
INDUSTRIAL ENERGY EFFICIENCY PROGRAM STAGE 2 PROJECT PROPOSAL TEMPLATE

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INSTRUCTIONS

Under the 2021-2024 Conservation & Demand Management Framework, the Independent Electricity System Operator (“IESO”) is offering the Save On Energy Industrial Energy Efficiency Program (“IEEP”) to support large industrial customers across Ontario in improving their industrial processes and implementing system optimization projects. Applications to the IEEP comprise two stages:

- In Stage 1, participants must submit their application detailing their proposed project(s) online. The IESO will review Stage 1 applications and make a preliminary assessment of eligibility.
- Applicants whose applications are deemed eligible will be invited to submit a Stage 2 application, which must include a more detailed project proposal, budget, and a Measurement and Verification (M&V) Plan.

This template will serve as the basis for the Stage 2 detailed project proposal.

Capitalized terms used in this template and not defined herein shall have the meaning given to such terms in the Program Requirements.

Each Applicant should read through the [Participant Agreement](#) and [Program Requirements](#), this entire template (Sections 1-5), and additional guidance (Appendix A) prior to completing and uploading their proposal as a part of their Stage 2 Application. Each Stage 2 Applicant must complete each section of this template in the order and in the format that they are provided. Submissions should be clear and concise, while providing sufficient detail for the IESO’s Technical Reviewer to conduct its review of the Stage 2 Application as efficiently and effectively as possible.

Applicants must submit this completed project proposal through the IEEP Portal that can be accessed here https://gateway.ieso.ca/app/ieso_onlineieso_1/exkcrzax48MUvqTG72p7/sso/saml. Applicants may only submit a Stage 2 Application if: (a) they have submitted a Stage 1 Application; and (b) the IESO has notified the Applicant of the IESO’s recommendation with respect to submission of the Stage 2 Application. Applicants should bear in mind the following considerations:

- The IEEP selection process is competitive, and there is no guarantee that any Project will be awarded an incentive. The competitive evaluation criteria can be found in Appendix B.
- On-site data collection will be required prior to starting the Project in order to submit an M&V Plan. For further details, see Appendix A – Section 2.
- If this Stage 2 Application is awarded by the IESO, the Applicant will be offered the opportunity to enter into the [Participant Agreement](#). Applicants may wish to engage their respective legal representatives at an early stage to review this document.

Any questions should be directed to industrialEEprogram@ieso.ca.

1. PART ONE: PROJECT DESCRIPTION

1.1 Key Information

This section should:

- (a) identify the Project Title;
- (b) identify the assigned Project reference number from the Stage 1 Application;
- (c) identify the Applicant; and
- (d) set out the amount of the Proposed Participant Incentive (as may have been updated since the Stage 1 Application), which amount must not exceed \$5 million.

1.2 Company Overview

This section should provide sufficient detail to enable the IESO to determine the Applicant's eligibility to participate in the IEEP as a Participant. This section should provide a brief overview (no more than 1 page) of the Applicant's organization, including a description of the organization's primary business activities. If the Applicant is a Third-Party Applicant, this section must include the details and other information necessary to satisfy the eligibility criteria in section 3.1(b) of the Program Requirements.

1.3 Project Description

This section is the core of the Stage 2 Application and should provide sufficient detail to enable the IESO to determine the Project's and Facility's eligibility to participate in the IEEP (including the validity of the Project's Measures), as well as the validity of the Applicant's Electricity Savings calculations.

1.3.1 Project Overview

This section should provide a short overview of the Project, in no more than 250 words, with a focus on how the Project is expected to deliver Electricity Savings.

1.3.2 Project Details

This section should include detailed descriptions of the following:

- (a) Existing conditions in the process or area where the Project will be implemented, including equipment that will be replaced, processes that will be changed, control systems that will be modified or any other relevant items that will be impacted by the

Project. Where necessary, explain any assumptions made and any environmental factors that may impact the Project.

