



POWERING THE
FUTURE *TOGETHER*

The Best Place for Renewables?

...On the Distribution Grid with Local Ownership!

CACOR

Oct 7, 2025

Agenda

1. Electrification and Climate Change
2. Who is OREC?
3. Ontario Electricity system..... Centralized like all the others.
4. OREC as an investment opportunity,... And a learning opportunity.
5. Q & A

Electrification is the one positive area of Climate Change Action

- Electrification (of transport, heating & cooling, etc.) is cheaper in 'joules' and '\$' than the alternative
- Generation options with Free fuel wins! Especially if they can be mass produced like Lego!!!
- Innovation around the **things & services** people want ('Hot Showers' and 'Cold Beers') drives efficiencies, the general public is not interested in kWh!!!
 - Rest of the world has higher energy costs and fewer energy options! **This drives innovation**
 - Ontario subsidizes wasteful consumption **Ontario Electricity Rebate** = 13.1% of residential invoice = **\$7B/yr.**
- Future requires **more electricity** but also.... **Flexible Demand & Consumer Agency**

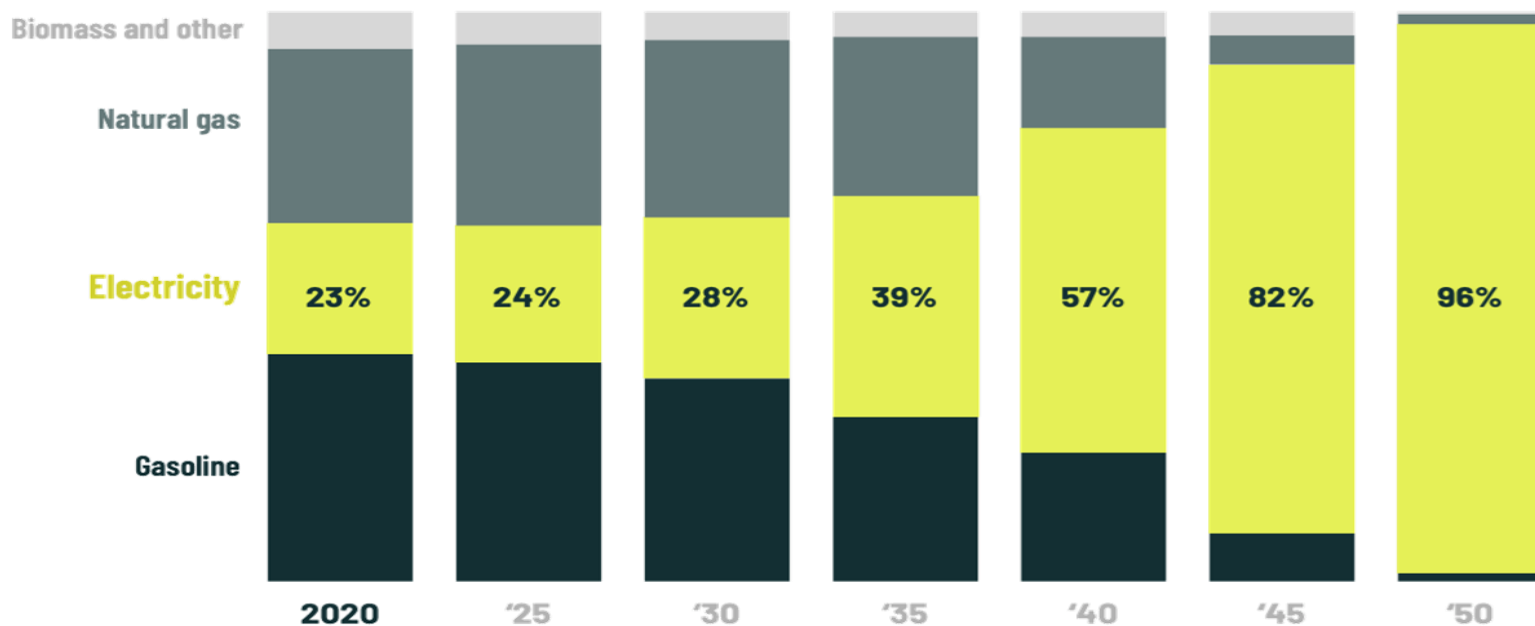
Three key Drivers of OREC behaviour...

- A wind Turbine (or any other generation asset) owned by your family and your neighbours, looks a lot better, than if it is owned by a distant Pension Fund, Bank or Big company.
- Our goal is to ensure more of the electrons, jobs and profits stay local.
- Your electricity bill, is your most direct relationship with Climate Change.

No Path to Net-Zero without massive electrification..

