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Energy fundamentals: Understanding your energy bill

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Knowenergy

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SAVE ON ENERGY POWER WHAT'S NEXT

By the end of this workshop, you will be able to:

- Identify fixed charges on your bill
- Understand the difference between kW and kWh billing
- Identify tools to compare different billing types
- Learn energy-efficiency and conservation tips by understanding how you are billed
- Access free tools and resources to support energy literacy

Welcoming our guest speaker

Adam Dixon, *Knowenergy*

Knowing energy since 2013, Adam brings a new and fresh approach to energy management and specializes in energy performance analysis and residential sector services. He also works behind the scenes as an energy analyst in support of energy audits while also providing support to the development of TdS Dixon's well-known energy training services.

Why understand energy rates?

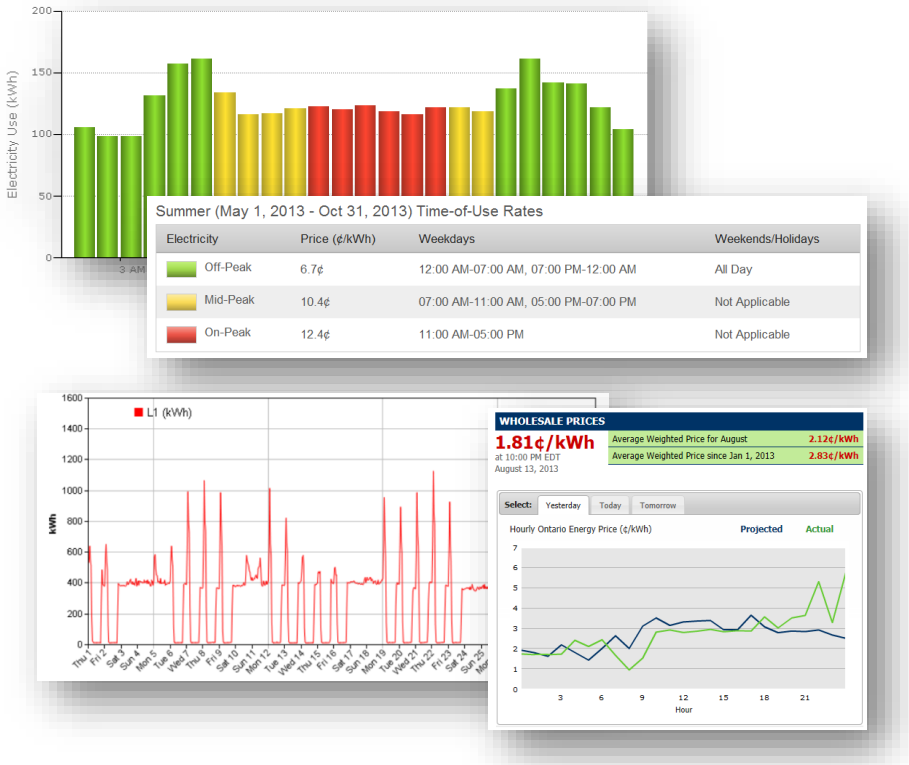
Helps you evaluate projects with the right prices.

Helps you evaluate alternative rate structures.

Serves to compare various energy sources in equivalent units.

Helps present cost-saving opportunities.

