



Industrial Energy Efficiency Program Overview
October 14, 2008



Ontario Power Authority



Presentation Outline

1. What is OPA
2. OPA target
3. OPA Conservation programs
4. Industrial sector overview and OPA target
5. Introduction to Industrial Energy Efficiency Program (IEEP)
 1. Program Goals
 2. Program Timeline
 3. Delivery Structure
 4. Eligibility
6. Questions

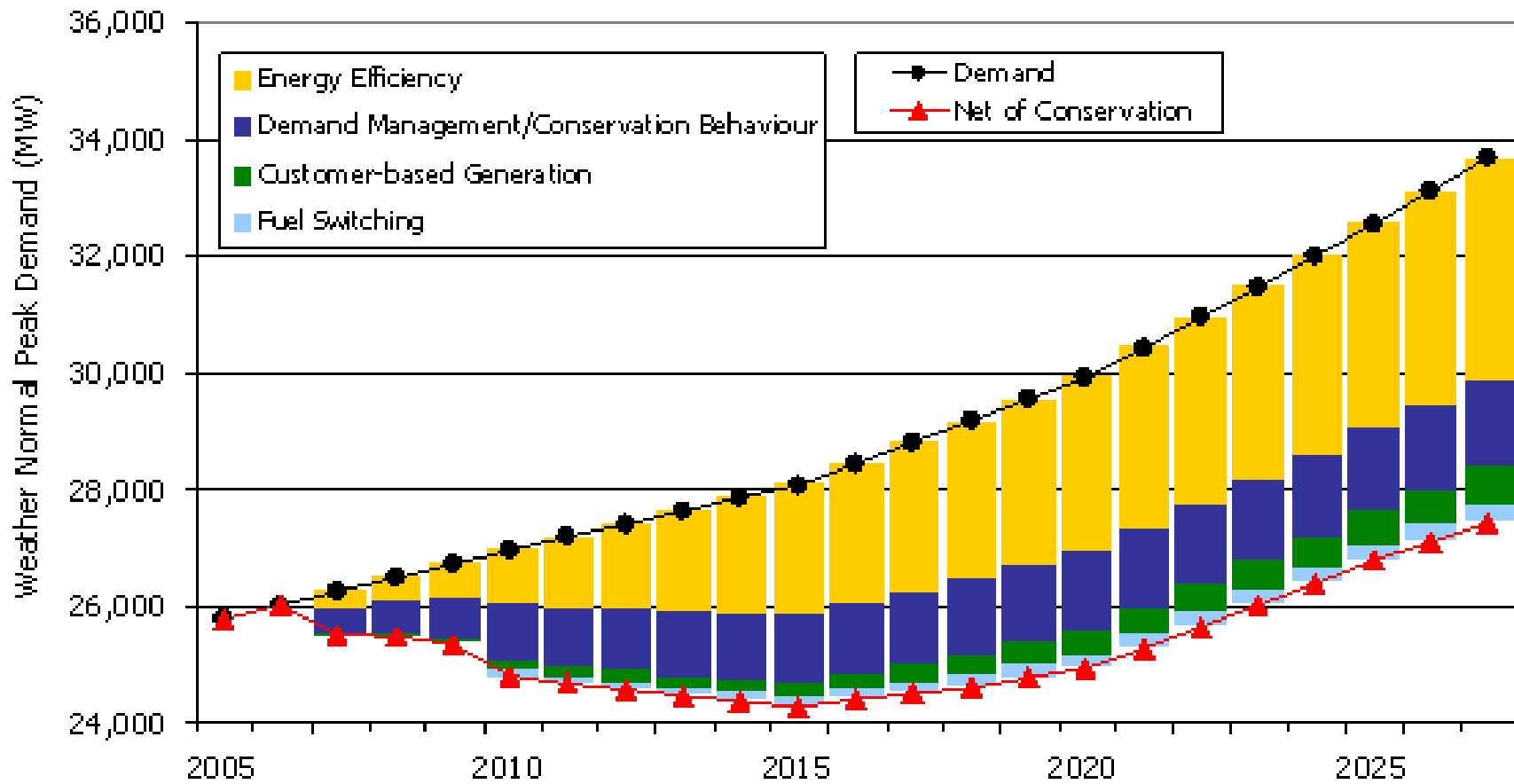


What is the OPA?