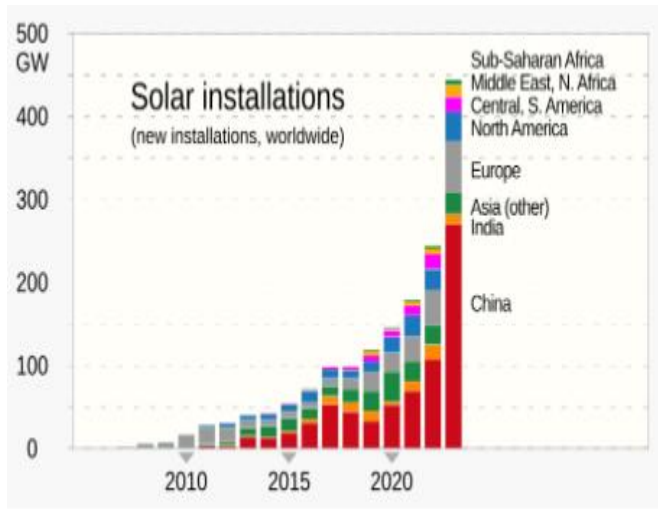
To support net zero, household energy use will shift away from **natural gas** and **gasoline** toward **electricity**

Average household share of energy consumption by type



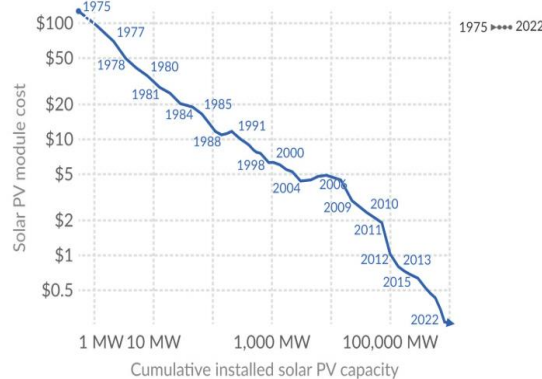
Source. Dion et al. 2021.

Wrights Law: Technology Cost Falls Consistently as Production Volume Grows



Solar panel costs have fallen by around 20% for every doubling of global cumulative capacity

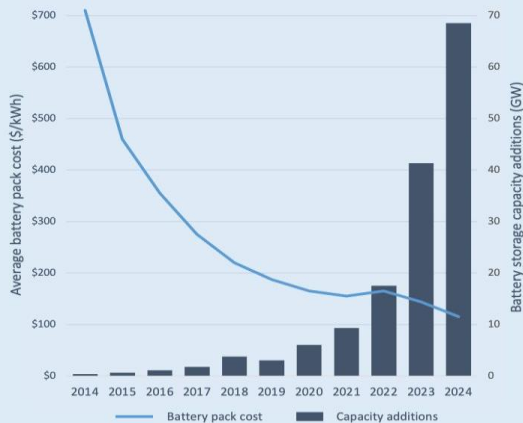
Costs are measured in US dollars per Watt, adjusted for inflation.



Data source: IRENA (2023); Nemet (2009); Farmer and Lafond (2016)
CC BY

As battery prices have fallen, installations have taken off

The world is seeing a surge in battery storage deployments



Source: Ember Global Electricity Review 2025
Prices are volume-weighted, expressed in real terms (2024 prices)

@gavinmooney

Solar photovoltaic costs have fallen by 90% in the last decade, onshore wind by 70%, and batteries by more than 90%.

Who is OREC?

*OREC is a co-operative of individual members who can invest in green energy projects in their own communities – ‘**Keep the electrons, jobs and profits local**’*

- Incorporated in 2010 during the [Feed-In-Tariff](#) (‘FIT’) era
- Member-Owners: 1,100+ across Ontario, most in eastern Ontario
- Finances and develops community-owned renewable energy projects through a co-operative business model (i.e. profits go to our members)
- A for-profit co-operative regulated under Ontario’s *Co-operative Corporations Act*
- A lean staff supported by a skilled and devoted group of volunteers
- Works with renewable energy industry partners and development contractors

Which projects has OREC built and / or operates?

32 Projects producing 8.2 GWh / year (enough to power 867 homes):

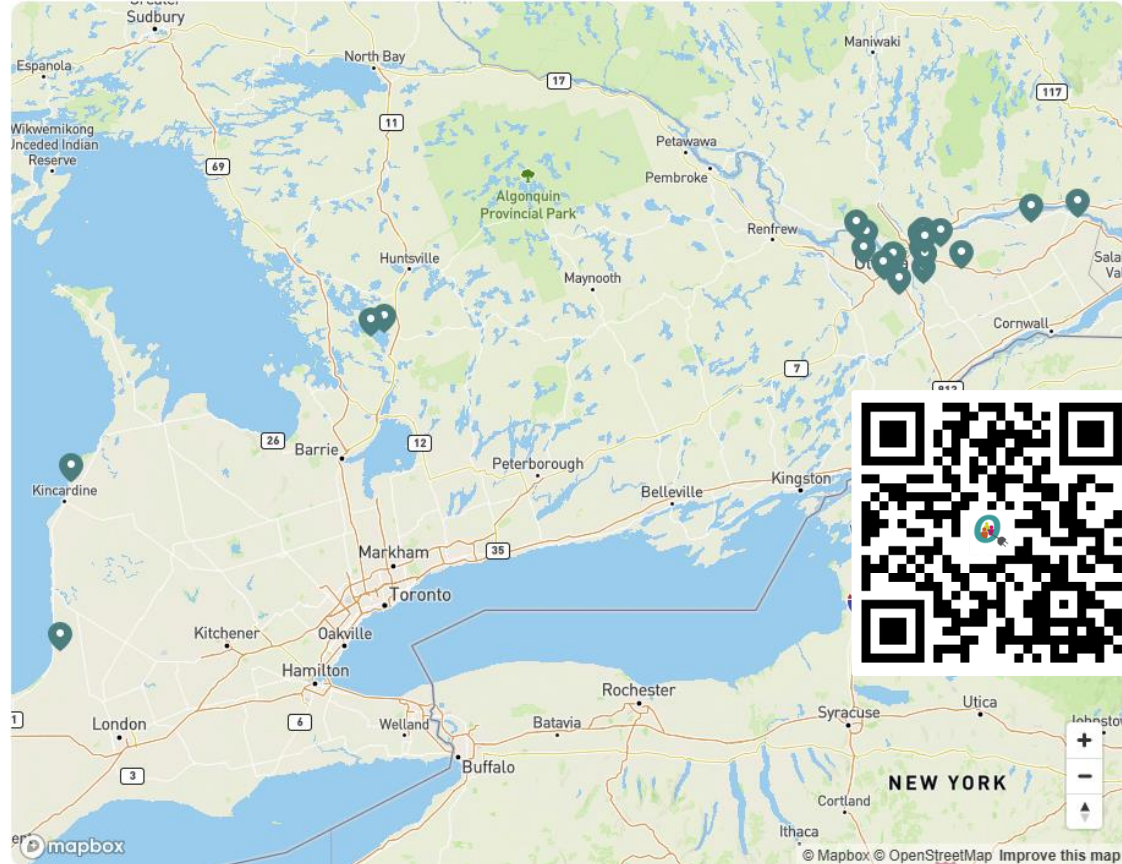
Projects	Capacity
○ 24 Solar (fixed):	3.2 MW DC
○ 2 Solar (tracking):	0.8 MW DC
○ 2 Wind:	2.0 MW DC
○ 5 Energy Retrofit:	N/A

