

SEPTEMBER 28TH, 2023

Energy Management and Efficient Electrification Series for Ontario Municipalities: Energy Management Practices and Save on Energy Resources

Presented by Save on Energy, CIET, Knowenergy and LAS.



Agenda

1. Introduction
2. IESO Capability Building Initiatives
3. Save on Energy Program Updates
4. LAS Energy Programs and Additional Support
5. Workshop Overview: Accessing & Analyzing Your Energy Data
6. Municipalities Workshop Series
7. Questions & Answers

Workshop Series for Ontario Municipalities

1. Energy Management Practices and Save on Energy Resources
2. Existing Building Commissioning (EBCx) In A Nutshell
3. ENERGY STAR Portfolio Manager
4. Energy Management Best Practices for Public Sector Organizations
5. Retrofits for Public Sector Organizations
6. Introduction to RETScreen
7. Financial Analysis for Energy Projects
8. Operating for Energy Efficiency: Water/wastewater treatment plant operators
9. Measurement & Verification (M&V)



Capability Building Initiatives

Capability Building Initiatives

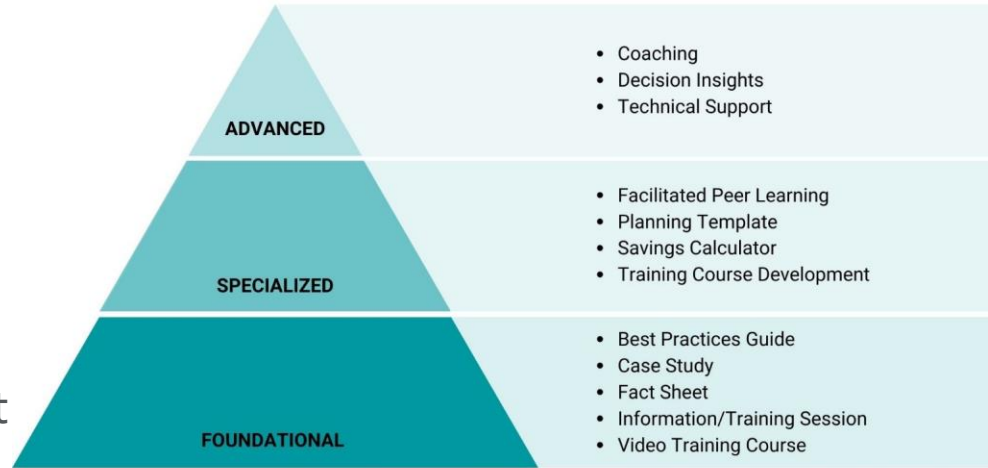
1. Understanding energy data
2. Efficient electrification
3. Energy efficient HVAC equipment
4. Existing building commissioning
5. Energy management support
6. Industrial energy efficiency
7. Regional workforce development (N. Ontario)
8. Capital planning amid uncertainty 2024
9. The business case for energy efficiency 2024
10. Support for high-potential sectors 2024

Capability Building Activities

Foundational support: Actionable guidance, basic knowledge, and introductory training for participants with limited experience and/or resources.

Specialized support: More advanced training courses, targeted guidance, specialized knowledge and development of new opportunities designed for key customer sectors and channels.

Advanced support: Facilitation of integrated approaches to energy efficiency decision-making targeted at experienced organizations in priority sectors and channels, as well as at leaders and innovators in energy efficiency, sustainable technologies, and best practices.





Accessing Training and Support

Capability Building events and resources will be available on saveonenergy.ca

Questions or support: trainingandsupport@ieso.ca



Save on Energy Program Updates



Save on Energy Program Updates

- Retrofit
- Midstream lighting
- Existing Building Commissioning (EBCx)
- Energy Performance Program (EPP)
- Strategic Energy Management (SEM)

Retrofit Program – Eligible Projects

- Projects eligible for the Retrofit Program are generally those that provide sustainable, measurable and verifiable reductions in peak electricity demand and electricity consumption
- Incentive offerings include custom rates and predefined rates for prescriptive equipment upgrades. These are based on the amount of energy or demand savings of the new equipment

What types of projects are eligible?

- Lighting retrofits
- Lighting controls
- HVAC equipment replacement, redesign
- Industrial process upgrades
- Variable-speed drive installations
- Refer to [SaveOnEnergy.ca/Retrofit](https://www.SaveOnEnergy.ca/Retrofit) for a complete list.