- (b) The Project and the Measures making up the Project, including the overall approach, new equipment to be installed, implementation approach, commissioning approach, technology planned, operational, process and maintenance changes required, control system changes needed and any training requirements.
- (c) An estimate of Electricity Savings (as may have been updated since the Stage 1 Application) projected to be delivered by the Project with detailed supporting calculations, including a clear description of the methodology used and citation references to where any formulae used were obtained. If the supporting calculations are contained in a spreadsheet or workbook, this description shall describe the methodology and formulae underlying the supporting calculations in written text, along with support for assumptions used, where appropriate. The Applicant should not expect the Technical Reviewer to interpret formulae and logic embedded in any spreadsheet or workbook. Any spreadsheets or workbooks provided by the Application should also be appropriately referenced and cited within this description.
- (d) The projected contribution to Summer Peak Demand Reduction with detailed supporting calculations including a clear description of the methodology used and references to where any formulae used were obtained.
- (e) The rationale for the Effective Useful Life provided citing the source of the value if available.
- (f) The plan to ensure that the Project continues to deliver Electricity Savings past the M&V Reporting Period through to the end of the Electricity Savings Period. This plan could include maintenance practices, standard operating procedures, training for relevant staff or an energy management information system.
- (g) The magnitude, scope and purpose of any Project contingency included within the Project budget described in Section 1.5 below.

1.4 Project Plan

This section should provide a high-level project execution plan including the expected In-Service Date for the Project and any other major milestones, to the level of detail that would enable the Technical Reviewer to assess any schedule risk associated with the Project.

1.5 Overview of Project Budget and Third-Party Contributions

This section should include the completed table below and list the names of all Persons providing Third-Party Contributions (“**Third-Party Contributors**”) with the amount of their anticipated Third-Party Contribution and the percentage of the total Project costs that each stated amount represents.

Description	Amount (\$)	% of Total Project Costs
Eligible Cost Category		
<i>E.g. Equipment</i>		
<i>E.g. Engineering Services</i>		
<i>E.g. Technical Study</i>		
[Note: Add more rows as necessary for additional categories of Eligible Costs.]		
<i>Project Total Eligible Costs</i>	\$0	
Applicant Contribution		
Name of Third-Party Contributor [Note: Add more rows as necessary for additional Third-Party Contributors.]		
<i>Total Funding Contributions</i>	\$0	
<i>Amount of the Proposed Participant Incentive</i>	\$0	

1.6 Project Economic Rationale

This section should provide support and justification for why the Proposed Participant Incentive is necessary to implement the Project from the internal financial perspective of the Applicant. Evidence could be in the form of internal correspondence or other documentation including internal memos, meeting notes, internal project approval forms, corporate policy document extracts, email correspondence, internal business cases, requirements from Third-Party Contributors, or any other form of support.

1.7 Project Location

Use this section to identify whether the Project or a sub-Project is being implemented at a Facility situated in an Identified Local Need Area. Identified Local Need Areas are areas identified through the IESO's regional planning process, where there is potential to benefit from further energy efficiency above and beyond the level accounted for in the IESO's regional planning forecast, to either manage system conditions until infrastructure can come into service or help defer long-term local transmission investments.

Points towards the Project Score are awarded based on the percentage of a Project's Electricity Savings that are contributed by a Facility or Facilities in Identified Local Need Areas. Therefore, this section should stipulate the percentage of Electricity Savings contributed by Facilities in Identified Local Need Areas.

In order to self-identify this information, IESO has provided the current Identified Local Need Areas in Appendix C.

2. PART TWO: PROJECT TEAM & EXTERNAL PROJECT CONTRIBUTORS

2.1 Project Team: Key Individuals

This section should provide a summary of the roles, responsibilities, and accountabilities for key individuals of the Project team, specifically those individuals critical to the success of the Project. This should include staff from the Applicant's internal Project team (including site personnel) and any key individuals who are staff of a Third-Party Applicant described in Section 2.2. This section should also identify the lead individual for the Applicant's internal Project team (referred to as the Project champion). A one-page resume of each key individual should be included in an appendix, with a focus on the qualifications and experience that each key individual brings to bear to their Project role.

Where a Project is being implemented across multiple Facilities, provide a contact name, including role at the Facility, for each Facility. For clarity, resumes are not required for these contacts, unless they are a key individual, as discussed above.

2.2 Project Team: External Project Contributors

This section should provide a brief overview (no more than 1 page) for each external organization forming a part of the Project team. An external project contributor is any external organization that is contributing expertise and resources to the Project, e.g. a contractor, engineering firm, consulting firm or equipment vendor. Include a description of the organization's primary business activities and their experience in delivering the type of services that their role on the Project requires. Include in an appendix, a 1-2 page project summary or case study, illustrating successful provision of these services.

2.3 Third-Party Contributors

This section should provide information about any Third-Party Contributors. In the context of IEEP, a Third-Party Contributor is a Person that only provides a Third-Party Contribution to the Project, as opposed to resources, as would be the case for a Third-Party Project participant. For each Third-Party Contributor, as appropriate, describe:

- the source of the funding (e.g., taxpayers, rate payers, private investor fund);
- the funding program name, if any;
- any funding requirements and material conditions;
- whether the funding is confirmed;
- any timelines for funding requests, approval and receipt of funds.