Live production info? See MyOREC

<https://my-orec.orec.ca/dl/projects>

Advocate for Distributed Energy Resources

- Regulation changes to allow & enable DER!



A close-up photograph of several Canadian banknotes fanned out. Visible denominations include a blue \$5 note, a purple \$10 note, and a green \$20 note. The word 'CANADA' is printed vertically on the bottom left of the \$20 note. The notes are slightly overlapping and show some texture and detail.

OREC's Track Record

- \$12+ million raised from OREC members
- \$4 million+ returned to investors
- Additional dividend and interest payments
- Yearly capital raises

OREC's Growth

55% + *per
year*

Since 2013, OREC's
renewable energy production
has grown more than 55%
per year.



2015 | 385 kW
Hovey Industries
Ottawa South



Community Owned Renewable Energy

2016 | 190 kW
Maurice-Lapointe HS
Kanata



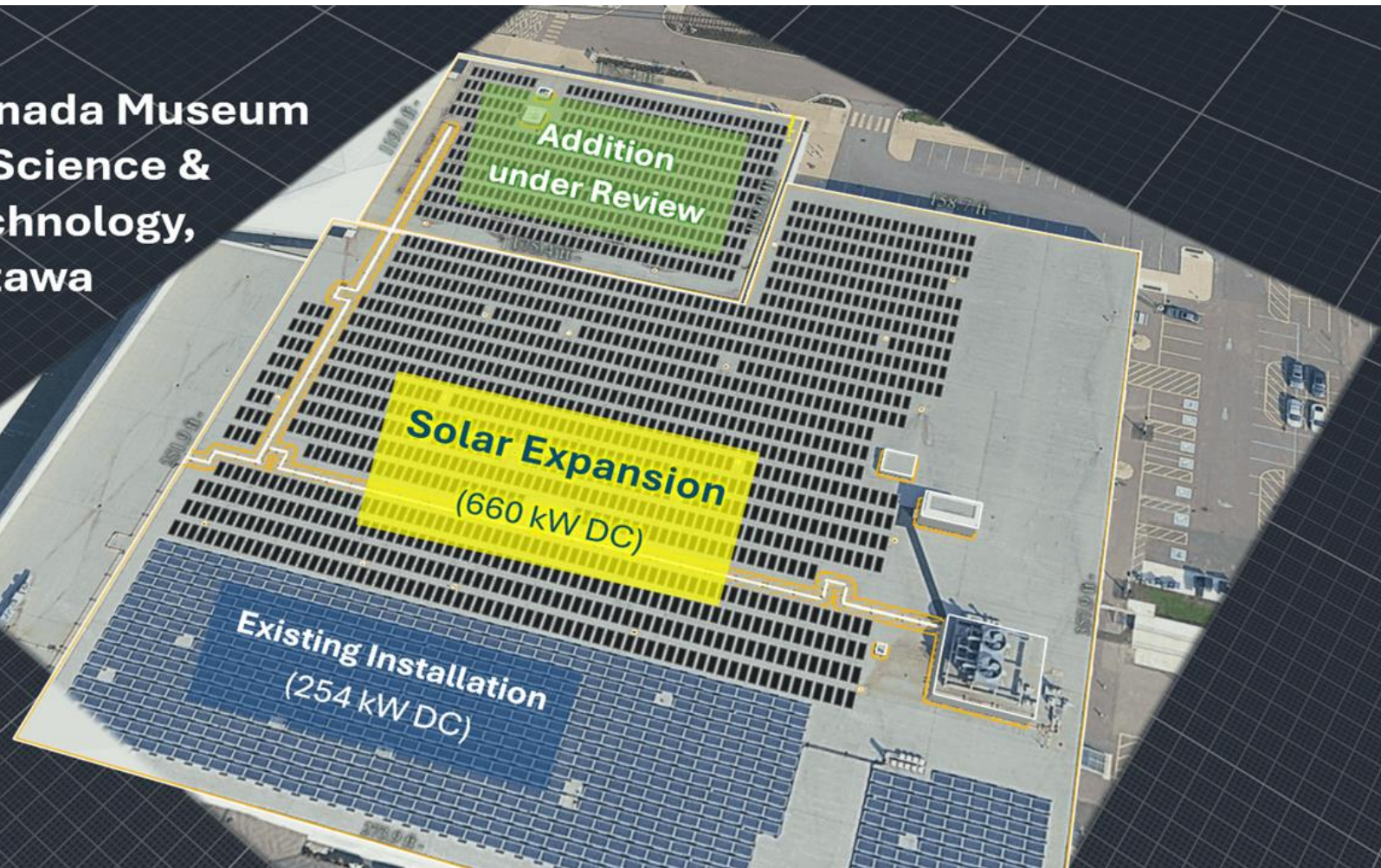
2017 | 500 kW
Alfred Ground Mount
Alfred