Retrofit Program – Updates

- **Custom track** re-introduced in May 2023
 - Incentives are (**\$1,200/kW** or **\$0.13/kWh**, whichever is higher)
 - \$1 million incentive cap for Retrofit projects has been removed
Incentives will continue to be capped at 50% of project costs
- Changes to **networked lighting control** incentives
 - Incentives now calculated on \$/kWh (moving away from \$/sq. ft.)
 - An incentive offering for networked lighting controls — from \$0.15/sq. ft. to \$0.35/kWh

Save on Energy Case Study: The City of Greater Sudbury

Sudbury Wastewater Treatment Plant's Retrofits.

With the help of Greater Sudbury Utilities and **Save on Energy**, the city of Greater Sudbury completed an **energy optimization study** of their wastewater treatment plant and made **upgrades**, leading to **energy savings** and **savings of hundreds of thousands of dollars** with all these projects.

<https://saveonenergy.ca/For-Business-and-Industry/Business-Case-Studies>

A few examples of upgrades completed.

- Upgrading the blowers helped saving \$54,000 annually;
- Updating the plant's clarifying process for cleaning water, saved an additional \$72,000 annually;
- The lift station including newer, energy-efficient pumps and a lengthening of the existing discharge pipes, led to \$200,000 in energy costs on average.

Midstream Lighting

The IESO is shifting the way it incentivizes energy efficient lighting with a new Save on Energy **Commercial Midstream Lighting Program**. The program targets **distributors** (“midstream”) rather than end users (“downstream”). Incentives are paid directly to distributors, enabling them to offer instant **point-of-sale discounts** on energy-efficient lighting to end users and other purchasers.

Midstream Lighting – Benefits

- **No paperwork** to apply on the part of contractors, consultants, or end users, resulting in efficiencies to the program
- **Instant point-of-sale discount**
 - No pre-approvals
 - No lag time between purchase of equipment and receiving incentives
- Incentives for lighting will **transition** from the **Retrofit program to MSL.**
- **Lighting controls** will continue to be incented through the Retrofit Prescriptive track.

Existing Building Commissioning

Three Phases:

- **Investigation Phase:** Investigation Report: incentive up to **\$0.06/sq. ft.**, capped at **\$50,000**
- **Implementation Phase:** Incentive of **\$0.03/kWh** of Claimed Savings
- **Persistence Phase:** At the end of 12 months, incentive of **\$0.03/kWh** of confirmed savings

Energy Performance Program

- Holistic approach to energy savings: operational + behaviour + capital
- Savings determined by comparing annual metered consumption to the baseline energy model
- Incentive of **\$0.04/kWh** paid each year for **three years** + **\$50/kW adder** for summer peak demand savings (June - August, weekdays)
- Facilities need to save at least 5% energy savings (check in after year 2)



Strategic Energy Management (SEM)

The **Strategic Energy Management** model will provide an enhanced technical support and resources to companies with dedicated Energy Managers in the team

- Technical and training support for org. that have an energy management team
- **2-year program**
- Delivered in a **cohort manner**
- **Eligibility – 3,000 MWh** in annual consumption
- 4 cohorts per year





LAS Energy Programs and Additional Support

LAS Energy Training workshops



LAS Energy Training Workshops

- **Customized D2\$ workshop with Treasure Hunt**
 - Eligible for 75% IESO incentives
- **Energy Efficient Building Operations (EEBO)**
 - Eligible for 50% IESO incentives
- **RETScreen Expert – Project & Performance Analysis**
 - Eligible for up to 50% of course fees

