GREEN ENERGY AND CLIMATE CHANGE WORKING GROUP AGENDA

Friday, February 13, 2026 – 2:00 p.m.
Municipal Office – Council Chambers – 217 Harper Road

Chair, Councillor Keith Kerr

1. CALL TO ORDER

2. AMENDMENTS/APPROVAL OF AGENDA

3. DISCLOSURE OF PECUNIARY INTEREST AND/OR CONFLICT OF INTEREST AND GENERAL NATURE THEREOF

4. APPROVAL OF MINUTES

i) **Minutes – June 13th, 2025** – *attached, page 4.*

Suggested Recommendation:
***"THAT**, the minutes of the Green Energy and Climate Change Working Group Meeting held on June 13th, 2025 be approved as circulated."*

5. DELEGATIONS & PRESENTATIONS

i) **Ottawa Renewable Energy Co-Operative – Controlling Electricity Costs, Into the Future –** *attached, page 9.*
Dick Bakker, Director, Ottawa Renewable Energy Co-Operative.

Suggested Recommendation:
***"THAT,** the Controlling Energy Costs presentation by the Ottawa Renewable Energy Co-Operative."*

6. BUSINESS

i) **Climate Action Plan Update**

- Lanark Better Homes Retrofit Program Update – Planner
- Adaptation Plan Update – Planner - *attached, page 22*

ii) **Communications**

- Lanark County Climate Change Committee Update – Planner

7. NEW/OTHER BUSINESS

None.

8. NEXT MEETING DATE AND PROPOSED AGENDA ITEMS

Next Meeting: Friday, April 10th, 2026 at 2:00 p.m.

9. DEFERRED ITEMS

**The following items will be discussed at the next and/or future meeting:*

- *None at this time*

10. ADJOURNMENT

MINUTES

GREEN ENERGY AND CLIMATE CHANGE WORKING GROUP MINUTES

Friday, June 13th, 2025
2:00 p.m.
Tay Valley Municipal Office – 217 Harper Road, Perth, Ontario
Council Chambers

ATTENDANCE:

Members Present:	Chair, Councillor, Greg Hallam Bob Argue Jennifer Dickson Douglas Barr David Poch
Members Absent:	Gilbert Rossignol Councillor, Angela Pierman
Staff Present:	Noelle Reeve, Planner Genevieve Neelin, Recording Secretary

1. CALL TO ORDER

The meeting was called to order at 2:00 p.m.
A quorum was present.

2. AMENDMENTS/APPROVAL OF AGENDA

i) Addition under New Business: Municipal Recycling Program
ii) Addition under New Business: Resignation of Chair.
iii) Enbridge Gas Update

The Agenda was approved as amended.

3. DISCLOSURE OF PECUNIARY INTEREST AND/OR CONFLICT OF INTEREST AND GENERAL NATURE THEREOF

None at this time.

4. APPROVAL OF MINUTES

i) **Minutes – April 11th, 2025.**

The minutes of the Green Energy and Climate Change Working Group Meeting held on April 11th, 2025 were approved as circulated.

5. DELEGATIONS & PRESENTATIONS

i) **Our Perth Trees.**

Kate Donnelly introduced Our Perth Trees (OPT), a group of volunteers from Perth and surrounding areas. OPT is proposing partnering with the Township for a Homeowner Tree Planting Program inspired by Carleton Place, which subsidizes the cost of 100 trees purchased by homeowners for $25 at an annual cost to the township of $7,000-$8,000.

The Township has limited property to plant trees on, so this is a way to plant them on residents' property and for the residents to maintain the trees.

Trees cost on average $75 per tree depending on the type of tree. They are 5 to 8 feet high and 25mm in diameter. Residents pre-pay for the trees at the Township office and receive a ticket, then the Township sends out a tender for the number of trees required. Carleton Place obtains them through the Carleton Place Tree Nursery. Residents are required to take a course, which is available online through the Bare Root Tree Planting Program, on how and where to plant the tree and how to care for it.

The responsibilities of the Township would include advertising, taking orders and payment, sending out tenders to nurseries, and preparing the transfer site for the bare root trees. Responsibilities of OPT would include planning, tree delivery and "heeling in" trees, watering, and managing tree pick-up.

B. Argue asked to confirm that the cost to the Township is the difference between the $75 cost of the trees and the $25 sale price. K. Donnelly said yes, and the cost would vary depending on the types of trees purchased.

J. Dickson asked for a recommendation of an arborist who could provide information on the benefits of tree planting. K. Donnelly said there is no one associated with OPT, but Jim McCreedy in Carleton Place could be a good resource.

J. Dickson asked if they have considered working with the Independent or Home Hardware? K. Donnelly indicated that these stores do not usually carry bare root trees and may have no space to store them.

J. Dickson asked if they are working with the Town of Perth? K. Donnelly indicated that they are in discussions, but no funding has been confirmed, so OPT is looking for a grant.

Councillor G. Hallam asked if the Township could possibly use the funding from Lanark County?

B. Argue indicated that these taller trees may be more attractive in an urban setting like Carleton Place. Smaller trees and providing more of them would work better in a rural area. EcoPerth used to provide 10s of 1,000s of trees in its tree sales in the past.

D. Poch suggested that the Township do more to promote the Lanark County tree giveaway.

The Working Group decided to receive the presentation as information.

6. BUSINESS

i) **Climate Action Plan Update.**

Two quotes were received in response to the tender for electric vehicle for the Chief Building Official; Public Works has selected the Chevrolet Equinox.