3. PART THREE: RISK ANALYSIS

This section should identify the factors that are critical to the Project achieving its objectives, including cost, schedule and performance (including the capability of delivering Electricity Savings) and outline any risks that could lead to an unsuccessful outcome. Responses to this section should provide an assessment of each identified risk, including likelihood and level of impact to the Project, and propose an appropriate mitigation strategy to address each identified risk, using the table below.

Areas of risk to be considered may include the following categories:

- schedule and timeline risks;
- budget risks (including the risk of Third-Party Contributions or internal Applicant funding not materializing);
- installation and operational risks;

- risk of Measure(s) not achieving the anticipated electricity savings;
- COVID impact risks; and
- other risks.

Risk Factor	Risk Likelihood (Low/Med/High)	Risk Impact (Low/Med/High)	Mitigation Strategy
<i>Identify risk to Project completion in the required timeline (e.g. loss of external funding, change in organizational priorities, technical hurdles)</i>	<i>Assess the likelihood of risk</i>	<i>Assess the potential impact of risk</i>	<i>Propose mitigation strategy (e.g. leadership commitment, technical feasibility assessments, etc.)</i>
Risk Factor 1			
Risk Factor 2			
Risk Factor 3			

4. PART FOUR: MEASUREMENT & VERIFICATION PLAN

This section should confirm that the Stage 2 Application includes the Applicant’s proposed M&V Plan. An M&V Plan must accompany the Stage 2 Application and must include baseline data and the Baseline Model. See Appendix A for more details on the requirements and guidance for developing the M&V Plan that complies with the Program Requirements.

5. PART FIVE: DECLARATION AND RELEASE WAIVER AND CONSENT

This Stage 2 Application is accompanied by a:

- [Declaration](#), in the form provided by the IESO on the Save on Energy website; and
- [Release Waiver and Consent](#),

each of which has been signed by an authorized signatory of the Applicant and will be uploaded as a separate document in the IEEP Portal.

APPENDIX A – MEASUREMENT & VERIFICATION GUIDANCE

1. MEASUREMENT & VERIFICATION

1.1 Purpose of M&V

Effective and credible measurement and verification of the Electricity Savings delivered by the Project is central and critical to the IEEP. As stated by the Efficiency Valuation Organisation (EVO), the organisation that develops and maintains the IPMVP[®], M&V can be described as follows: “Measurement and Verification” (M&V) is the process of planning, measuring, collecting and analyzing data, for the purpose of verifying and reporting energy savings within an individual facility resulting from the implementation of energy conservation measures (ECMs). Savings cannot be directly measured since they represent the absence of energy use. Instead, savings are determined by comparing measured use before and after implementation of a project, making appropriate adjustments for changes in conditions.”

Given that the fundamental purpose of M&V, in the context of an incentive-based energy efficiency program, is to accurately and defensibly document energy savings, good engineering judgement is often required. With this in mind, EVO has published six fundamental principles for good M&V practice which are described below, in alphabetical order.

- (a) **Accurate:** M&V reports should be as accurate as the M&V budget will allow. M&V costs should normally be small relative to the monetary value of the savings being evaluated. Studies by the US Department of Energy suggest that the average cost of M&V services is in the range of 3-5% of total costs. IPMVP[®] shows the cost to determine the energy savings is typically less than 10% of the total energy savings. Cost will vary by the Option used. A study by NAESCO and the US EPA found the cost for Options B and D to be around 3-10%, Option A to be 1-5% and Option C to be 1-3% depending on whether meters were already installed. Cost will vary based on the quantity of equipment, the value of energy savings, the interaction between energy consuming systems, the level of savings uncertainty tolerance, and the availability of an energy management system, etc. M&V expenditures should also be consistent with the financial implications of over- or under-reporting a project’s performance. Accuracy trade-offs should be balanced by conservative estimates and judgements.

- (b) **Complete:** The reporting of energy savings should consider all effects of a project. M&V activities should use measurements to quantify the significant effects, while estimating all others.
- (c) **Conservative:** Where judgements are made about uncertain quantities, M&V procedures should be designed to under-estimate savings.
- (d) **Consistent:** The reporting of a project's energy effectiveness should be consistent between: different types of energy efficiency projects; different energy management professionals for any one project; different periods of time for the same project; and energy efficiency projects and new energy supply projects. 'Consistent' does not mean 'identical,' since it is recognized that any empirically derived report involves judgements which may not be made identically by all reporters. By identifying key areas of judgement, IPMVP® helps to avoid inconsistencies arising from lack of consideration of important dimensions.
- (e) **Relevant:** The determination of savings should measure the performance parameters of concern, or least well known, while other less critical or predictable parameters may be estimated.
- (f) **Transparent:** All M&V activities should be clearly and fully disclosed. Full disclosure should include presentation of all the elements defined in the IPMVP® for the contents of an M&V Plan and a savings report, respectively.