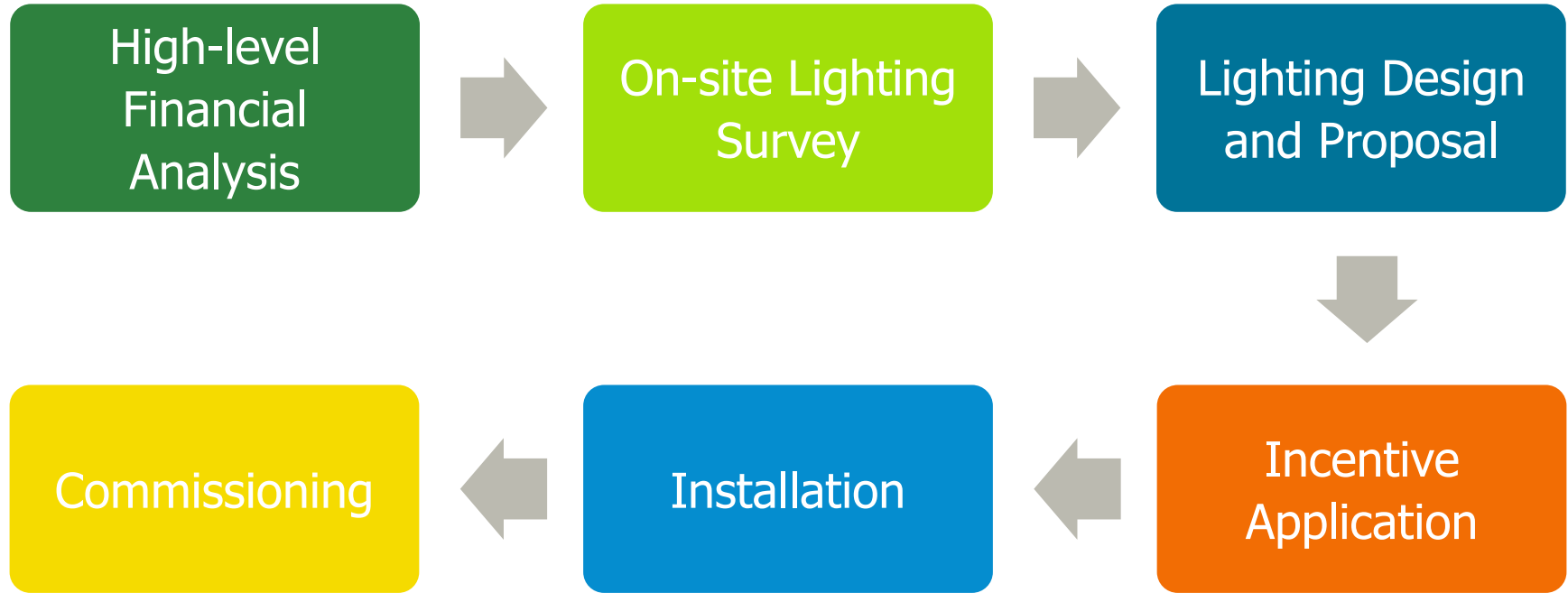
Treasure Hunt Discoveries

Municipality	Facility	Savings identified	Potential Budget savings
City of Guelph	West End Community Centre	\$38,000	14.5%
Town of Halton Hills	Mold-Masters Sports Complex	\$30,000	5%
Town of Milton	Mattamy National Cycling Centre	\$48,000	Not available
Town of Oakville	Queen Elizabeth Park, Community & Cultural Centre	\$98,000	12%

Facility Lighting Service

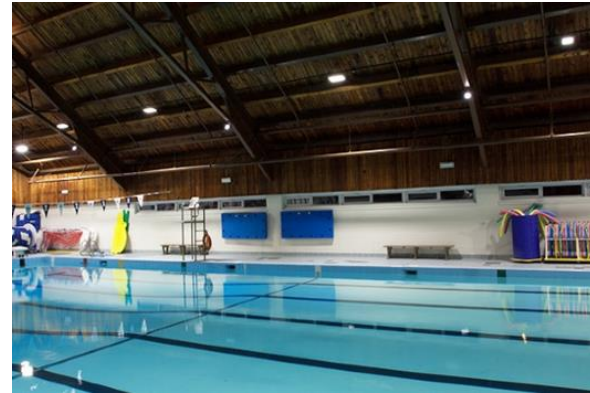


LAS Facility Lighting Service



Key facilities

- Long Term Care Homes
- Municipal Offices
- Library & Town Halls
- Public Works & Transit Garages
- Pools & Gymnasium
- Community Centres
- Arenas & Curling Rinks
- Outdoor Lighting



Program stats

- Over 100 projects completed
- 40 municipalities and counting
- Maintenance & Energy savings:
Over \$1 million
- Energy consumption savings:
6.3 million kWh
- Incentives:
Over \$520,000 secured.