The Planner has suggested that the savings from the electric vehicle go into a Green Reserve which would go towards the upfront costs of other green initiatives. Councillor G. Hallam proposed making a recommendation to Council to add a Green Reserve based on savings due to fossil fuel avoidance (e.g. CBO EV). The Committee agreed.

- Lanark Better Homes Retrofit Program Update

  The Planner announced that the program has already had twenty (20) applicants since it opened at the beginning of the week, with four (4) from Tay Valley. For outreach, the Township has printed brochures that will be distributed at Lake Association meetings, at the front desk and elsewhere. The Planner is considering circulating the information to homeowners with older homes as identified by the Municipal Property Assessment Corporation (MPAC) property codes and to heating companies.

- Rideau Valley Conservation Foundation Tree Planting

  The Planner told the Working Group that the Rideau Valley Conservation Foundation has planted trees on the land it owns along the Tay River and Grants Creek bordering the Tayside Subdivision (Ernest Way).

- Initial Climate Ready Assessment Tool

  The Planner presented the Climate Ready Assessment Tool to the Group.

  The Planner asked which climate hazards the Group thinks the Township should focus on. B. Argue suggested extreme heat.

  The Township is going to have a public open house on August 11, 2025 to ask residents if and how they feel they have been impacted by climate change and what actions they would they like to see the Municipality take on its own and to support residents.

ii) **Communications.**

- Lanark County Climate Change Committee Update

  The Planner informed members that Lanark County will have the first meeting of the Natural Heritage Systems Working Group next week. The County will be looking for input from residents. The Planner asked if members could share some images of forests in the Township for the County's outreach.

- Eastern Ontario Climate Summit

  - The Planner gave up an update on the Eastern Ontario Climate Summit, held in Kingston. She felt it was a valuable first step but needed more local representation.
  - J. Dickson suggested that the Township discuss budget priorities at the August meeting.

7. NEW/OTHER BUSINESS

i) **Municipal Recycling Program.**

B. Argue provided an article from the Frontenac News identifying what is acceptable to be recycled there. He would like to see more promotion of the municipal recycling program and increased scope of recycled materials. The Township should be recycling plastic bags, coffee cups, milk cartons, and other items that are accepted by other municipalities.

ii) **Resignation of Chair.**

Councillor G. Hallam announced that this will be his last meeting as Chair due to his work schedule and time constraints.

iii) **Enbridge Gas Update**

The Planner shared an update on Enbridge's request to expand to all areas of Tay Valley Township. A lawyer is going to represent the Township pro bono in opposing the expansion.

8. NEXT MEETING DATE AND PROPOSED AGENDA ITEMS

Next Meeting: Friday, August 8th, 2025 at 2:00 p.m.

9. DEFERRED ITEMS

**The following items will be discussed at the next and/or future meeting:*

- The Working Group's priorities for the upcoming Township budget.

10. ADJOURNMENT

The Working Group adjourned at 3:20 p.m.

Controlling Electricity Costs, into the future.

Tay Valley Township

Feb 23, 2026

1

Agenda

1. Context of Ontario electricity system Centralized versus Distributed Energy Resources (DERs).
2. Who is OREC? What has it done? What can it offer/
3. Tay Valley Township
4. Advocacy for Distributed Energy Resources (DER)

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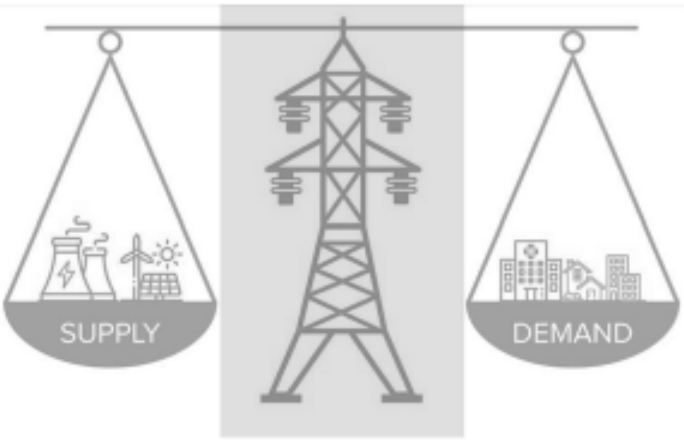
2

2

OREC POWERING THE FUTURE TOGETHER

The Electricality Grid has 3 major, interacting components



Alliance for an Energy Efficient Economy

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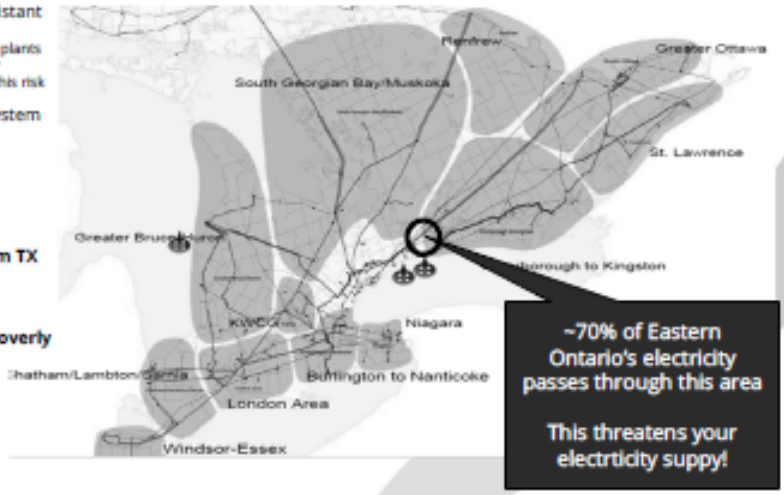
OREC POWERING THE FUTURE TOGETHER

Resiliency of Eastern Ontario's electricity supply?