1.2 M&V Process

The IEEP requires that all M&V activities, including the M&V Plan and all M&V Reports, be adherent to the IPMVP® as per the adherence requirements stated in "Core Concepts EVO 10000 – 1:2022", Chapters 6 and 13. Applicants should refer to the [Program Requirements](#) for a detailed outline of IEEP M&V responsibilities, as M&V activities will form the basis for payment of the participant incentive. The IEEP Technical Reviewer will review and approve M&V Plans and M&V Reports and may request clarification or additional information as necessary. This section highlights some IEEP specific requirements for M&V planning and reporting.

1.2.1 M&V Plan Development

The process for developing an M&V Plan typically begins at the same time that the Project is being developed and only ends once the final M&V Report is submitted to the IESO. The initial, or draft, plan prepared by the Applicant should consider how the base case conditions are going to be measured, to meet the Baseline Model accuracy requirements. This will include consideration of the measurement of the Project Boundary, meter accuracy (for energy and independent variables) and the length of baseline measurement period.

In most cases, this measurement of pre-Project conditions is required in any case, to estimate the Electricity Savings from the Project, as well as to meet the program requirements that the M&V Plan includes these baseline measurements and baseline model.

The IEEP does not require a specific format for M&V reporting, however, IPMVP® requires that the reporting format be detailed in the M&V Plan, and as such, will be reviewed by the third-party technical reviewer to ensure that the report format is clear and will enable the technical review of the M&V Reports to be conducted as efficiently as possible.

1.2.2 Baseline Measurement and Model

The concept of measuring energy use before and after the implementation of an energy efficiency project is straightforward. However, it is important to develop a Baseline Model (simple or complex) of how energy use is impacted by independent variables that will change between the baseline and the M&V Reporting Period (e.g., weather, equipment runtime or production tonnage). This is essential as the baseline energy use can typically no longer be measured once the Project is implemented. To determine Electricity Savings, a fundamental premise of M&V is that the actual measured energy use (post Project implementation) needs to be compared with “the energy that would have been used in the baseline period under the same conditions as the post Project implementation (M&V Reporting Period)”. The Baseline Model allows this “energy that would have been used” to be determined by running the model against the reporting condition independent variables (e.g., the same production volume or same weather conditions). IPMVP® calls this a “routine baseline adjustment”.

Note that the baseline period does not have to be as long as the M&V Reporting Period. The baseline period only needs to be as long, or have sufficient data, to develop a Baseline Model for the Project Boundary that produces a [Coefficient of Variation of the Root Mean Square Error](#) equal to or less than 15%. IPMVP® requires that the Baseline Model cover at least one “operating cycle”. For a Project that is significantly weather dependent, it is likely that a full year of energy and weather data will be required. On the other hand, if a Project involves a highly consistent and repeatable batch process that only lasts 4 hours (and is independent of weather and time of day), then as little as 4 hours of data may be all that is required. If a Project involves a highly consistent and repeatable batch process that only lasts 4 hours (and is independent of weather and time of day), then as little as 4 hours of data may be all that is required.

The Technical Reviewer must be able to recreate and evaluate the Baseline Model in a spreadsheet. “Black-box” models will not be accepted. For clarity, the method of deriving the Baseline Model need not be transparent. Only the model itself (the ‘formula’, complete with coefficients) must be made available such that its effectiveness in predicting actual performance can be evaluated by the Technical Reviewer.