AMO LAS Energy Symposium - November 2 & 3, 2023

Novotel – Toronto Centre

Keynote Speakers

James Jenkins, Executive Director – Indigenous Clean Energy

David Collie, Chair – Electrification and Energy Transition Panel

The Honourable Todd Smith, Minister of Energy – Government of Ontario



Find more details at <https://www.las.on.ca/learning/amo-las-energy-symposium>

Let's continue the conversation



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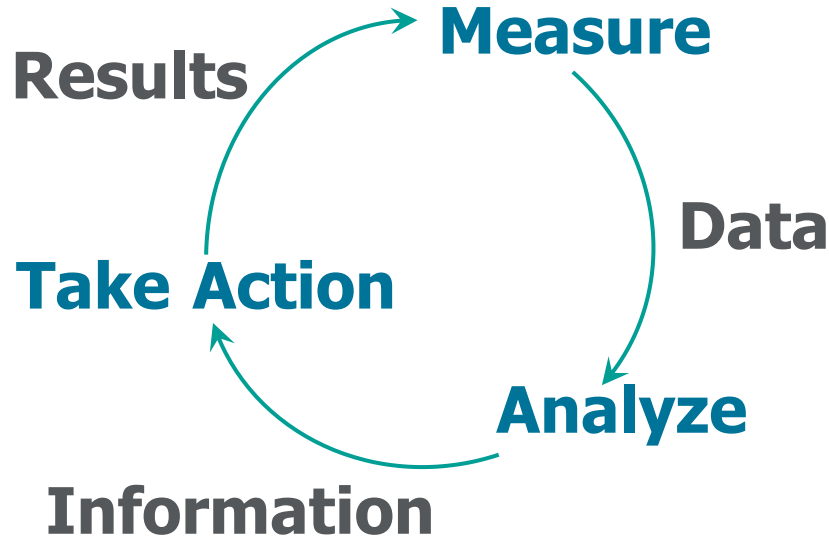
cth@amo.on.ca

647-932-3774 ext. 452



Workshop Overview: Accessing & Analyzing Your Energy Data

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Energy Data Types and Formats



Monthly

Available to all **Yes**
Benchmarking
EWRB **Yes**
Energy savings
value **Low**



Hourly

Available to all **No**
Benchmarking,
EWRB **No**
Energy savings
value **Medium**



15 minutes

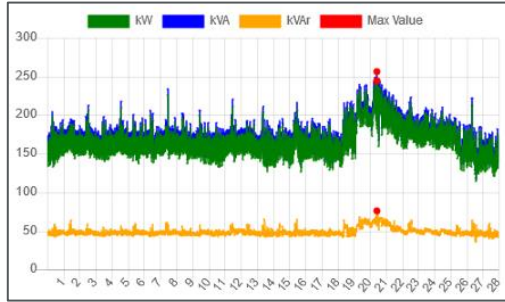
Available to all **No**
Benchmarking,
EWRB **No**
Energy savings
value **High**

Energy Data Types and Formats

Monthly Bill

Electricity Retail Contract Monthly Bill Statement	
Account Number:	000 000 000 000 000 0
Meter Number:	0000000
Your Electricity Charges	
Electricity	
YOU ARE BUYING YOUR ELECTRICITY FROM [ENERGY RETAILER NAME] *	
Global Adjustment	0.00
700 kWh @ Your Contract Price	0.00
Delivery	0.00
Regulatory Charges	0.00
Your Total Electricity Charges	0.00
H.S.T.	0.00
Ontario Electricity Rebate	(0.00)
Total Amount	\$0.00