- 70% of Eastern Ontario's electricity comes from distant generation
  - 47-62% of Ontario electricity produced at 3 nuclear plants
  - Transmission is concentrated in 50km wide corridor
  - The focus on new Nuclear and Gas Plants worsens this risk
- Increasing weather disasters and Transmission system 'overload' put centralized power at risk
- **The province is composed of islands of Local Distribution areas that RECEIVE electricity from TX lines**
- **Distribution lines are underutilized therefore overly expensive,**
  - **especially in rural areas!!**



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Residential Electricity bill components (HOL)

OREC POWERING THE FUTURE TOGETHER

A) **Electricity Commodity** bill options (Nov1 increased average of 29%):
1 - Tiered Pricing, or
2 - Time of Use Pricing (TOU), or
3 - **Ultra Low Overnight TOU pricing**

B) **Delivery 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 on Nov 1 23.5% of bill = $8? B/yr)**
(Nov 2024 dropped to 13.1% of the total pre HST= **$6 B/yr**
had been 19.3%!)

F) **Global Adjustment** (Commercial customers) now being changed to a more flexible system...
Details to come....

5

5

OREC POWERING THE FUTURE TOGETHER

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

6

Ontario's Electricity System....

7

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'***

- For-profit co-operative regulated under Ontario's *Co-operative Corporations Act*
- Finances and develops community-owned renewable energy projects through a co-operative business model (i.e. profits go to our members)
- A lean staff supported by a skilled and devoted group of volunteers
- Works with renewable energy industry partners and development contractors

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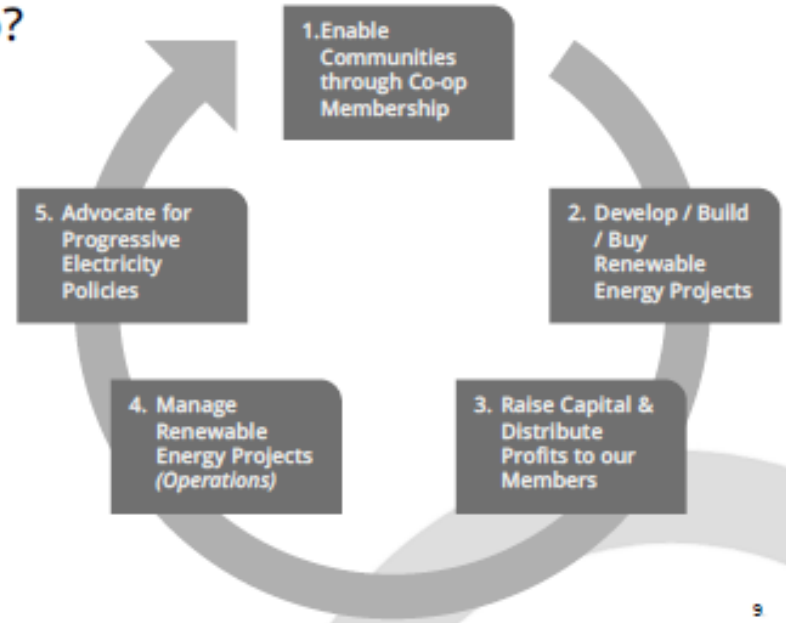
8

8

What does OREC do?

1. **Enable Communities:** We enable Ontario citizens to join the cooperative to promote renewable energy projects in their communities
2. **Develop / Build / Buy Renewable Energy Projects:** We find partners and identify projects which align with OREC's mandate
3. **Raise Capital & Distribute Profits:** We solicit capital from members and aligned institutions; proceeds go to Ontario communities via our membership
4. **Manage Projects:** We operate our projects to ensure productivity and economy
5. **Advocate for Progressive Policies:** We make the case for Distributed Energy Resources (DERs) by Renewable Energy Cooperatives (RECs)



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About OREC — by the Numbers

MEMBERS

Incorporated in 2010, OREC is an Ontario co-op of over 1,100 community members.

- 78% live in and around Ottawa

1,164

$17 M

CAPITAL INVESTED

Through 11 capital raises

SITES

OREC has financed, developed & managed 6 MW of DERs, including:

- 26 SOLAR
- 2 WIND TURBINE
- 5 RETROFIT
- *BESS?*
- *Community Solar?*

7.8 MW

35%

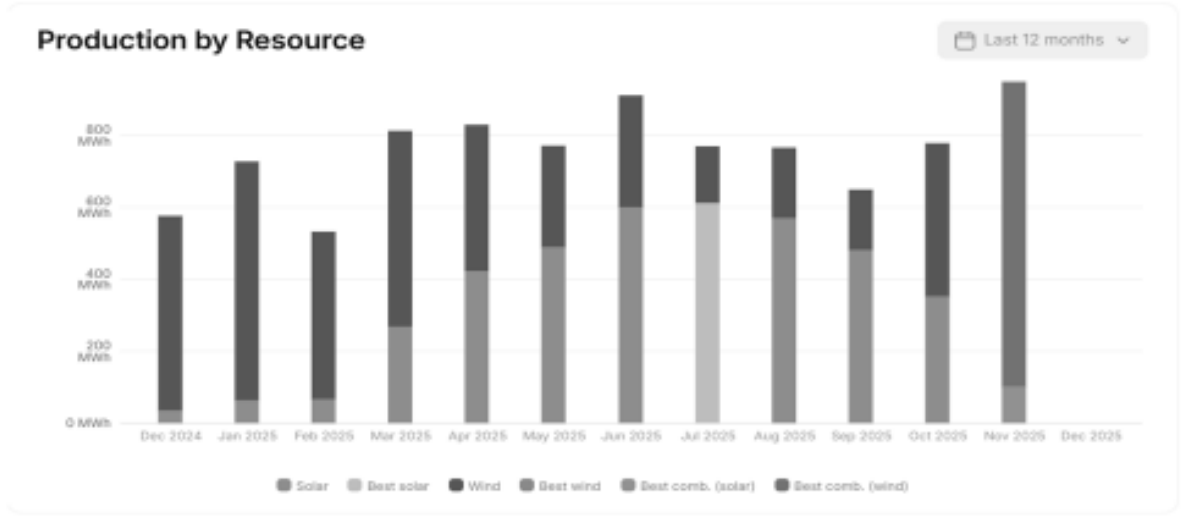
Compound Annual Growth Rate

OREC's production capacity has grown 32.6% per year since 2012

10

Last 12 Months, production by resource

POWERING THE FUTURE TOGETHER



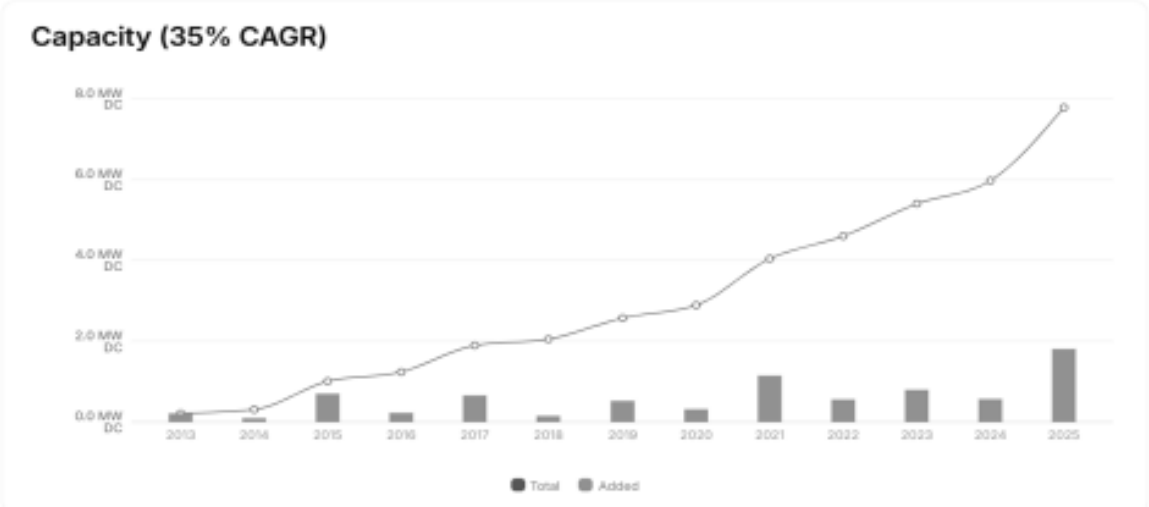
Best month for solar: 612 MWh in Jul 2025
Best month for wind: 848 MWh in Nov 2025
Best month combined: 949 MWh in Nov 2025

11

11

2013 – 2025 Capacity Growth

POWERING THE FUTURE TOGETHER



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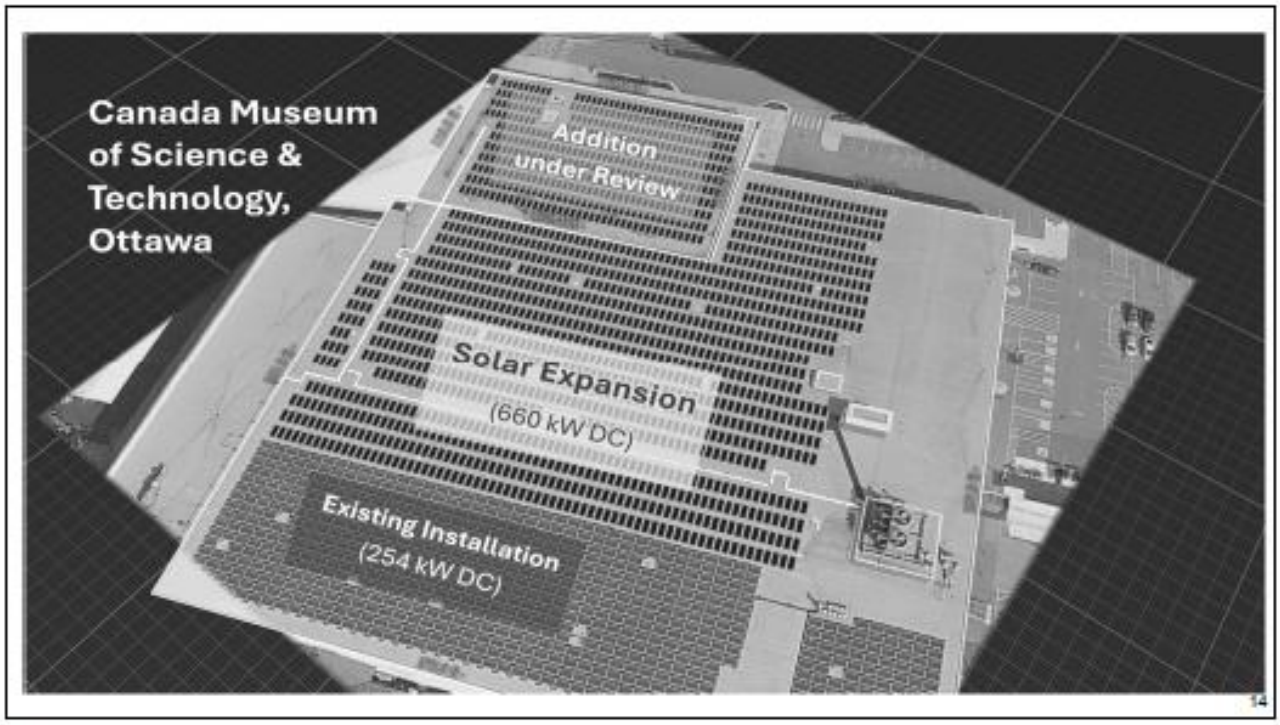
2015 | 385 kW
Hovey Industries
Ottawa South
2016 | 190 kW
Maurice-Lapointe HS
Kanata
Community Owned Renewable Energy
2017 | 500 kW
Alfred Ground Mount
Alfred
2021 | 2,300 kW
Quixote Wind Turbine
Tiverton
13