- The OPA is a not for profit corporation created by legislation
 - Develop an integrated power system plan to meet Ontario's electricity system goals
 - Procure new supply and demand resources
 - Lead and coordinate the electricity conservation effort in Ontario.
- Public responsibility to ensure the **reliability** of the electricity system in a **cost-effective** and **economically efficient** manner
- Reliable electricity system benefits to all the Ontarians

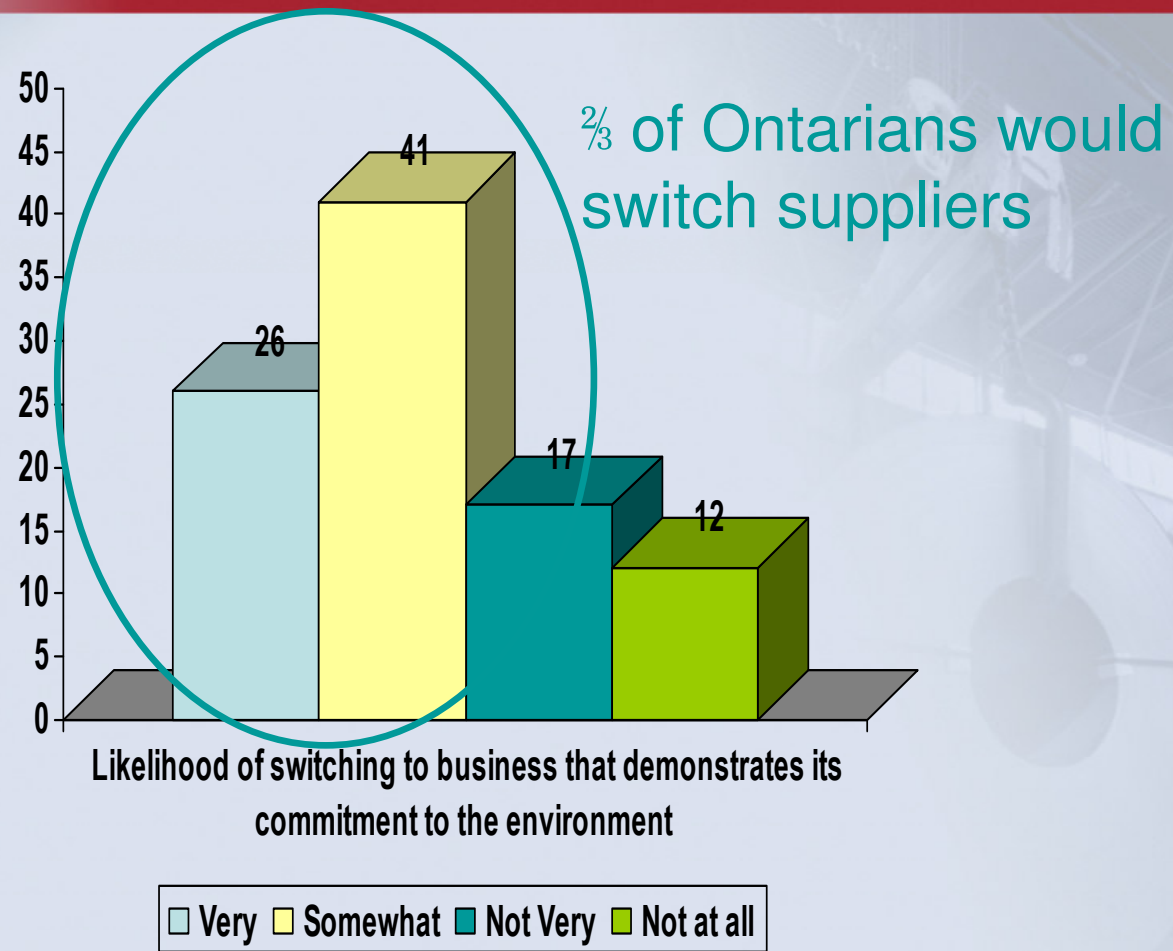


The Build-Up to 6300 MW





A Source for Competitive Advantage



Source: IPSOS poll of 384 Ontarians done for Veritas Comm., Feb 2007

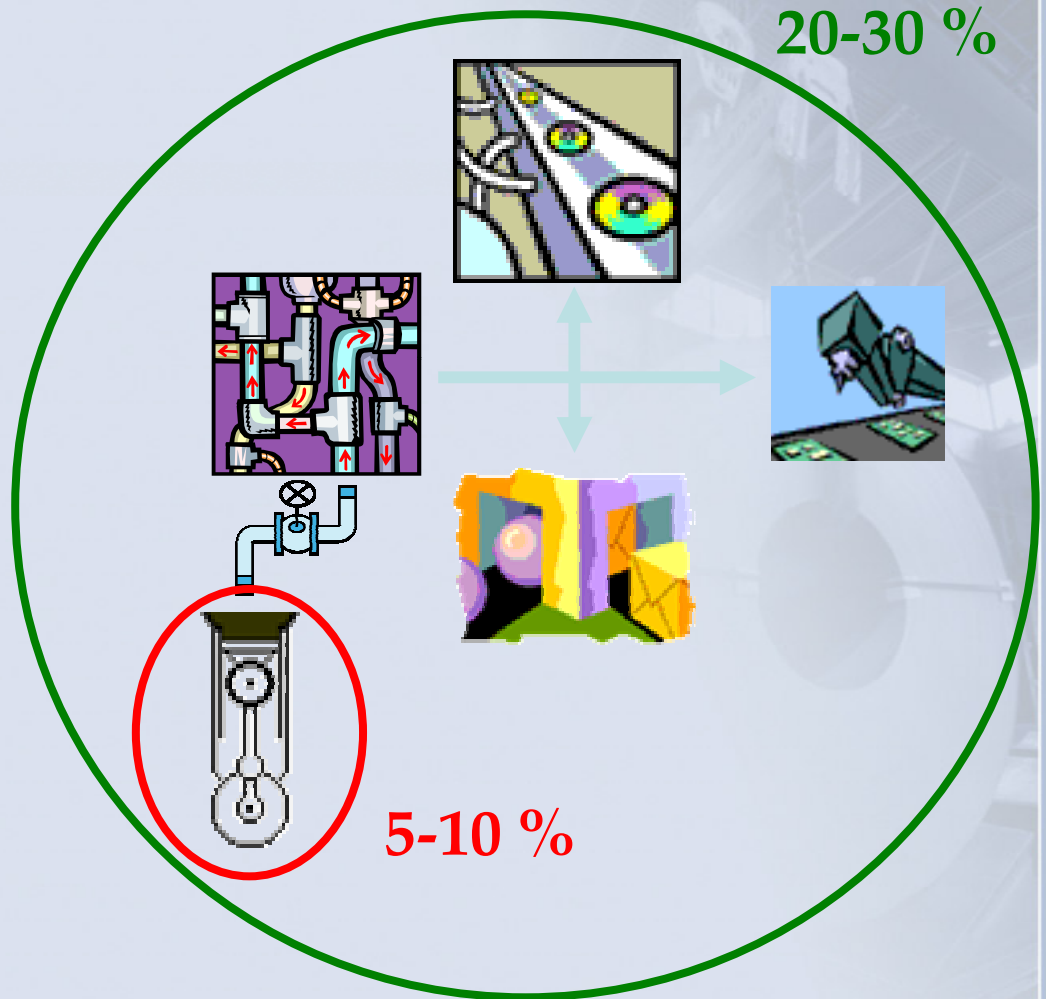
every kilowatt counts...

Ipsos Canada
CANADA'S MARKET INTELLIGENCE LEADER



Systems versus Component

- “Whereas 20 years ago, simply replacing an inefficient standard model with more efficient product may have provided improvement, today the least expensive opportunity may be how motor **systems** are managed”
ACEEE 2006
- Supports a market transformation/culture change effort





Conservation Programs

1. Residential

- Every Kilowatt Counts campaign
- Cool Savings Rebate
- Peak Saver
- The Great Refrigerator Roundup

2. Business

- Commercial
 - Electricity Retrofit Incentive Program
 - High Performance New Construction
 - Load Management / Demand Response
- Industrial
 - Electricity Retrofit Incentive Program
 - High Performance New Construction
 - Load Management/ Demand Response
 - Industrial Energy Efficiency Program
- Agricultural
 - Electricity Retrofit Incentive Program
- Institutional
 - Electricity Retrofit Incentive Program
 - High Performance New Construction
 - Load Management / Demand Response





Industrial Sector Overview

- Industrial customers consume approximately 30% of total energy consumption in Ontario and 23% of coincident peak demand which is expected to reach a total of 6,170 MW in demand by 2010 for the industrial sector
 - Industrial → majority of electricity used in a process
- Less than 90 entities account for approximately half of the total Ontario industrial electricity consumption primarily in resource extraction, pulp and paper, and primary steel
- The other half is made up of 20,000+ Small and Medium Enterprises in a variety of industries
- Approx. 60% of industrial energy is consumed as driven loads, process cooling and compressed air.



OPA Objective for the Industrial Sector

- Support the evolution of energy management in Ontario's industrial sector towards a system-oriented approach.
- Focus on energy performance
 - Effectively understood and reported within organizations
 - Comparisons to internal and external benchmarks
- Stimulate improvements and implement through capital, operational, and maintenance measures.
- Develop technology and capability approach.
- Develop a design model that works for various industry types and sizes.