2021 | 2,300 kW (50%)
Quixote Wind Turbine
Tiverton



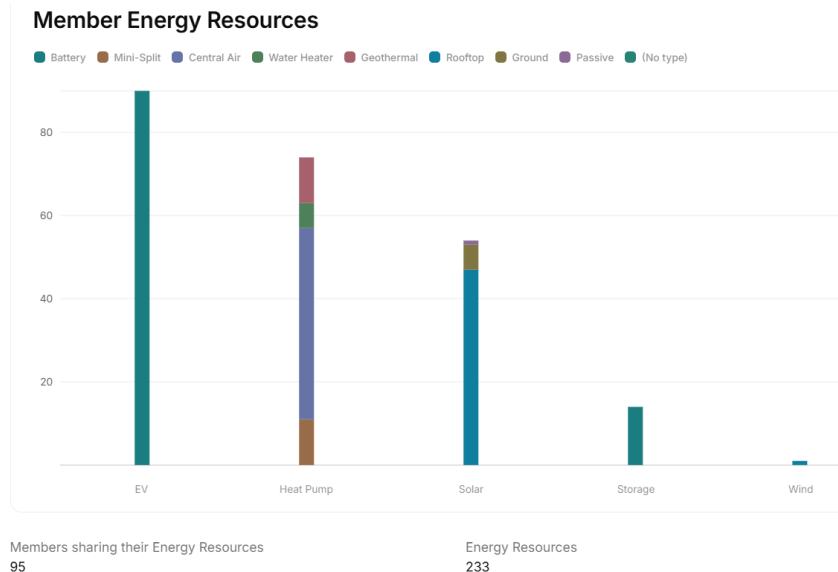
Canada Museum of Science & Technology, Ottawa



OREx Community eXchange = friends with knowledge!

OREx is:

1. A forum for members to share their energy resources and their experiences about installing and using them
 - *Want to start a dialog with someone who can give you an unbiased perspective on the energy resource you're considering?*
2. A database of member energy resources connected to Ontario's electricity grid that could benefit from a future virtual power plant opportunity
 - *Want to continue to earn revenue after your MicroFIT contract expires between 2029-2038?*



Renewable Energy Cooperatives in Canada

(part of a Worldwide network)

In Canada:
**Community
Energy
Cooperative
Canada** ([CECC](#))



- [Xaadáa Gwaay Renewable Energy Cooperative](#), Haida Gwaii
- [Peace Energy Co-operative](#), Dawson Creek BC
- [Bow Valley Green Energy Co-operative](#), Canmore AB
- [Solar Power Investment Co-operative of Edmonton \(SPICE\)](#), Edmonton AB
- [Wascana Solar Co-operative](#), Regina, SK
- [SES Solar Co-operative](#), Saskatoon SK
- [OREC \(Ottawa Renewable Energy Co-operative\)](#), Ottawa ON
- [SolarShare](#), Toronto ON
- [TREC](#), Toronto ON
- [WindShare](#), Toronto ON
- [Guelph Renewable Energy Co-operative \(GRECo\)](#), Guelph ON
- [Beauséjour Renewable Energy Co-operative](#), Sackville NB
- And more.....

Resiliency of Eastern Ontario's electricity supply?