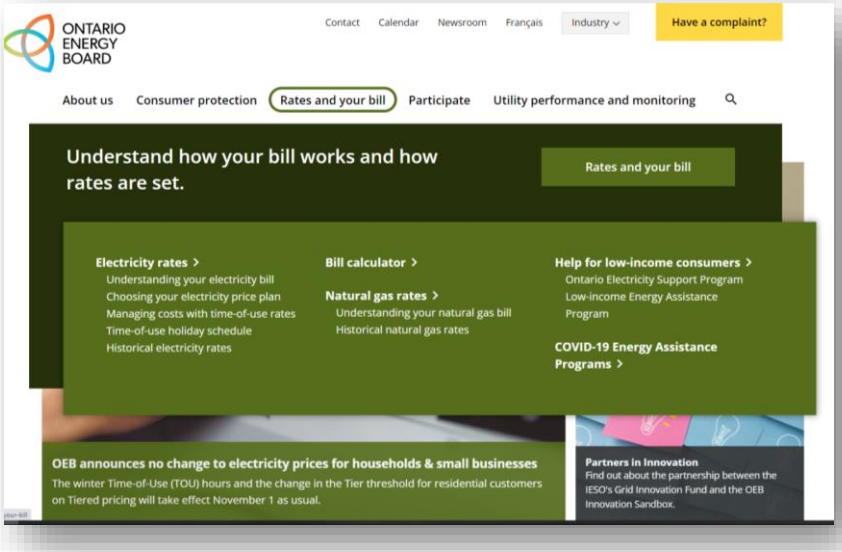
Two ways to pay for electricity



- **Residential/small commercial**
  - **How much – consumption**
    - **Per kWh**
    - **Time of use**
- **Commercial/institutional (Class B ~50 kW demand)**
  - **How fast – demand**
    - **Per kW**
  - **How much – consumption**
    - **Per kWh**
    - **Time of use**

Residential rate structures

1. Time-of-use – per kWh
2. Tiered rate – per kWh
3. Ultra low price – per kWh
4. Contract – per kWh



https://www.oeb.ca/

Time-of-use and tiered pricing

Time-of-use:

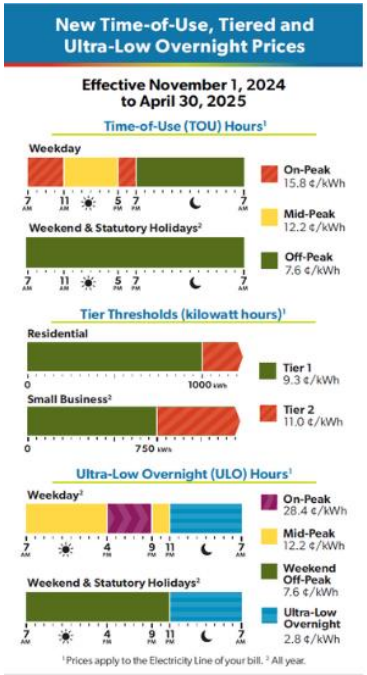
- Peak periods change from summer to winter (on-peak and mid-peak rates shift)

Tiered:

- Different tier thresholds for residential and small business customers

Ultra-low overnight:

- No seasonal variation in peak periods



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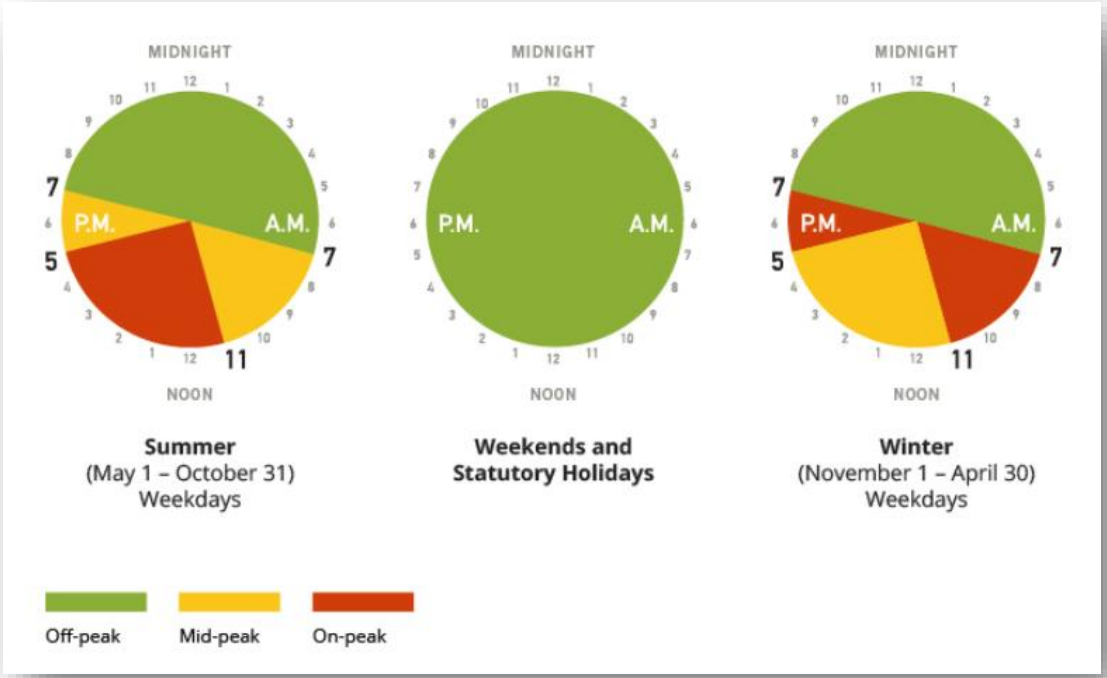
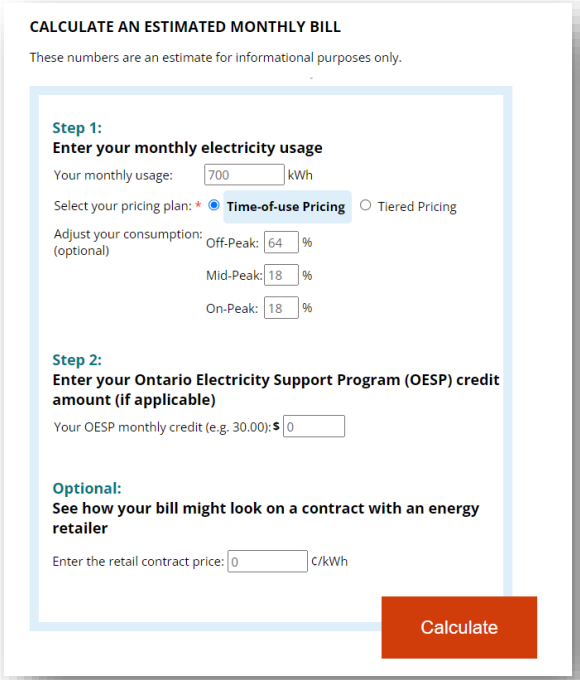
Seasonal variations