1.3 Reference Documents

The EVO maintains a website that has several useful documents that can be of assistance in developing an M&V Plan that meets program requirements. Many of these documents are available as a free download but do require registration with EVO to track document use. Documents can be found at the following link: [IPMVP - Efficiency Valuation Organization \(EVO\) \(evo-world.org\)](https://www.evo-world.org/)

1.3.1 Free Reference Documents

International Performance Measurement and Verification Protocol® - Core Concepts, March 2022, EVO 10000 – 1:2022

Uncertainty Assessment for IPMVP®, July 2019, EVO 10100 – 1:2019

IPMVP® Application Guide on Non-Routine Events and Adjustments, October 2020, EVO 10400 – 1:2020

1.3.2 Documents that require an EVO Subscription

Sample M&V Plan IPMVP® Option A, 1 October 2020

Sample M&V Plan IPMVP® Option B, 1 October 2020

Sample M&V Plan IPMVP® Option C, 1 October 2020

M&V Plan Template IPMVP®, 1 October 2020

1.4 Assistance from Certified M&V Professionals

The Association of Energy Engineers maintains a list of active Certified Measurement and Verification Professionals (CMVPs) at the following link: [AEE Certified Professionals Directory](https://www.aee.org/certified-professionals-directory). Although not all these individuals are available for consulting work, the listing does include the organisation they work for, which should be a helpful guide.

APPENDIX B – EVALUATION CRITERIA

Project Proposal (35 points)

Evaluation	Points	Description
Strength of written proposal, including, without limitation, clear outline of project, project plan and timeline, and evidence demonstrating the necessity of the proposed participant Incentive	15	<ul style="list-style-type: none"> • Clear outline of the project (up to 5 Points) • Demonstrated funding requirement (up to 5 points) • Suitable project plan and timeline (up to 5 points)
Strength of risk analysis and proposed mitigation strategies	10	<ul style="list-style-type: none"> • Relevant risks identified: project execution, timeline, savings, team (up to 5 points) • Appropriate mitigation strategies proposed (up to 5 points)
Strength of the project team	10	<ul style="list-style-type: none"> • Evidence of applicant commitment and project champion (up to 5 points) • Project implementation experience and expertise (up to 5 points)

Project Savings (25 points)

Evaluation	Points	Allocation
Project size (first year annual savings)	10	2,000 - 5,000 MWh = 2.5 points
		> 5,000 - 10,000 MWh = 5 points
		> 10,000 - 15,000 MWh = 7.5 points
		>15,000 MWh = 10 points
Effective useful life (for the project)	10	0 - 4 years = 2.5 points
		5-9 years = 5 points
		10 - 19 years = 7.5 points
		>= 20 years = 10 points

Contribution to summer peak demand reduction	5	kW/MWh ratio > 0.01 - 0.1 = 2 points
		kW/MWh ratio > 0.1 - 0.15 = 3 points
		kW/MWh ratio > 0.15 - 0.25 = 4 points
		kW/MWh ratio > 0.25 = 5 points

Ratepayer Investment (40 points)

Evaluation	Points	Allocation
First year savings acquisition cost (\$/kWh)	20	> \$0.30/kWh = 5 points
		> \$0.20 - \$0.30/kWh = 10 points
		> \$0.10 - \$0.20/kWh = 15 points
		\$0.01 - \$0.10/kWh = 20 points
Program administrator cost (PAC) test score as calculated by the IESO	15	1.00 - 1.50 = 5 points
		1.51 - 2.00 = 10 points
		>2.00 = 15 points
Alignment with Identified Local Need Areas (refer to table for areas below)	5	>0% but <50% of project savings in Identified local need areas: 1 point
		50-74% of project savings in identified local need areas: 3 points
		75-100% of Project savings in identified local need areas: 5 points

APPENDIX C – IDENTIFIED LOCAL NEEDS AREAS

The following areas in Ontario have been identified through the [regional planning process](#) as areas with potential to benefit from further energy efficiency. Projects located in these areas will be awarded points toward their Stage 2 application score as noted above.

Region	Local Area	Qualifying Postal Codes
East Lake Superior	• City of Sault Ste. Marie	All
Greater Bruce Huron (South Huron-Perth)	• Municipality of South Huron • Municipality of South Perth	All
Greater Ottawa	• City of Ottawa	All
Greater Toronto Area North (York Region)	• City of Vaughan • Town of Aurora • Town of Newmarket • Town of East Gwillimbury • City of Markham • City of Richmond Hill	All
Greater Toronto Area West	• City of Brampton • Town of Caledon • Town of Milton	All
Toronto	• Richview South Area	M5E, M5H, M5J, M5K, M5L, M5M, M5N, M5P, M5T, M5V, M6A, M6B, M6C, M6E, M6G, M6H, M6J, M6K, M6L, M6M, M6N, M6P, M6S, M8V, M8W, M8X, M8Y, M8Z, M9A, M9B, M9C
Kitchener/Waterloo/ Cambridge/Guelph	• Township of Woolwich	All
Peterborough to Kingston	• City of Kingston • City of Belleville	All
Windsor-Essex	• City of Windsor • Essex County • Municipality of Chatham-Kent	All