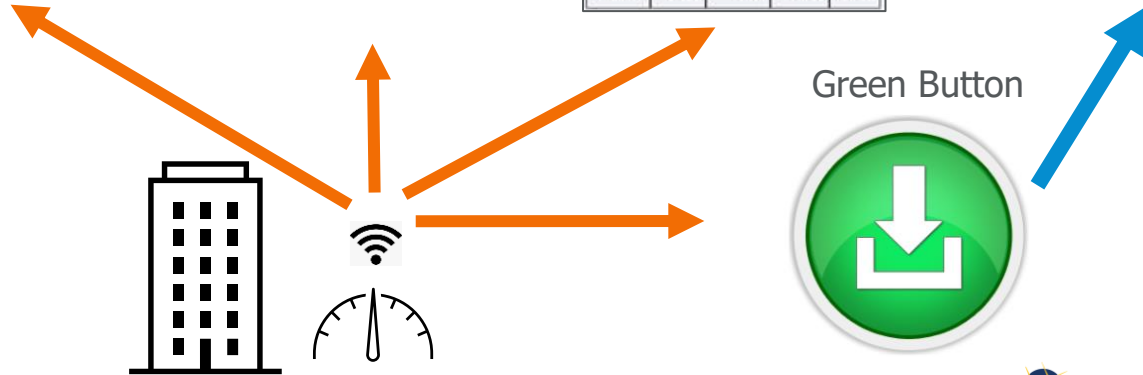
LDC Data Analytics Platform



Database

Time	kW	kVAr	kVA	PF
00:05	40.30	34.60	53.10	0.759
00:10	40.30	37.40	55.00	0.733
00:15	46.10	43.20	63.20	0.730
00:20	51.80	46.10	69.40	0.747
00:25	40.30	34.60	53.10	0.759
00:30	54.70	51.80	75.40	0.726
00:35	51.80	43.20	67.50	0.768
00:40	37.40	37.40	52.90	0.707
00:45	54.70	49.00	73.40	0.745
00:50	57.60	49.00	75.60	0.762