13


Canada Museum of Science & Technology, Ottawa
Addition under Review
Solar Expansion
(660 kW DC)
Existing Installation
(254 kW DC)
14

14

Photo: Zurich Wind Project

Photo: RA Centre, Lightenco

OREC POWERING THE FUTURE TOGETHER

Invest with Impact

- 3x GHG emission reduction of doing personally
- Invest in Energy Democracy
- Member Equity in Portfolio
  - Preference Shares (Class E / Class A)
  - Non-Registered, RRSP or TFSA eligible
- Member Debt in Portfolio
  - Member Investment Notes
- Invest locally
  - Keep the electrons, jobs and profits local

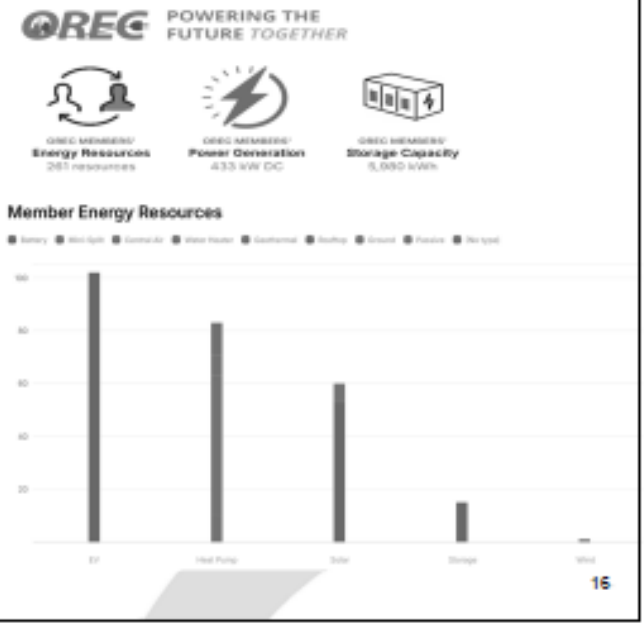
orec.ca 2024

15

OREC POWERING THE FUTURE TOGETHER

OREx Community eXchange = friends with knowledge!

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, Potential for Virtual Power Plant
   (Jan 31 = 107 members, 261 DER's)



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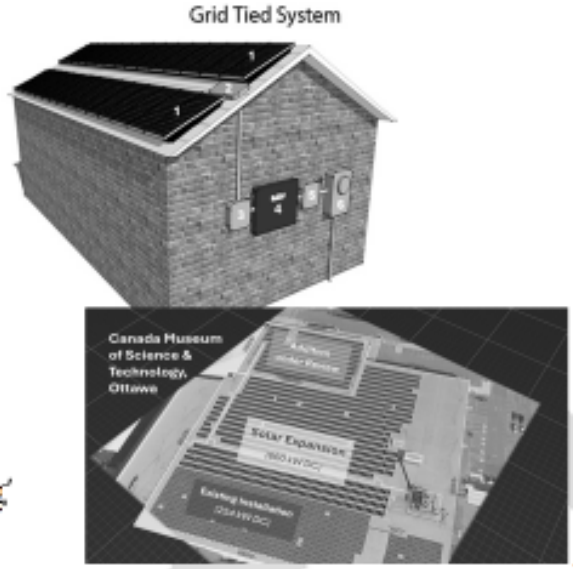
16

16

Basics of Solar Net-Metering Electricity

- Panels convert sunlight into DC electricity
- Inverter converts DC to AC power
- Feeds the building, then exports to the grid, for Credits
- Panels last 30 years+
- Simple maintenance, few active components, modular expansion
- Can add Batteries to 'island the building' in a crisis