- The majority of Eastern Ontario's electricity comes from nuclear plants to the west of us
- Transmission is dependent on a corridor ~50 KM wide
- Increasing weather disasters and Transmission system 'overload' put centralized power at risk
- The focus on Nuclear and Gas Plants worsens this risk

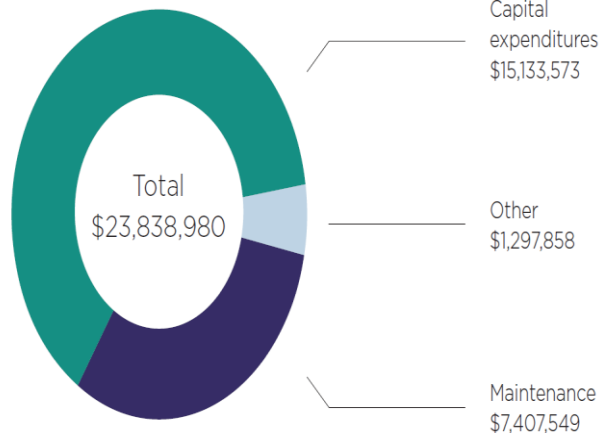


May 21, 2022 Derecho Impact, Speed & Cost (HOL)

Three things travel the 401 Corridor

Vehicles, Electricity and Storms

Total cost of the storm to Hydro Ottawa



Hydro Ottawa 2026-30 Capital Plan



History of Ontario Electricity Demand Forecasts

Forecast Yr	Target Yr	Projected Peak Demand	Requests
1976	1997	57,000 MW	New 24 nuclear & 18 coal generation plants By 2010 additional 76 nukes & 52 coal plants
1989	2014	35,000 MW	New 10 nuclear & several fossil generators
2005	2025	30,000 MW	?
2025	2050	36,740MW winter, 36,240MW summer	5 new nuclear programs at 3 locations Gas plants, TX connected big wind/solar/batteries

What Actually Happened

1979 Porter Commission lead to cancellation of all Ontario Hydro '76 plans

1999 Ontario Hydro bankrupted from \$10B in writedowns; mainly due to Darlington delays (approved in early '70's)

All time peak consumption for Ontario was Aug 1, 2006 at 27,005 MW

Highest consumption in 2025 was 24,862 MW, on June 24

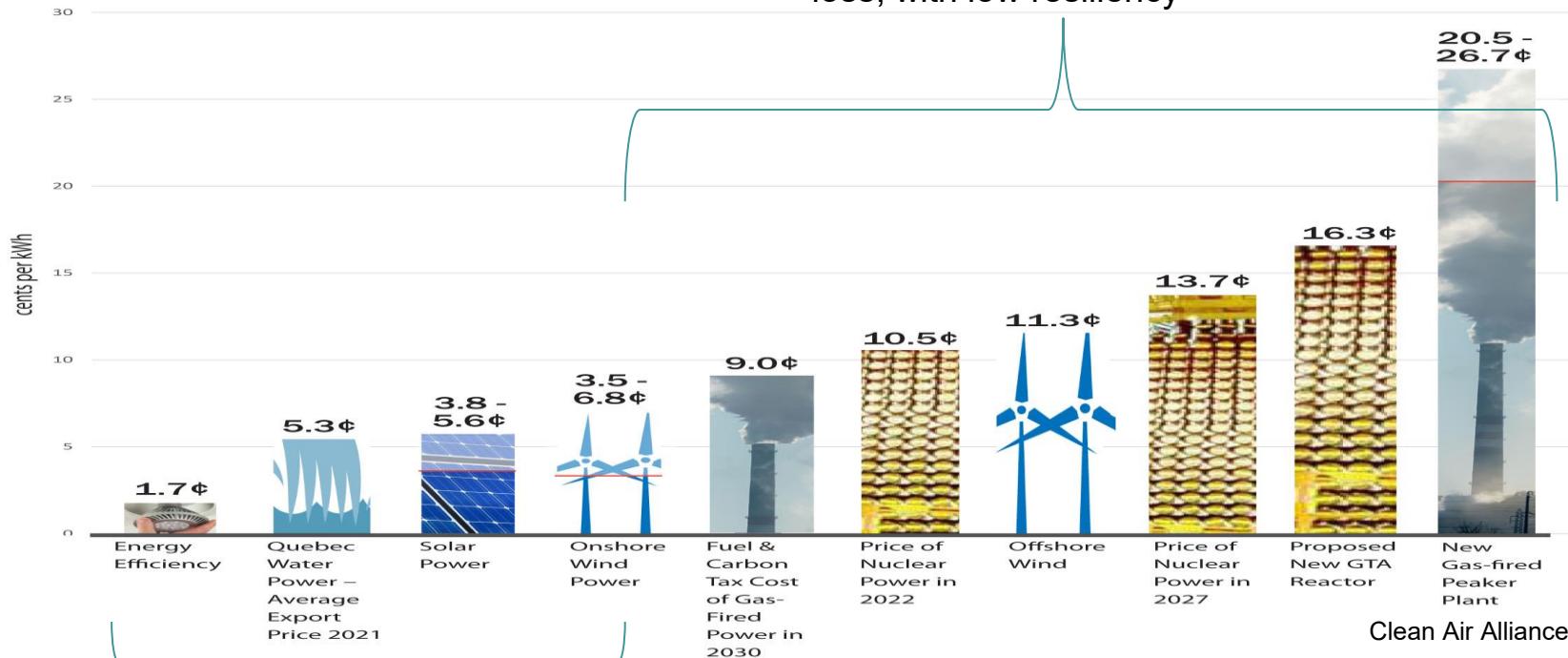
Why the Forecast Misses?