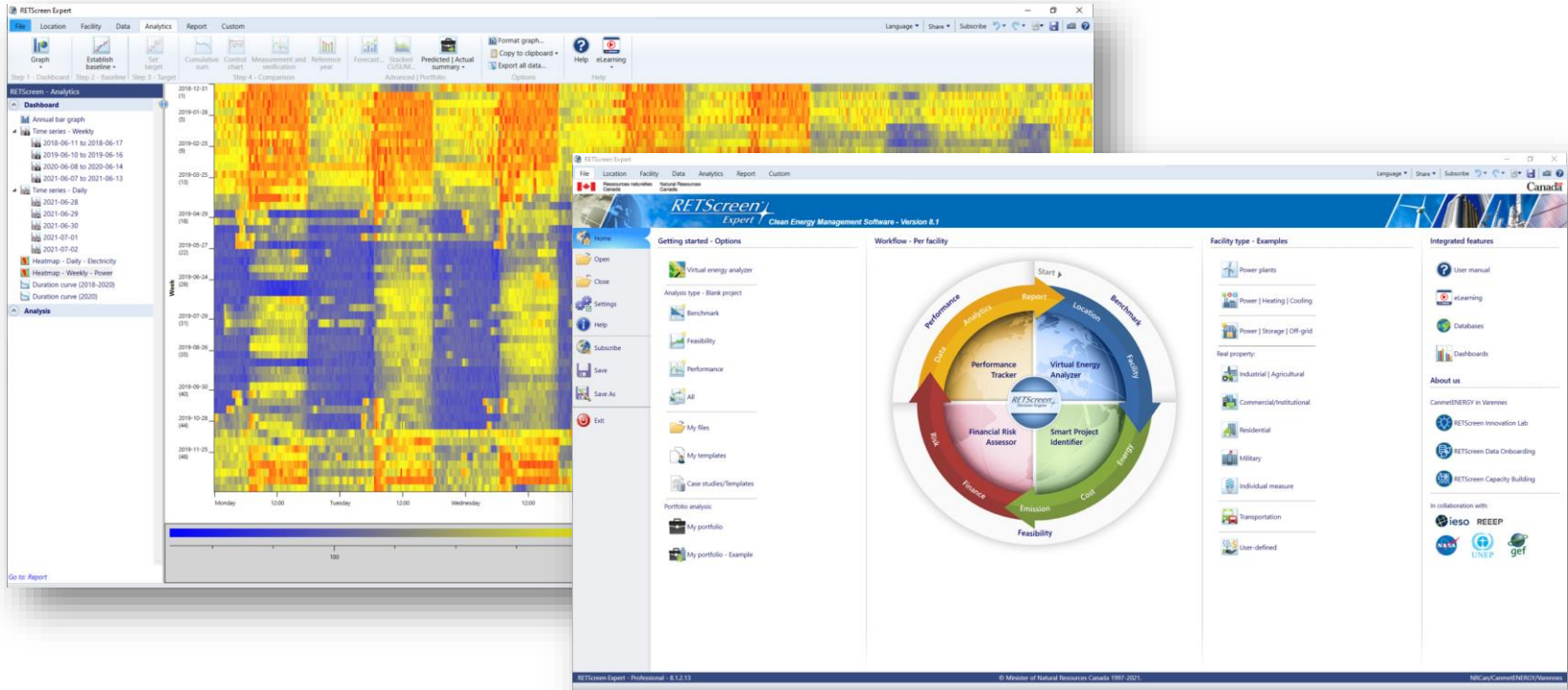
RETScreen Expert



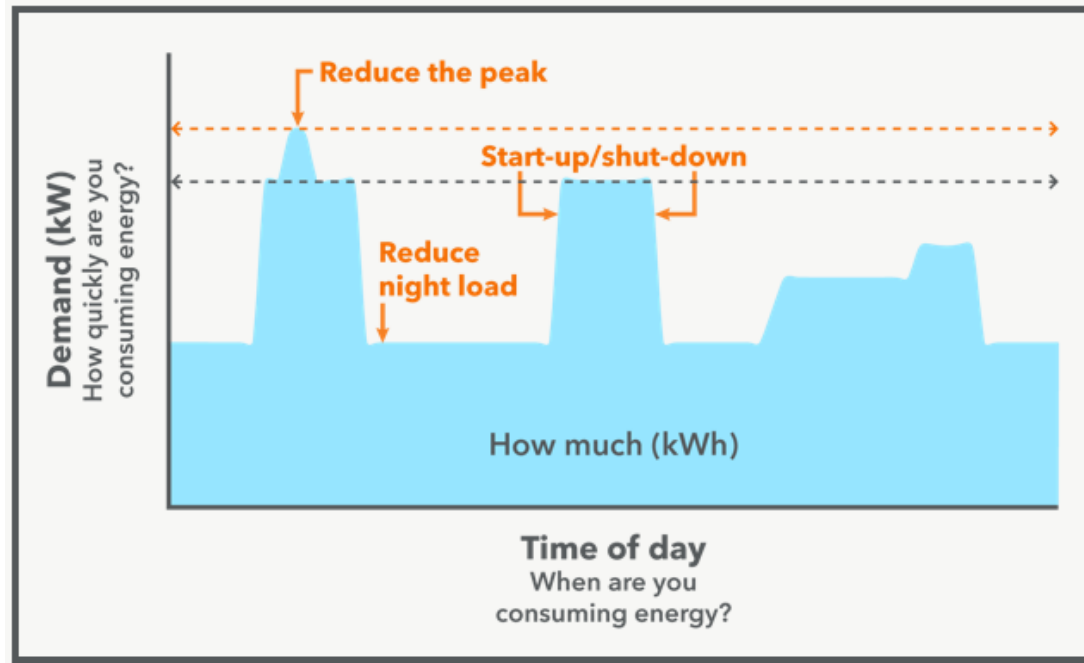
Green Button



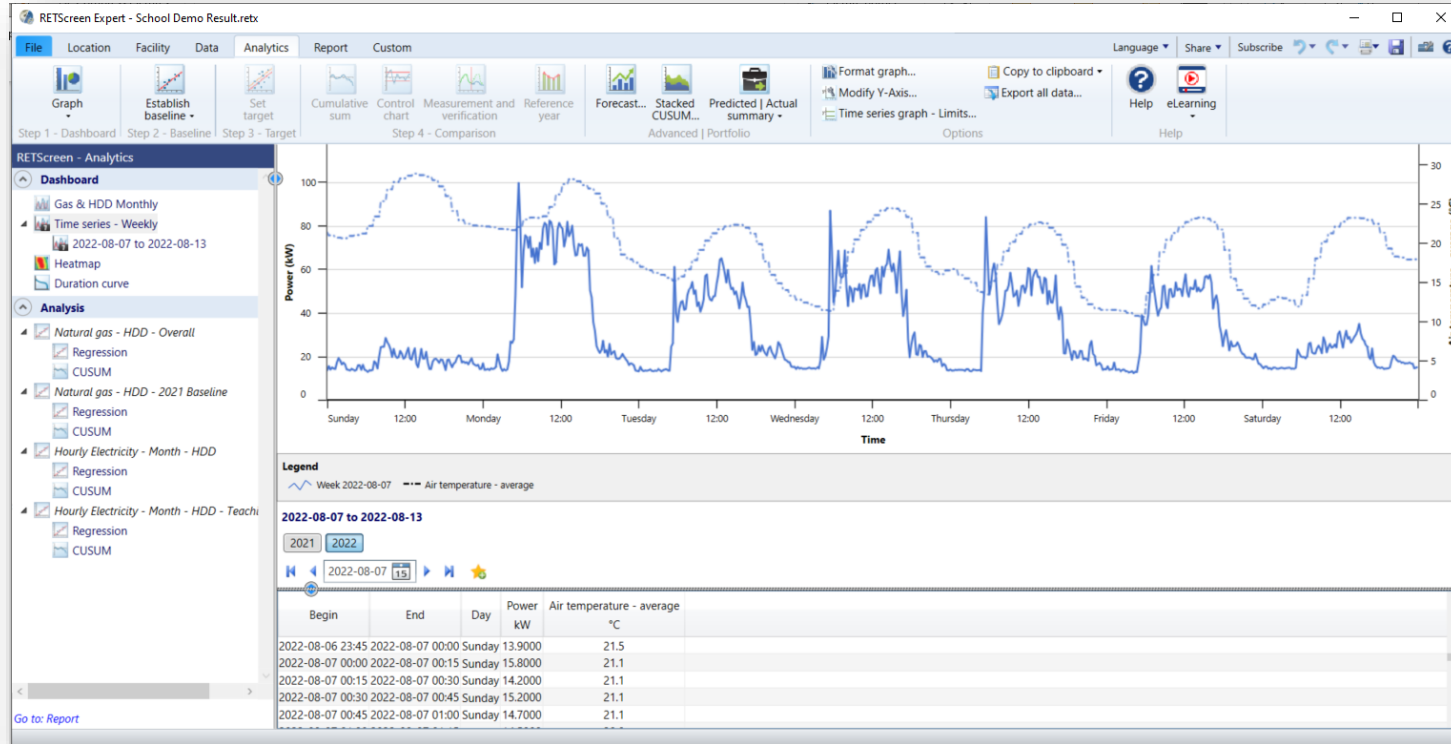