What is the Industrial Energy Efficiency Program?

- The OPA will make resources available – funds, human capital, tools, training and expertise.
- Will help Ontario industries to become more energy efficient to develop a more sustainable, reliable electricity system.
- Will help Ontario industries to gain and maintain their competitive advantage to keep the economy strong.
- Our program will offer integrated and process-specific assistance for implementing energy savings projects.



OPA IEE Program Goals

- 113 MW gross electricity demand reduction by 2010
- Expect an average project size of 100 kW
- Need in the region of 600-900 projects over three years



Program Timeline

- Phase I -Second Quarter of 2008
 - Posting of the program rules. It is intended that this will allow interested parties to begin their internal capital and project planning processes based on this information.
 - The OPA will also be posting a Request for Proposals for competitive procurement of Program Management services during this phase.

- Phase II -Third Quarter of 2008
 - Selection of the successful proponent(s) to the Program Management services Request for Proposals.
 - Implementation by Program Manager(s) and the OPA of the required systems and processes to enable the acceptance of project applications to the program.

- Phase III - Fourth Quarter of 2008
 - Program launch - start recruitment and acceptance by the Program Managers of eligible applications.



Program Manager – Key Deliverables

1. Develop and maintain relationships with energy entities for business development purpose.
2. Develop Applications to the program (technical support to applicants, incentive applications, identify projects for OPA ERIP, document/respond complains, develop M&V plans, Provide a Project Review prior to Application).
3. Establish, maintain and manage required resources for Technical Certification.
4. Develop and deliver 6-10 training and awareness sessions/year.
5. Develop a marketing and public relations plan.
6. Develop and deliver one annual training session to IEEP Energy Managers.
7. Provide monthly summary reports.
8. Provide one-stop shopping for industrial clients in terms of information for additional project financing from other sources.

Program Administrator - OPA to contract with independent party to supply marketing/back-office admin/program support.



Delivery Structure

Three categories - attempt to combine the benefits of geography, sector and size.

Categories 1 and 2 - heavy industry (1 in North and 2 in South).

Category 3 - small and medium enterprises across the entire Province.

1. Mining, Pulp and Paper, Forestry and any entity with Peak Annual Load ≥ 5 MW in NW & NE.
2. Primary Metal, Chemical, Petro-Chemical, Cement and any entity with Peak Annual Load ≥ 10 MW outside NW & NE.
3. All other Ontario industrial facilities across the Province that are not already defined by Category 1 or 2.



Ontario Conservation Zones





Common Eligibility

1. The Applicant is an Industrial entity as defined by the Program Rules.
2. The facility is located in Ontario.
3. The facility is financially feasible.
4. Some Projects are excluded from this program (but may in some cases be eligible for other OPA programs):
 - i. Lighting projects
 - ii. Demand Response Projects
 - iii. Behind the meter generation
 - iv. Projects designed to improve Power Factor, Power Quality or to reduce voltage
 - v. Projects with a Minimum Expected Life of less than five full years



Expected Project Types

Willis Energy Services

Compressed air systems	<ol style="list-style-type: none">1. Eliminate inappropriate uses, wastage, leakage2. Optimize system pressure profile3. Efficient air treatment4. sequencer for multiple compressor control
Pump systems	<ol style="list-style-type: none">1. Reduction of excessive throttling2. Reduction of bypass flows3. Operate closer to best operating point4. More efficient components
Fan & Blower systems	<ol style="list-style-type: none">1. Impeller right-sizing2. Variable speed control & Optimal Fan control3. Flow and pressure optimization4. Reduction of system resistance and system effects
Process cooling & Refrigeration systems	<ol style="list-style-type: none">1. Evaporator and condenser optimization strategies2. Pressure lift optimization strategies3. Various VFD Control strategies4. Defrost system optimisation5. Freezer doors
Process Optimisation	<ol style="list-style-type: none">1. Variability reduction2. Model predictive control3. Monitoring and Targeting



Incentive Summary

	Incentive	Value	Units	Technical Certification Required?	M&V Plan Required?	Minimum GWh Electricity Consumption of Applicant	Minimum Project MW Reductions	Minimum Project GWh Reductions	Maximum OPA Funding (%)	Minimum Participant Funding Contribution (%)
1	Energy Incentive	5.0	c/kWh	Y	Y	N/A	0.1	0.25	50	20
2	Energy Manager Salary Support (and Expenses)	100,000 (and expenses of up to 10,000)	\$/Year	Y	Y	50	0.5	1.25	80	20
3	Monitor & Target Support	75,000	\$/Application	Y	Y	15	0.5	1.25	50	20
4	Energy Assessments	10,000	\$/Application	Y	N	5	0.1	0.25	80	20
5	Feasibility Studies	50,000	\$/Application	Y	N	20	0.3	0.75	80	20