- Planning is focused on load demand for centralized generation
- Planning overestimated every technology change as **pure demand growth** (ie: # of computers) but **underestimates innovation in energy use** (ie: computer 'sleep' feature)
- New technologies and techniques happening faster than the planned electricity growth rate
 - Technologies researched and deployed first in countries with fewer natural resources and higher electricity costs than Ontario.
 - These technologies will roll through Ontario faster than we can deploy nuclear.
- Utility operators earn money by spending money on wires and Transmission stations, they have a monopoly...
- **The Impact to you / us, as rate payers and taxpayers?**
 - **Rising Rates**
 - **Stranded assets**
 - **Centralized generation = less resilient electricity grid.**

Costs of new 'Generation'

Free Fuel cost wins!

Centralized Generation requires long transmission/distribution lines/cost/line loss, with low resiliency



Distributed Energy Resources (DER) include, biomass/biogas, run-of-river hydro, roof top solar, Localized storage/batteries, demand response controls '2-way EV charging, etc....
High Resilience

Hydro Ottawa Electricity bill components

A) Electricity Commodity bill options:

- 1 - Tiered Pricing, or
- 2 - Time of Use Pricing (TOU). or
- 3 - Ultra Low Overnight TOU pricing

B) Deliver Charges:

- 1 - Delivery (Distribution)
HOL = \$34.51/m, 23.1% of average bill
(meter reading, billing, service, infrastructure maintenance)
(approved by OEB)
- 2 - Transmission Charge
Vary based on usage, collected by HOL, for provincial grid
- 3 - Line loss adjustment
Dependant on weather, distance travelled

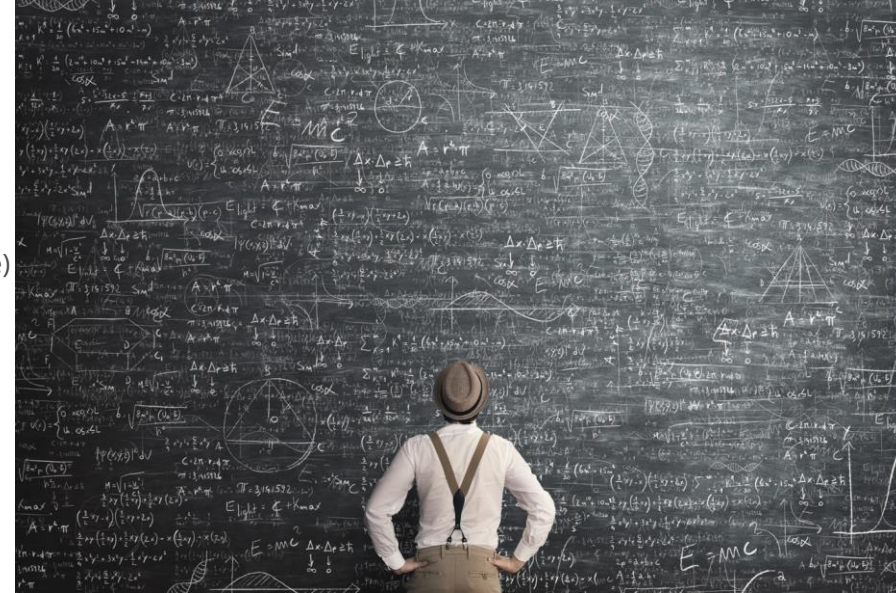
C) Regulatory Charges

- 1) Wholesale Market Service Rate
- 2) Standard Supply Service Admin Charge

D) HST

E) Ontario Electricity Rebate (13.1% of the total pre HST)

F) Global Adjustment (Commercial customers)



Shouldn't we build generation closer to where we Live, Work and Play?

- People live, work & play on the Distribution System (DX)
 - (Operated by Local Distribution Companies Hydro One Dx / Hydro Ottawa / Toronto Hydro / etc.)
- Untapped potential to utilize home & Community assets; **untapped CAPITAL in every community**
 - EV's = batteries that can flow in two directions
 - Residential and community scale solar,
 - Home, business solar, arena's, disaster recovery sites.
 - Battery systems front and behind the meter
 - Demand management assets , heat pumps, water heaters
 - Insulation / conservation
- Electricity world is moving to more 'consumer agency'
 - 'Prosumers' and 'demand management'
 - Distributed Energy Resources (DER) & 'non-wired solutions
- BUT....More choice means more confusion and opportunity for polarization & misinformation.
- Consumers need friends with knowledge!
 - OREC created..... OREx Community eXchange

Ownership Changes Everything....

Can turn NIMBY into Yes in My Back Yard (YIMBY)

11:26 PM Sun Dec 9

renewable energy jokes

12%



Kitchen Decor

Non Renewable Energy Jokes

Ownership Changes Everything....

Can turn NIMBY into Yes in My Back Yard (YIMBY)

- People want Agency! And their money to stay local!
- We need Resiliency
- Distributed renewables are the quickest to deploy, reduces transmission costs, adds resilience.
- Keep the electrons, jobs and profits local
 - Distributed Energy Resources (DER), implemented as Non-Wires Solutions (NWS) financed by citizens, companies and communities can reduce capital needs of the grid.
- And we absolutely need a strong, steady socialized Common Grid to bind together

Ontario's Default approach, with Renewables

IESO Default : Yearly waves of Big multi-MW, Transmission connected procurements

- 2025 Long-Term (LT) Procurement of BIG Centralized Gas, Wind, Solar, BESS
- 2026 Medium Term (MT) Procurements of the same



This will cause Local Opposition!!!

Change Coming...