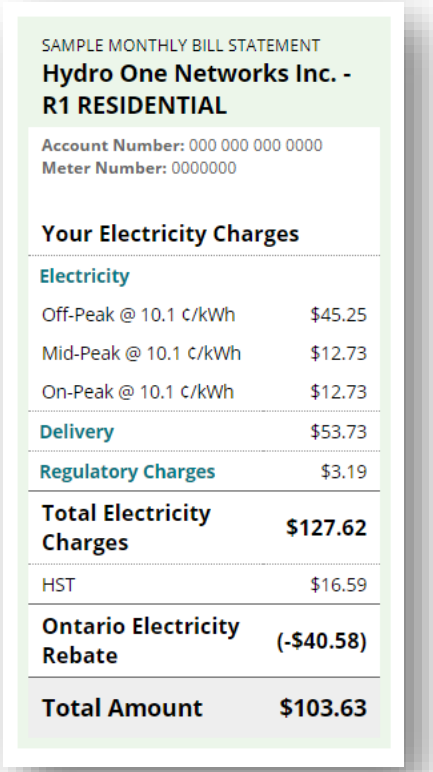
Contract pricing

- To assess the cost impact of switching to an energy contract, visit the Ontario Energy Board (OEB) calculator tool: https://www.oeb.ca/consumer-protection/energy-contracts/bill-calculator



How we pay for electricity: Ontario homes

- **Service charge**
- **Delivery – $/kWh (by local distribution company)**
- **Electricity**
  - **Time-of-use and tiered or ultra-low price of $/kWh**
    - **Including global adjustment**
  - **Contract price of $/kWh**
    - **Plus global adjustment – $/kWh for month**



SAMPLE MONTHLY BILL STATEMENT

Hydro One Networks Inc. - R1 RESIDENTIAL

Account Number: 000 000 000 0000
Meter Number: 0000000

Your Electricity Charges

Electricity	
Off-Peak @ 10.1 ¢/kWh	$45.25
Mid-Peak @ 10.1 ¢/kWh	$12.73
On-Peak @ 10.1 ¢/kWh	$12.73
Delivery	$53.73
Regulatory Charges	$3.19
Total Electricity Charges	**$127.62**
HST	$16.59
Ontario Electricity Rebate	**(-$40.58)**
Total Amount	**$103.63**

Electricity bills

Typical ranges across Ontario

- Customer charges — $40 and up/month
- Distribution charges * — $1.00 to $8.00/kW
- Transmission charges *
  - Network — $1.50 to 2.50/kW
  - Connection — $1.50 to 2.00/kW

/kW

- Energy charge — variable kWh
- Regulatory charge — $0.40/kWh
- Global adjustment
  - Class B: $0.02 to + $0.12/kWh
  - Class A: based on contribution to Ontario peaks