Interval Data Time Series Analysis in RETScreen Expert



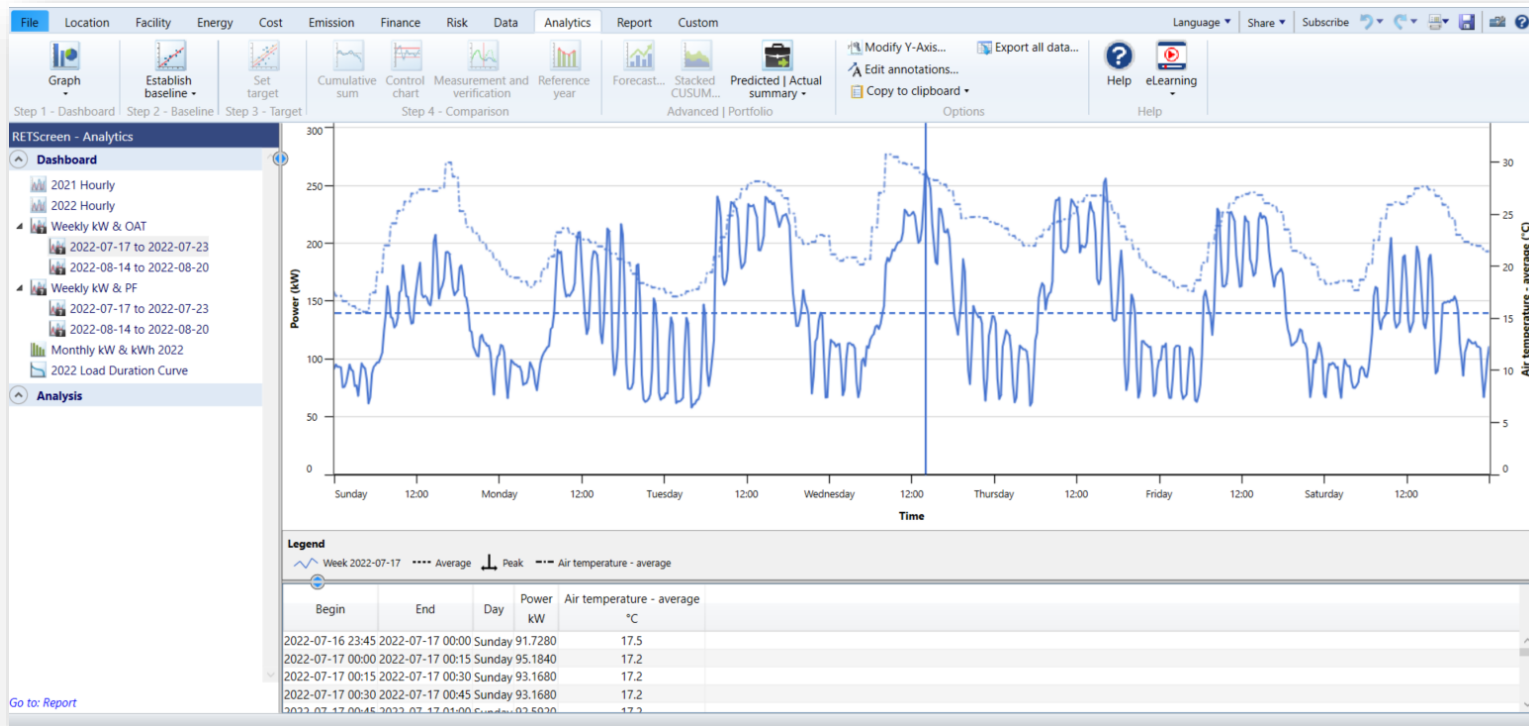
Energy Analysis Basics: What Is A Demand Profile?