Gov't Realization that the 'Need' is on the Distribution Grid

IESO Local Generation Program (LGP)

- 2026 start recontacting of expiring FIT contracts (7,000+)
- 2027 start of contracting for new 'Distribution' DX connected generation
 - Solar rooftop (BUT.....>1MW minimum????)
 - Competitive bidding (BUT... intentionally complicated for small suppliers)

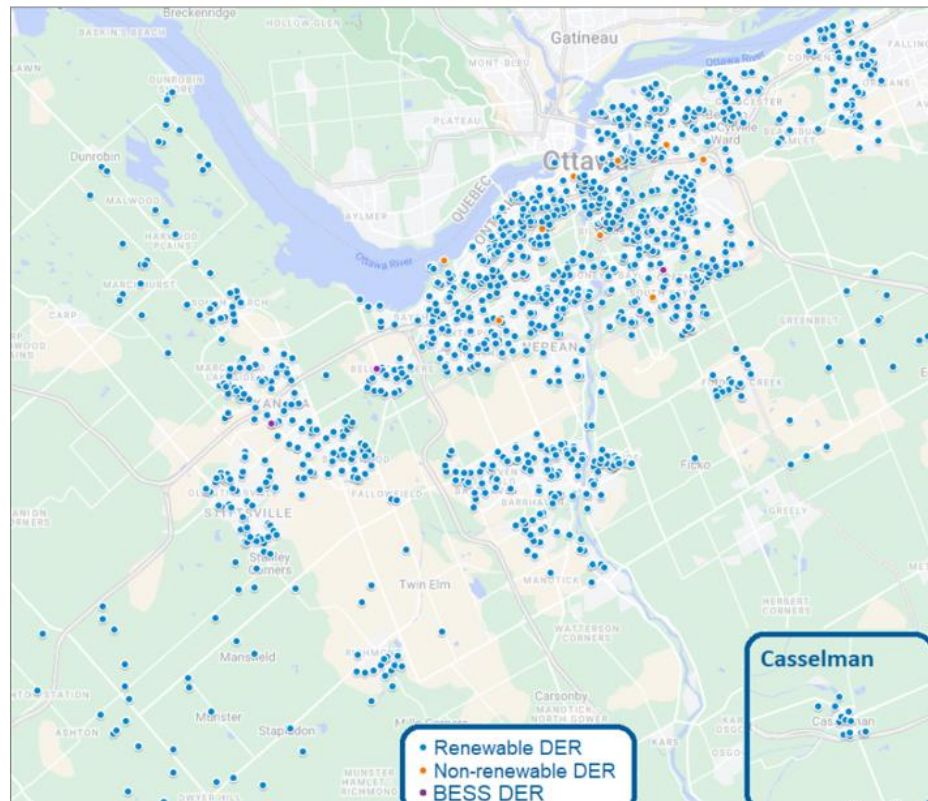
OEB call for innovative Capital Plan and Rate applications

- Non Wire Solutions (NWS) and Distributed Energy Resources (DER's)
 - LDC can build its own NWS or contract with 3rd Party if they can do cheaper
 - LDC can earn profit on 3rd party investment from the savings
- For the first time, LDC's can earn income by NOT spending new capital... rates don't always have to rise!

'Non-Wires Solutions' and DER's we Should be doing

- Net Metering for 'sale' rather than 'credits'
- Net metering on single property with multiple meters
- Community Solar/ Wind/ BESS project
- Community Battery Energy Storage System (BESS) project
- Disaster Recover sites with Generation / BESS and income stream till the Crisis
- Virtual Power Plants (generation, BESS, demand mgt)

Figure 110 - Map of DER Projects in Hydro Ottawa Service Area



OREC as Investment Opportunity



How investing in OREC works



1. OREC **develops** or purchases renewable energy projects in partnership with schools, institutions, municipalities, and businesses.

2. Individuals join OREC allowing them to **invest**. This capital is used for new project development or acquisition of existing projects.



3. Electricity **produced** by these projects is then **sold to the grid or directly to the project host**, moving towards a 100% renewable energy landscape in the area.

4. **Profits are returned** to investors in the form of capital repayment, as well as interest payments or dividends.



Invest with Impact

- **3x GHG emission reduction**
- **Invest in Energy Democracy**
- **Preference Shares (Class E)**
 - 10-year term / RRSP & TFSA eligible
 - Annual dividend – declared by OREC Board
 - Dividends: 4% (2023) 3.85% ('21 & '22)
 - 5% annual capital repayment / 55% at term
- **Minimum investment**
 - \$500 for non-registered investment
 - \$5,000 for RRSP or TFSA
 - \$500 for existing investors

Photo: Zurich Wind Project

Invest with Impact

- **3x GHG emission reduction**
- **Invest in Energy Democracy**
- **Preference Shares (Class A)**
 - 20-year term / RRSP & TFSA eligible
 - Annual dividend – declared by OREC Board
 - Dividends: 4% (2023) 3.85% ('21 & '22)
 - annual capital repayment starts in Year 6
- **Minimum investment**
 - \$500 for non-registered investment
 - \$5,000 for RRSP or TFSA
 - \$500 for existing investors