/kWh

Activity

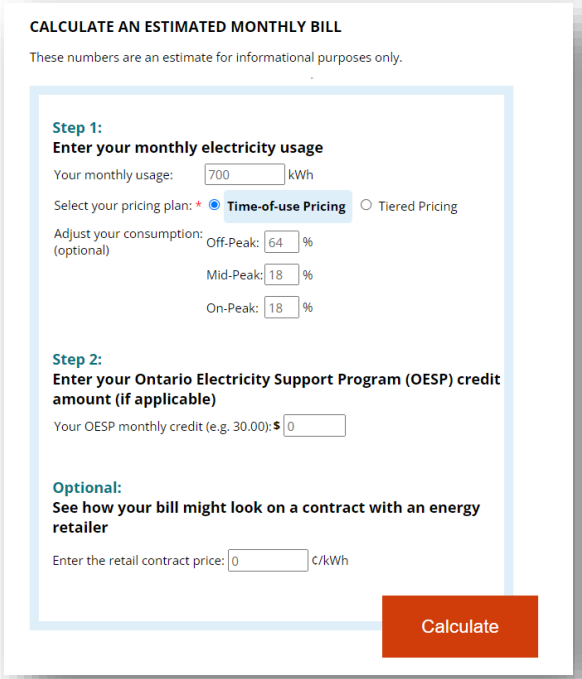
Go to OEB electricity bill calculator

https://www.oeb.ca/rates-and-your-bill/bill-calculator

Compare a bill for 600 kWh consumption using:

- The default time of use price
- The tiered price
- Or the ultralow overnight price

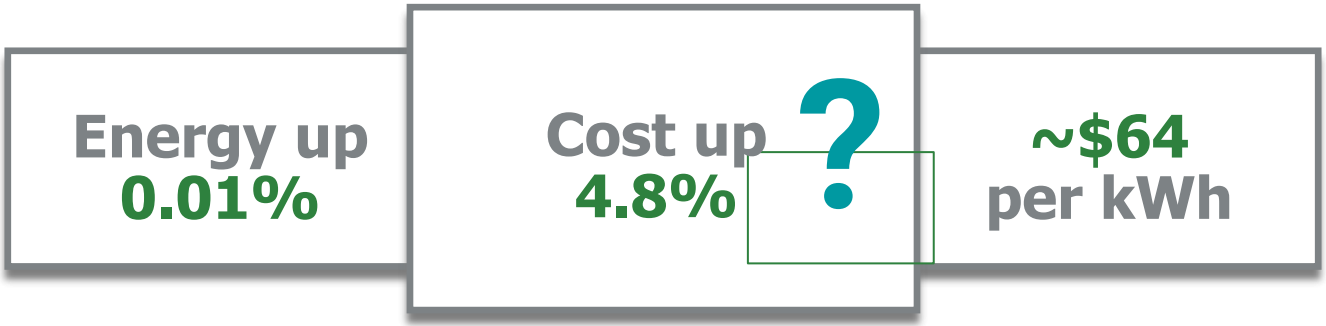
In what situation might these rates be advantageous or not?