17

17

Tay Valley Township Utility Costs

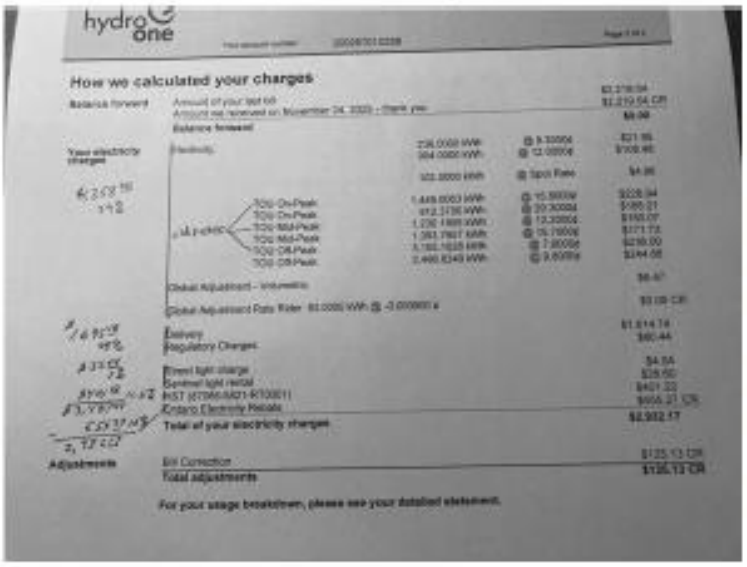
Facility	Address	Area m²/ft²	Energy/Service Type		2022			2023			2024		
					EC	$	GHG/kg	EC	$	GHG/kg	EC	$	GHG/kg
Municipal Office	217 Harper Road	732/7,875	Nat Gas	-	6,160	2,011		18,686	5,535		7,633	612	
			Electric	General	35,346	6,717		34,453	6,759		35,277	6,855	
Bathurst Garage	217 Harper Road	512/5,514	Nat Gas	-	4,314	1,408		7,483	3,876		5,345	4,630	
			Electric	General	24,749	4,703		24,124	4,732		24,701	4,880	

- One address with 1 electric meter and 1 gas meter(?) with submetering for accounting purposes

18

18

December Electricity bill for 217 Harper Road


hydro one

How we calculated your charges

- Electricity kWh $1,358.40 39%
- Delivery & Reg $1,695.18 48%
- Steet light $32.64 1%
- HST $401.22 11.5%
- Total cost $3,487.44

- Ont.Elect.Rebate $555.27 16%

- Actual Bill $2,932.17

- Note- several items are under old rate structure?
- Pending new distribution rates?

19

19

Solar Net-Metering on 217 Harper Road ?

217 Harper Road

- Total Electricity consumption = 60,095kWh annually
- Solar generation potential, with 1 solar Net-metering system of 72kW AC = 93,710kWh /year

Two issues..... With regulations of today...

1) Net-metering restricted to 12 months of generation credits (never a sale for $), need to scale down the solar;
2) A 72kW system on it's own is not feasible for OREC
   -Plans to increase electricity consumption (reduce gas)?
   -Other planned efficiency improvements in the building?

Other Opportunities in Tay Valley Township
- South Sherbrooke Fire Station (disaster recovery site)
- Two closed waste site

20

Tay Valley Township Renewable Energy Opportunities
But dependant on new Regs & Procurements

- Local Industry looking to reduce utility bills & resiliency
  - Net metering on site, **for 12-month credit only**
  - In future, 'virtual' Net-metering, Community Solar?
- Local Residents looking for energy cost security! & resiliency
  - Support for Producer-Consumers? The Right to produce and connect?
  - Utility and property tax financing of energy retrofit/conservation?
- Local Grid improvements
  - Non-Wire Solutions inside the local distribution grid?
    - Medium / small scale generation and demand response
  - Long Term procurements (LT/MT) on the Transmission Grid **in process**
    - Big solar, wind, battery
  - New Local Generation Program in 2026/27?
    - Medium generation on the Distribution grid

21

21

Advocacy.....
Rural communities have undeniable issues & Opportunity to stimulate change

- High Distribution costs & Poor Resiliency
  - due to low utilization of lines sparse population, lack of local generation
- Present government promising to keep energy costs low...
  - But with Ontario Electricity Rebate = time bomb!!
  - Enable citizens to own their own solutions!
  - **Rural Municipalities and residents have good access to lobby the ruling party for DER's**
    - Virtual Power Plants
    - Disaster Recovery sites with the ability to EXPORT electricity from solar and batteries for $ not just credits
    - Local ownership should have a procurement advantage
      - Turn NIMBY into **"Yes in My BackYard" (YIMBY)**
- Compilation of OREC Advocacy Requests.
  - **https://www.orec.ca/post/advancing-community-owned-renewable-energy-in-ontario**

22

22

Europe… what we can't do in Canada…

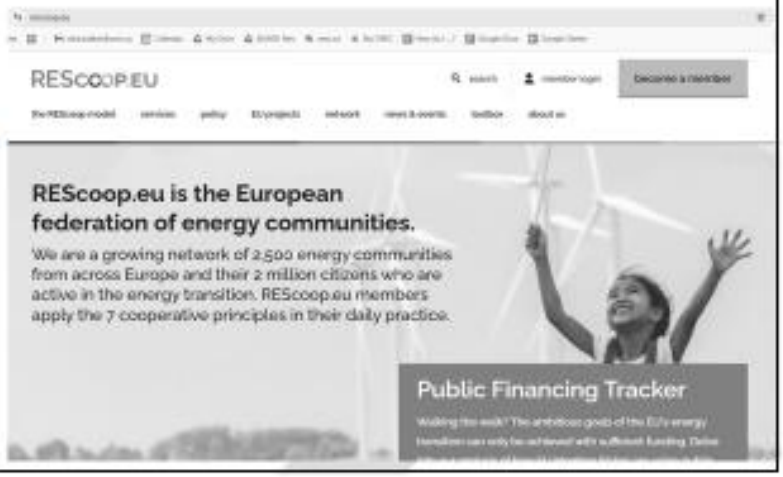
EU Directive (EU) 2018/2001 = Every 'Citizen and Community' in Europe has the **right** to:

- Own their own renewable energy and
- sell,
- save,
- share, and
- profit from it

Unleash the capital sitting on kitchen tables

www.RESCoop.eu

In Ontario and most of Canada (ex Alta), … this would be illegal… Why!?



23

Ownership Changes Everything….