- Energy Incentive can aggregate projects as small as 15 kW in size to meet the 100 kW Minimum MW reduction.
- Energy Manager can be a joint application by as many as five individual entities.
- No M&V Plan required for Energy Assessments/Feasibility studies



Basic Project Approval Process

(see program rules for detailed guidelines)

1. Application forms designed by the OPA, facilitated by Program Managers
2. Project Managers submit a proposed project plan for Technical Approval by resources approved by the OPA
3. Project Managers submit M&V plan to independent M&V resources contracted with by Program Managers and approved by OPA to approve/modify M&V plan
4. Participant agrees to TC and M&V Plan modifications if any
5. Provided the Technical Certification and M & V Plan Certification are acceptable to the OPA, signing of a Program contract between the OPA and the Participant.



Energy Incentive

Eligibility:

- Can aggregate Projects to get the 100 kW minimum average load reduction
- Minimum Project size of 15 kW each
- Simple Payback > 1.5 yrs

Settlement:

- Incentive paid on the first year's Energy Reduction certified in the TC.
- First 50% paid upon submission of expenses. PM, applicant or OPA to decide if additional TC is required.
- Check-point at 50% payment for an additional TC of the Project if necessary.
- Final 50% paid upon receipt of the Final M&V Report (adjustments based on measured results).
- Project measurement and verification completed within 2 years of the first payment.

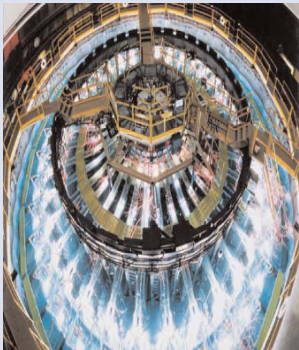




Energy Manager Support

Eligibility:

- Contract terms of 1, 2, 3 years.
- Develop an Energy Management Plan - Simple Payback up to 1 year up to a value of 1.5 times the incentive that are discovered by the Energy Manager incentive.
- Quarterly reporting to the OPA.
- Qualifications: certified engineering technologist, Prof. Eng, 5 years industrial experience or equivalent combination of education and experience as approved by the OPA.
- May support up to 5 separate business entities.



Settlement:

- 25% of annual Energy Manager incentive will be paid after acceptance of 1st Quarterly report
- 50% of annual Energy Manager incentive will be paid after acceptance of 3rd Quarterly report
- Final payment will be made after acceptance of 4th Quarterly report which needs to identify 75% or more of required load reduction.



Monitor & Target Support

Eligibility:

- Pursue opportunities identified by M&T System with a Simple Payback of less than 1 year up to a value of 1 times the Incentive for a period of 5 years following the completion of the installation.
- Annual reporting for 5 years on progress.

Settlement (same as Energy incentive):

- Incentive paid on the first year's Energy Reduction certified in the TC.
- First 50% paid upon submission of expenses. PM, applicant or OPA to decide if additional TC is required.
- Check-point at 50% payment for an additional TC of the Project if necessary.
- Final 50% paid upon receipt of the Final M&V Report (adjustments based on measured results).
- Project measurement and verification completed within 2 years of the first payment.



Energy Assessments/Feasibility Studies

Eligibility:

- Pursue opportunities identified by the Energy Assessment or Feasibility Study up to a value of 1 times the Incentive.



Settlement:

- 75% of payment upon completion and acceptance by the OPA of the study report
- Remainder - paid when evidence of implementation of recommendations is submitted.



EM&V Structure

- All applications require Technical Certification of the expected savings and the approach to achieve the savings.
- All incentives except for the Energy Assessments/Feasibility Studies require an M&V Plan.
- Program Manager's will contract for and supply Technical Certification services.
- OPA will contract for and supply Certified M&V Professionals for the M&V Plan certifications and Final M&V Reports.
- OPA will also run an annual Program Manager/Program evaluation, process and impact study.



Questions

- Our questions:
 - Our Energy Reduction Incentive is open to any type of project (the incentive offers a flat rate of \$0.05/kWh. Other jurisdictions offer different incentive levels for different types of project. Open to discussion.
 - The requirement to apply for Energy Reduction Incentive is that the Simple Payback is greater 1.5 years. Open to discussion.
- Your questions