The cost (and price) of electricity

Example – electricity

January ’05	**250,000 kWh**	**$19,670**
February ’05	**250,015 kWh**	**$20,632**



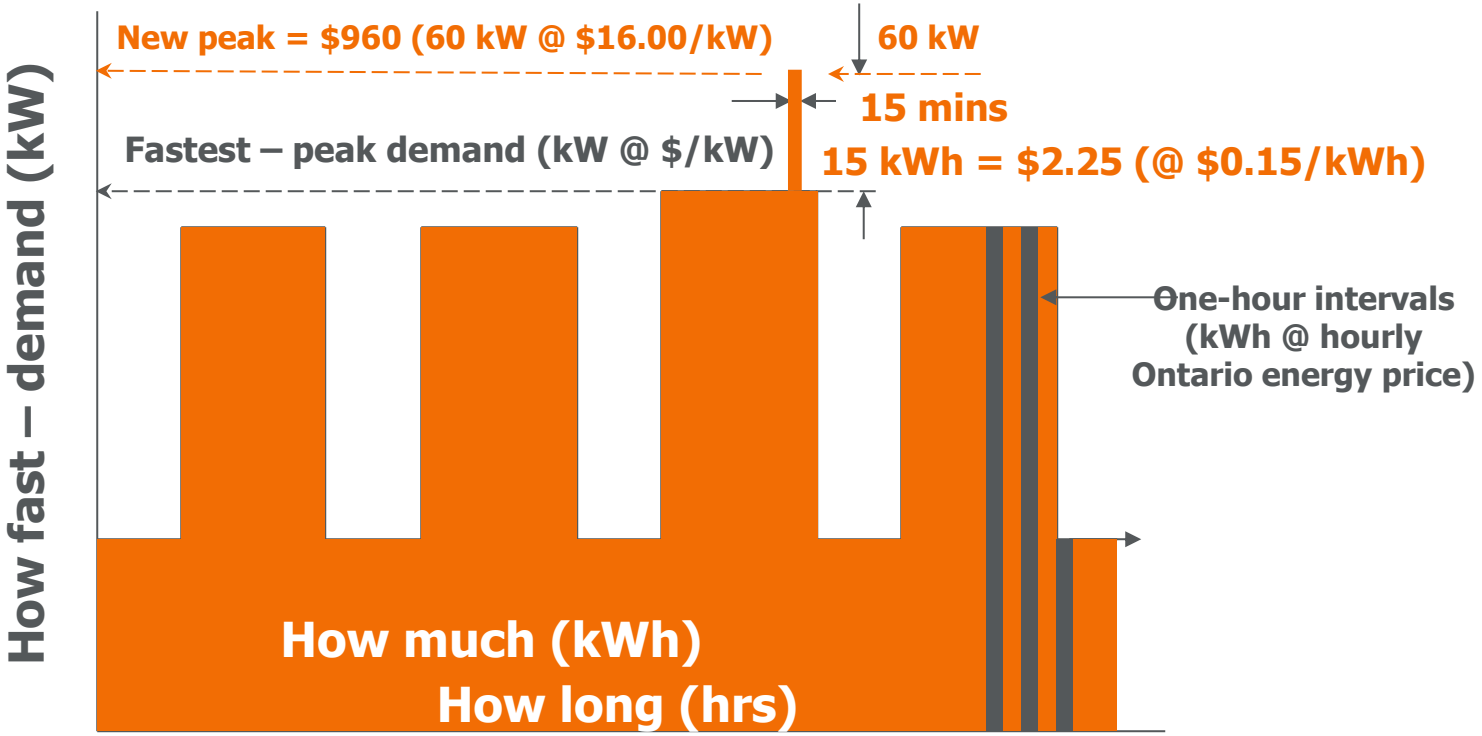
Upon investigation…

- **+15 kWh @ $0.15/kWh**
- **+60 kW @ $16.00/kW**

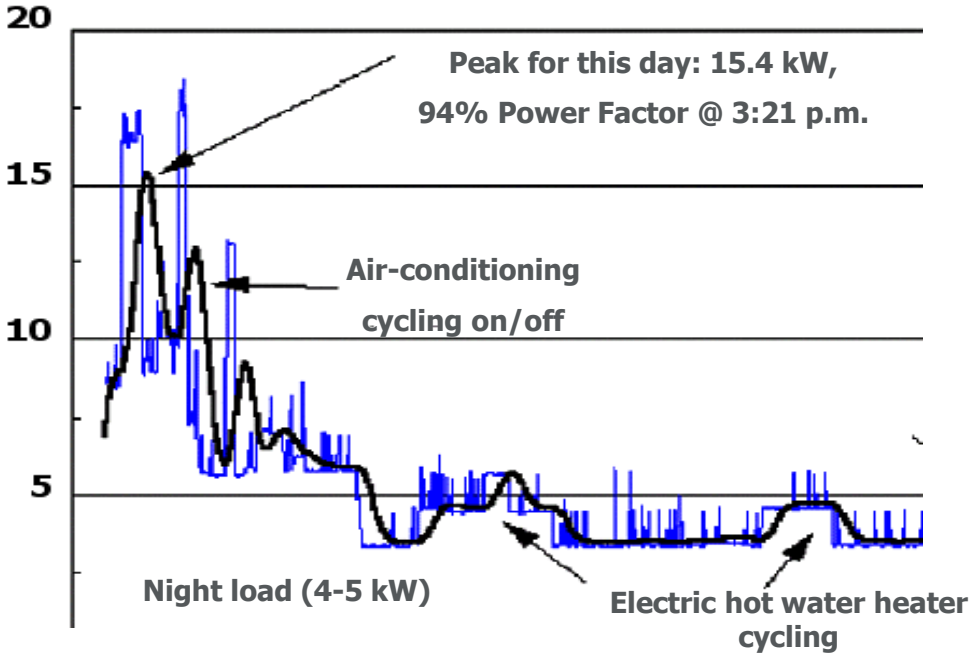
60-kW heater for 15 mins

Note: Rates are example only, check your local utility rates

A simple demand profile



What the demand meter sees!