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

Non Renewable Energy Jokes

24

24

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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 TFSAs
- Contribute & dialogue on *OREx* community eXchange
  Learn from a community of knowledgeable friends
- Support OREC advocating
  More local renewable energy and less emissions

my-orec.orec.ca/dl/membership

orec.ca

25

Tay Valley Township

REPORT

COMMITTEE OF THE WHOLE
February 3rd, 2026

Report #PD-2026-01
Noelle Reeve, Planner

CLIMATE CHANGE ADAPTATION PLAN UPDATE

STAFF RECOMMENDATION(S)

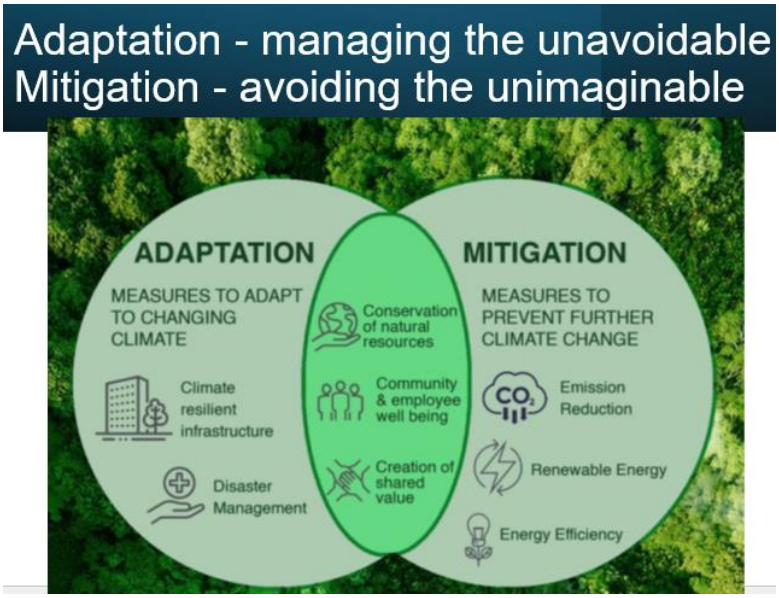
It is recommended:

"THAT, Council provide comments on the topics included in the Building Resilience to Climate Change: Suggestions from Residents for a Climate Adaptation Plan for Tay Valley Township;

AND THAT, the Planner continue engagement sessions to produce a Draft Adaptation Plan."

BACKGROUND

The Township adopted its Climate Action Plan in 2020. The Township continues to focus on mitigation - reducing greenhouse gas emissions from fossil fuels (gas, diesel, natural gas). However, recognizing that Tay Valley residents have already experienced impacts from climate change, an additional focus is needed on adapting to the impacts of the changing climate.



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The Township was successful in applying to the Federation of Canadian Municipalities (FCM) Green Municipal Fund (GMF) Advancing Implementation Training Initiative (AITI) for support in creating a Climate Adaptation Plan. The program runs from April 1, 2025 to December 31, 2026. Once an Adaption Plan is created, the Township is eligible for funding for implementation from the federal Green Municipal Fund.

The AITI program is designed to move municipalities from plans to implementation. AITI will help Tay Valley prepare capital and operating budget estimates, incorporate equity considerations into adaptation planning, design evaluation frameworks, and access other necessary resources to get prioritized actions implementation-ready.

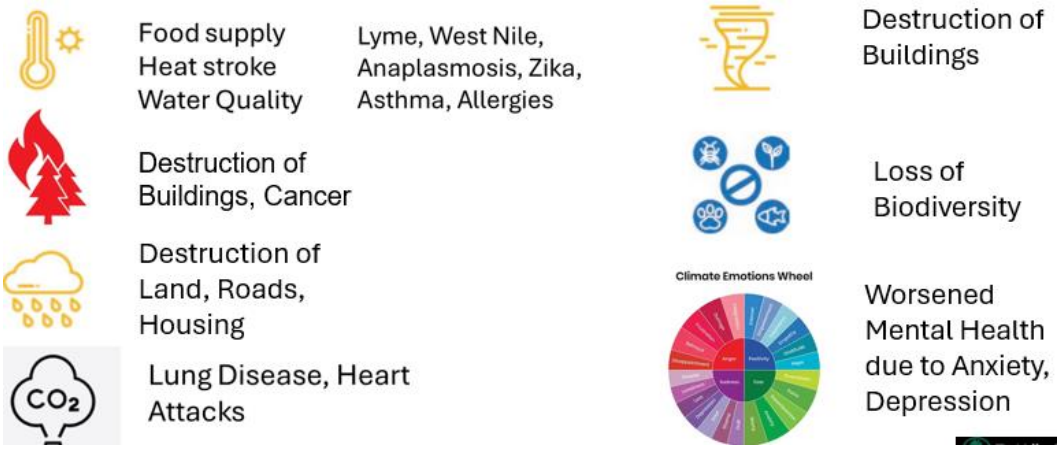
DISCUSSION

In the summer of 2025, Township staff and a weekly intern from Carleton University identified climate hazards for the Township and undertook an initial risk and vulnerability assessment of those hazards.

