseline & Approach to Savings Calculations
  - Establish Baseline Energy Consumption
    - To quantify savings and provide incentives, key data points are necessary **prior to** implementation in order to develop the baseline energy usage for items that are likely to be implemented. Program Administrators or designated representatives will define these requirements with the Investigation Vendor prior to the Tuning Investigation so that necessary pre-implementation data can be recorded. This can include trend data.
    - Typically, Program Administrators require that the baseline follow the guidelines established by the Efficiency Valuation Organization's (EVO) International Performance Measurement and Verification Protocol (IPMVP). Under this protocol:
      - The baseline period should:
        - coincide with the time period immediately before the measure is implemented;
        - represent all operating modes of the system or facility being tuned;



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- encompass only periods where “all fixed and variable energy-governing facts are known”.
  - Incorporating all ‘energy-governing facts’ (weather, production, occupancy, etc.) is essential to establish an adjusted baseline if changes occur beyond the measure intervention and impact the consumption of the facility or system.
- Establish Approach to Savings Calculations
- Program Administrators or designated representatives will work closely with Investigation Vendors to define the correct way to quantify savings for anticipated projects prior to the Tuning Investigation.
  - For general reference, some industry standard guidelines are provided below following the Efficiency Valuation Organization’s (EVO) International Performance Measurement and Verification Protocol (IPMVP) that can be utilized to quantify energy savings.
    - Option A: Retrofit Isolation – Key Parameter Measurement
      - IPMVP Option A is best suited for situations where the key parameters used in calculating savings can be readily identified. These key parameters can be derived from some measured and estimated variables. Measurement is limited to the specific piece of equipment or system undergoing the change. Adjustments from the baseline to the reporting period can be taken if necessary.
      - This can be utilized for BOTH the Targeted Systems Tuning Track AND the Whole Building & Process Tuning Track.
    - Option B: Retrofit Isolation – All Parameter Measurement
      - IPMVP Option B is best suited for situations where savings or operations within the measurement boundary are variable. These key parameters require measurement of all energy quantities (or variables needed to calculate energy) within the specific piece of equipment or system undergoing the change. Since all parameters will be measured no adjustments from the baseline to the reporting period will be necessary.
      - This can be utilized for BOTH the Targeted Systems Tuning Track AND the Whole Building & Process Tuning Track.
    - Option C: Whole Facility
      - IPMVP Option C is best suited for situations where large savings amounts (>10% of total building energy consumption) are expected to be achieved through various improvements. This approach utilizes only the available monthly billing or interval data for the entire facility or what is covered by a distinct meter to quantify savings so reasonable correlations between energy use and other independent variables can be determined.



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- This can ONLY be utilized for the Whole Building & Process Tuning Track WHERE overall savings is expected to be >10%.
  - Note that Options A & B are generally preferred by Program Administrators, but additional options may be available given the prevalence of unique projects. Your representative at the Program Administrator will coordinate with engineers in order to validate potential options.
- Provide Rough Budget for Investigation
  - Investigation Vendor will need to provide the PA with a rough budget for services anticipated prior to receiving approval.
- IV. Receive Pre-Approval for Investigation
  - PA to Issue Pre-Approved Investigation Letter
- 3. Tuning Investigation & Reporting**
  - I. Perform Tuning Investigation
    - Allocate Resources (staff time, facility access, etc.) for Investigation Vendor to complete Tuning Investigation
  - II. Complete & Submit Part 2 of the Application
    - Investigation Vendor to Complete & Submit Part 2 of this Application
    - Investigation Vendor to Complete & Submit Investigation Report & Supporting Energy Engineering Calculations
      - Identified measures should be presented with enough detail to allow for work orders and/or specifications to be drafted for implementation
      - Sound energy engineering calculations are required for reviewed by PA's engineering team
  - III. Receive Pre-Approval for Implementation
    - PA to Issue Pre-Approval Letter Detailing Implementation Incentive levels
- 4. Implementation**
  - I. Perform Site Visit(s) for Tuning Implementation
    - Facility to Allocate Resources (staff time, facility access, etc.) for Implementation Vendor to Complete Work
    - Investigation Vendor to Monitor & Verify Savings
      - Using the methodology agreed to in the Pre-Approval Investigation Stage, the Investigation Vendor will need to monitor and verify through data and/or engineering calculations that the proposed tuning measures have been successful in achieving desired energy savings. Collection of trend data is expected.
- 5. Completion**
  - I. Submit Signed Final Documents
    - Within 30 days of the implementation, submit the following signed documents to your Program Administrator



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- Any Changes to Scope of Work (if needed)
    - Requires corresponding updates to calculations
  - Application, Parts 1 and 2 with Pre & Post Installation Signatures
  - Predetermined Post-Implementation Trend Data and Invoices or Work Orders Proving Implementation
- II. Receive Incentives
- PA to Issue Incentive Funds based on Implemented Savings
- III. Maintain Tuning Measures
- Ensure Implemented Tuning Measures are Maintained
    - The customer is responsible to maintain the tuning measures implemented through the lifetime of the measure
  - Permit PA to Verify Project Persistence
    - The Program Administrator retains the right to verify in person the persistence of all tuning measures for the number of years provided as the “life” of the measure after project completion.

### **TUNING INVESTIGATION PROPOSAL (TO BE COMPLETED BY VENDOR) –**

#### **Overview –**

In Part 1 of the Application process for the Targeted Systems and Whole Building & Process Tuning Tracks of the Equipment & Systems Performance Optimization (ESPO) Program, Vendors will provide the Program Administrators (PA) and Customer with a brief, high-level report identifying and estimating savings associated with the controls-based opportunities recommended for further investigation. This information will be typical of what is obtained during normal business development for a Vendor.<sup>1</sup>

The PAs will utilize this proposal to ensure the proper ESPO Track assignment for a project and determine baseline methodologies, energy savings approaches and savings verification protocols with the Vendor. The PA will determine how much Investigation Funding, if any, is relevant and will set expectations for implementation with the Customer directly. Final determination on Tuning Investigation funds will be issued in writing by the Program Administrator.

#### **Proposal Requirements –**

The proposal should contain the following information (suggested page maximums are provided for reference):

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<sup>1</sup> Please note the ESPO Tuning Investigation does not replace normal business development and funding should not be expected to cover this initial project sourcing process by Vendors.



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- Administrative Information:
  - Summary of the Vendor's relationship to the customer (1 page)
    - What is your role and what services will you provide the Customer?
  - Tentative description of implementation arrangement (1 page)
    - Will the Investigator be doing the Implementation? If not, please provide details on who will be completing implementation (facility staff are eligible to implement)
    - What services (if any) will you subcontract and to whom?
  - Budget proposal with timeline (1 page)
    - Proposed cost of Tuning Investigation & energy engineering work necessary to establish baseline & quantify savings
    - Projected timeline after Tuning Investigation is approved by PA
- Facility Information:
  - General description & use summary of facility (1-2 pages)
    - Controls information relevant to proposed scope of work
    - Relevant equipment & system information with age & nameplate data if available
  - High level energy consumption analysis
    - Annual energy use with noted seasonal patterns
    - EUI comparison/analysis (if available)
- Proposed Project Information:
  - List of possible controls opportunities with estimated cost to implement & energy savings (one concise table with necessary numbers; one brief paragraph of supporting narrative should be provided for each opportunity identified) – please provide as much detail as available & state any key assumptions
    - Controls-based
    - Capital upgrade
  - Other opportunities such as:
    - Training Opportunities
    - O&M Best Management Practices
    - Active Demand Reduction Measures
    - CHP/Fuel Cell