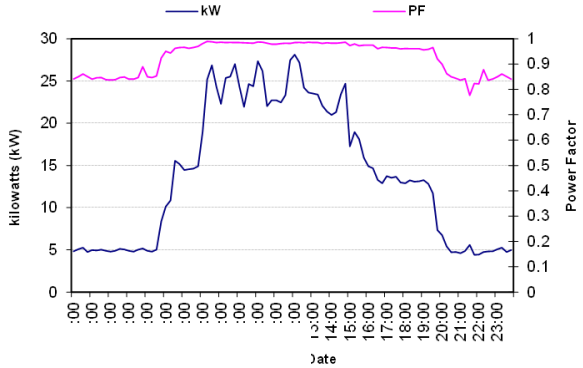
Some demand myths

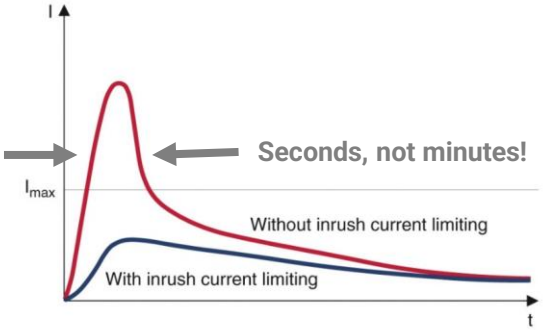
Start-up of facility sets the peak demand:

- Often, peaks occur mid day, end of shift or not significantly at all
- **Let the profile tell you**

Soft start saves demand:

- Soft start suppress in-rush current lasting a few seconds, the demand meter uses an average over 15 minutes





Global adjustment for Class A – stay tuned

Based on the contributions to five top Ontario peaks – demand not energy related

Your peak demand factor (PDF) x Ontario system-wide global adjustments ($)

- Example:
  - System-wide GA (Global Adjustment) is $1,120.1 million
  - PDF is 0.00017378
  - Customer global adjustment is
    = $1,120,100,000 X 0.00017378 = $194,654.84

?!

Save money by reducing your facility contribution to Ontario system peaks

- Adding 1 kW to one peak could cost upward of $100!
  - $500 + for all five peaks