Case: School Start-up Sequence -> Operating Procedures



Case: Abnormal Cycling of Chiller = Controls Issue





Municipalities Workshop Series for Ontario Municipalities

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Existing Building Commissioning (EBCx) In A Nutshell

*Oct 10th at 10am EDT,
by Save on Energy.*

Participants will learn from experienced EBCx providers about the EBCx process, typical costs and benefits, and common types of savings opportunities.



Workshop: Energy Star Portfolio

ENERGY STAR Portfolio Manager, *by CIET and NRCan:*

- 201: Creating & Updating Your Profile, *Oct 13th at 11am EDT*
- 301: Advanced Features, *Oct 20th at 11am EDT*
- Participants will learn how to use and get the most out of the ENERGY STAR Portfolio Manager software for energy reporting and benchmarking

Workshop: Energy Management Best Practices for Public Sector Organizations

*Oct 27th at 10am EDT,
by Save on Energy.*

- Participants will learn how to integrate energy management into public sector organizations.
- The focus will be on the organization and behavioural aspect



Workshop: Retrofits for Public Sector Organizations

- Participants will learn how plan and strategize for retrofits
- We will explore simple approaches and tools that will help you develop your own easy-to-execute plan.
- Provincial retrofit programs and how to take advantage of them will also be discussed.



Workshop: Introduction to RETScreen

- Participants will learn the basics of the RETScreen software for energy analysis.
- Key features such as the Virtual Energy Analyzer, Feasibility & Performance Analysis will be explored.
- The Portfolio Tools in a municipal context will be demonstrated.



Workshop: Financial Analysis for Energy Projects

- Participants will learn how Financial Analysis and Life Cycle Costing is used to evaluate return on investment for energy projects.
- Participants will receive spreadsheet-based tools for project financial analysis and Life Cycle Costing



Workshop: Operating for Energy Efficiency: Water/wastewater treatment plant operators

- Participants will learn how to identify & quantify energy savings opportunities at your water/wastewater treatment plants.
- This workshop will also explore RETScreen Expert's Virtual Energy Analyzer model for water/wastewater treatment plants.



Workshop: Measurement & Verification (M&V)

- Participants will learn about the concept of Project Measurement and Verification, and how to implement it.
- We will overview the Efficiency Valuation Organization's International Performance Measurement & Verification protocol.
- The use of RETScreen Expert for M&V will be demonstrated.





Questions and Answers

Thank you

SaveOnEnergy.ca

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[linkedin.com/showcase/
SaveOnEnergy-Ontario](https://linkedin.com/showcase/SaveOnEnergy-Ontario)