Photo: Zurich Wind Project

Invest with Impact

OREC POWERING THE
FUTURE TOGETHER

- **3x GHG emission reduction**
- **Invest in Energy Democracy**
- **Member Investment Notes**
 - 5-year term
 - Fixed 4% interest, paid annually
 - Capital repayment at term end
 - Not TFSA or RRSP-eligible
- **Minimum investment**
 - \$5,000

SOLD OUT

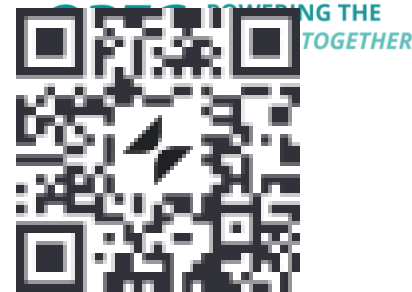
Photo: Zurich Wind Project

RRSP & TFSA Options

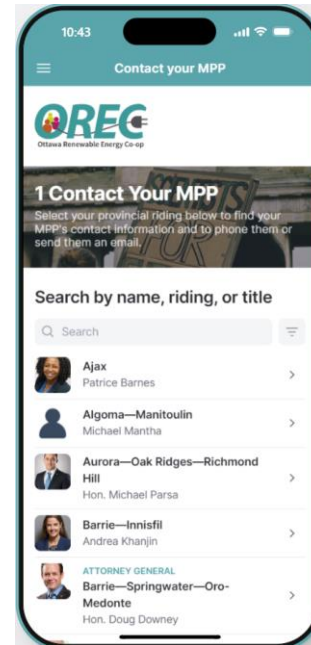
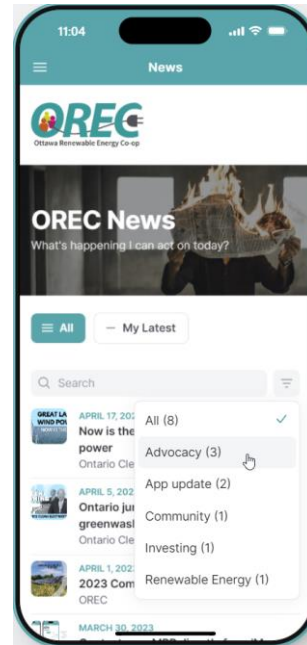
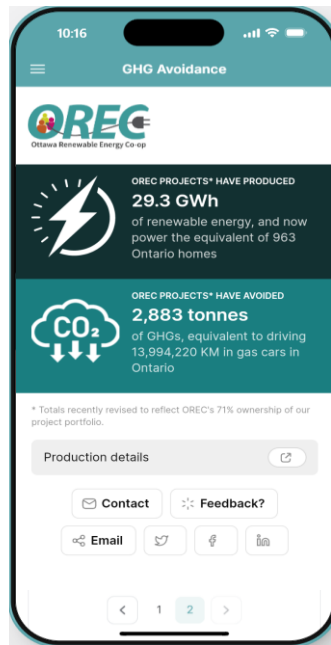
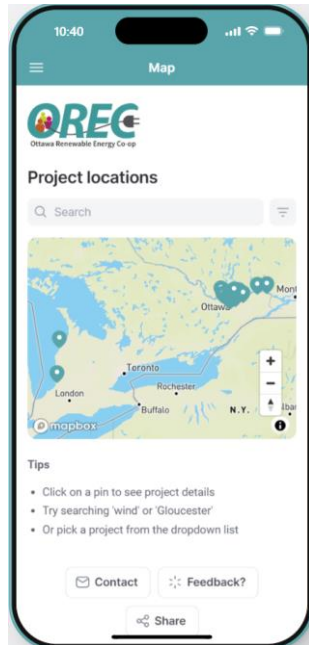
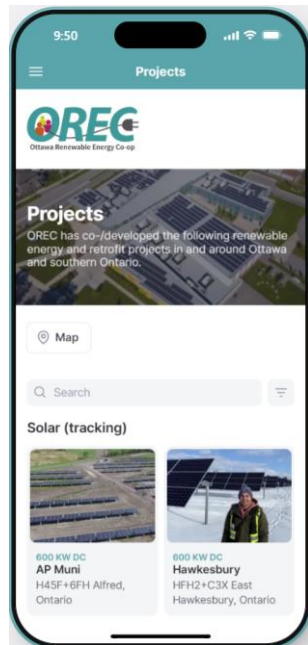
- Preference Shares are RRSP & TFSA eligible
- New contributions and/or
- Transfer from existing RRSP / TFSA account and/or
- Using cash from CWCF account
- Partner for registered investments:
Canadian Worker Co-operative
Federation (CWCF)

'MyOREC'

my-orec.orec.ca



- Sign up as member & Invest online in minutes
- Project snapshots - *anywhere anytime*
- Live energy generation and GHG avoidance data
- Click-and-send mails to your MPP (members)
- Actionable news feed (members)



Questions?



Dick Bakker
Director, OREC
dick.bakker@orec.ca

Join OREC today!

- \$100 for a lifetime Membership Share
- Invest in renewable energy online. In minutes.
We offer RRSPs and TFSA's
- Contribute & dialogue on OREx community eXchange
Learn from a community of knowledgeable friends
- Support OREC advocating for more local renewable energy and less fossil fuel emissions

my-orec.orec.ca/dl/membership