Cost and energy-saving strategies from understanding your bill

Assess and adjust your baseload/phantom loads/24-hour loads/load factor

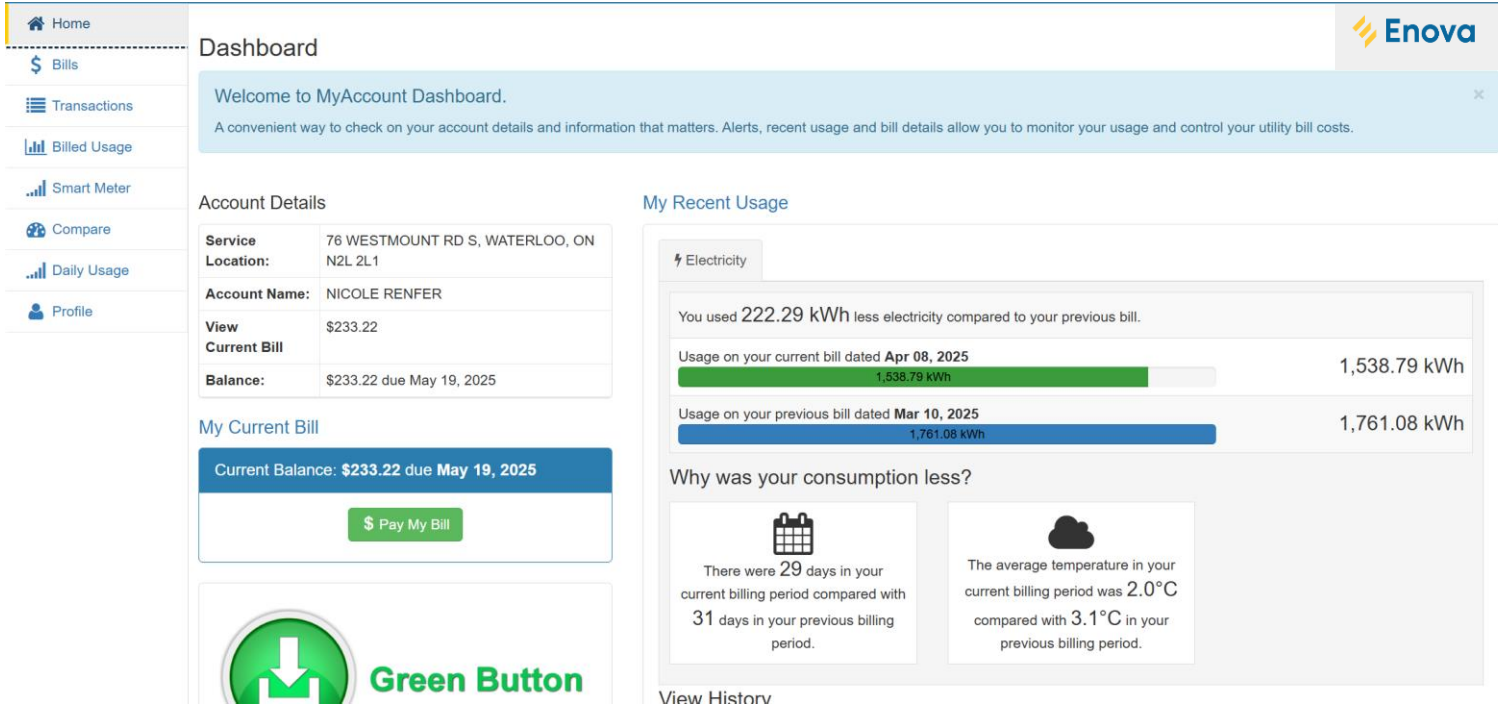
This is a no-cost fool-proof method to save no matter what type of rate structure you subscribe to:

- Time is the killer

Utilize ultra-low rate + energy storage

1. Charge batteries overnight
2. Operate home/building on battery during the day or during peak periods
3. Very cost-efficient electrification opportunity

Tour an online utility portal



Stay connected with tools and resources

- Virtual one-on-one coaching: Post-webinar support intake form for tailored support for organizations to manage energy resources effectively
- Monthly bulletin: Sign up to receive monthly training updates on all Save on Energy training and support for new tools and resources
- Live training calendar: Visit this page to easily register for upcoming events and workshops
- Training and support webpage: Visit this page to access all training and support materials

Post-webinar support

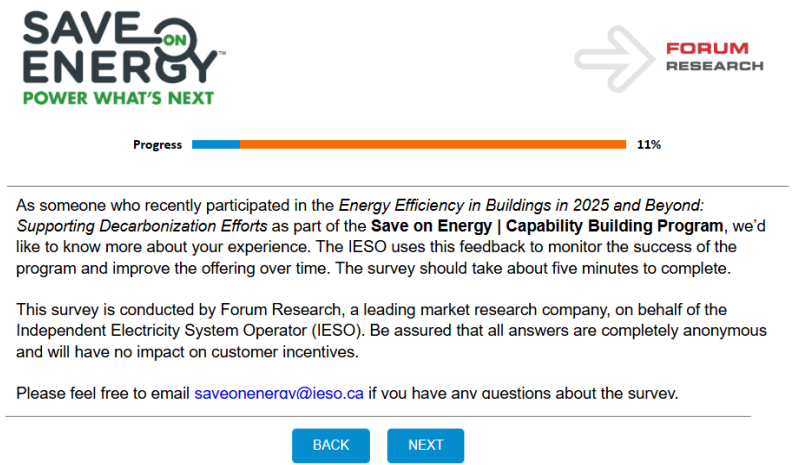
One-on-one coaching: Tailored support for managing energy resources effectively

Post-webinar support intake form

Coaching sessions conducted virtually: Phone, video calls, and email

Designed for organizations, new or old, seeking guidance

Upcoming survey: we want your feedback!



- Check your email! A survey is coming your way soon
- Why? Help us improve our training programs
- Who? Conducted by Forum Research on behalf of the IESO
- Time? Takes only five minutes to complete
- Confidentiality: Your responses are anonymous and will not impact participation or incentives

The survey will be sent from:
surveyinfo@forumresearch.com

Thank you!

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