Climate change hazards for Tay Valley Township include:

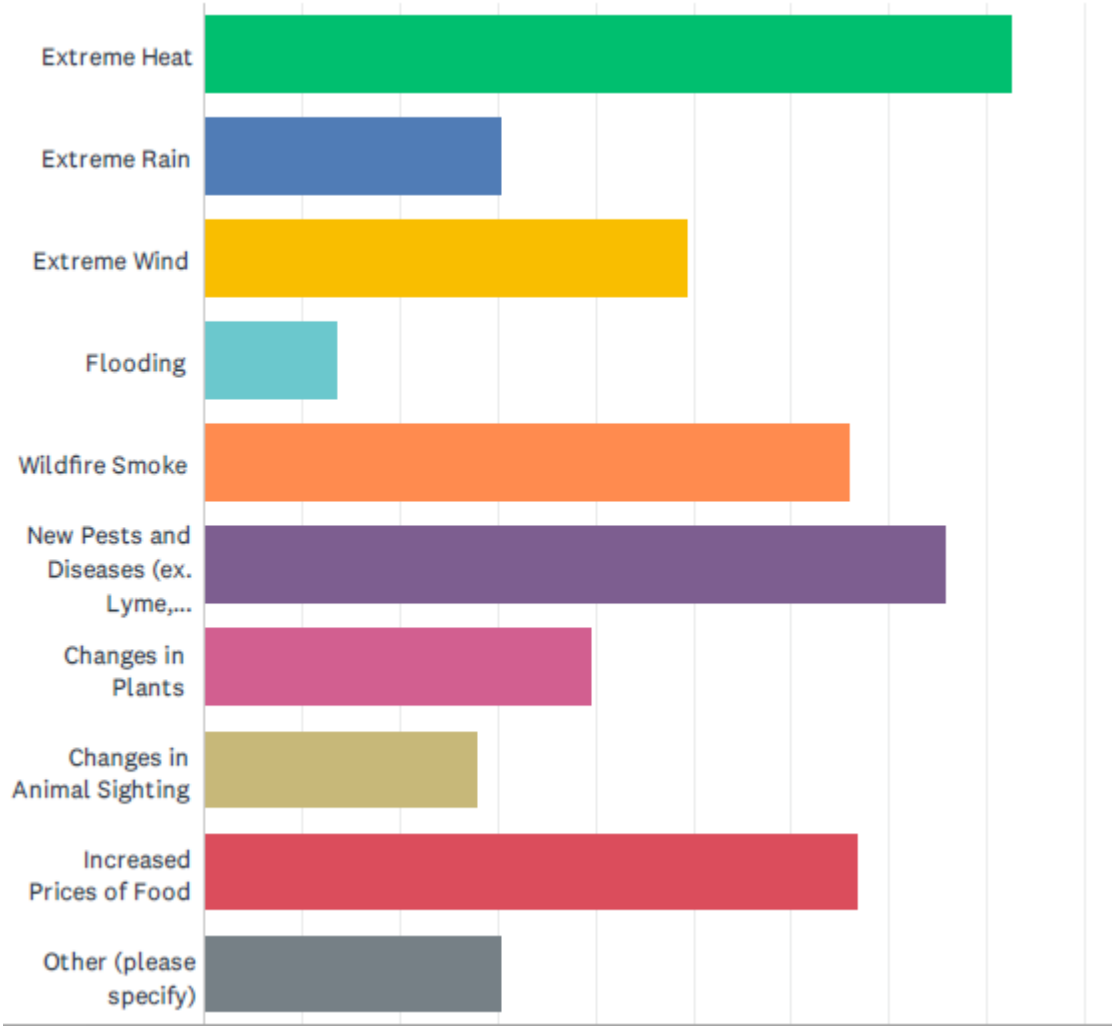
- Tornadoes and derechos,
- Floods,
- Extreme heat,
- Air Pollution,
- Worsened Mental Health,
- Diseases from insects (Lyme, Anaplasmosis, Emerald Ash Borer),
- Wildfires and wildfire smoke, and
- Loss of biodiversity

Impacts to residents from these hazards include



The Planner and Intern organized two public engagement sessions on August 11, 2025 with stakeholders and residents (one in the afternoon and one in the evening). The Planner subsequently prepared a survey for all residents - *Building Resiliency to Climate Impacts in Tay Valley Township* – that was distributed in the fall of 2025.

The survey was answered by 132 residents. The results of the survey indicated that 72% of respondents felt that extreme weather had impacted their quality of life in the following ways:



The top three impacts residents identified as experiencing were: Extreme Heat, closely followed by New Pests (e.g., Lyme), and then Increased Prices of Food. As high a number as 60% indicated they had done something on their property to prepare for climate change.

80% of respondents said they would be interested in the municipality and its partners bringing neighbouring areas together for information and plans in the case of flooding, wildfire, extreme heat, disruption of supply chains for food, fuel, etc.

This request for fostering neighbourhood level resilience with help from the municipality was consistent with the comments from the four break out groups in the two engagement sessions held in August 2025.

To obtain more detailed information on residents' vulnerabilities to Climate Change, the Planner collaborated with the South East Health Unit following the release of its report, Climate Change and Health Vulnerability and Adaptation Assessment in the fall of 2025. The assessment focuses on the health impacts and vulnerabilities to climate change, including

temperature-related illness, poor air quality, vector-borne diseases, and water/food contamination.

To obtain more detailed information on the potential hazards and impacts for Tay Valley Township, the Planner also collaborated with Parks Canada, National Geographic, and Heritage Legacies on their climate adaptation planning for the Rideau Canal UNESCO world heritage site, that forms the entire southern border of the Township, in December.

Based on all of the above work, Attachment 1 presents a summary report, Building Resilience to Climate Change: Suggestions from Residents for a Climate Adaptation Plan for Tay Valley Township for Council comment and suggestions.

OPTIONS TO BE CONSIDERED

Option #1 (Recommended) – Council provides feedback on the summary report Building Resilience to Climate Change: Suggestions from Residents for a Climate Adaptation Plan for Tay Valley Township and the Planner continue engagement sessions to produce a Draft Adaptation Plan.

Option #2 – The Planner continue to work on the Draft Plan without engagement.

FINANCIAL CONSIDERATIONS

None at this time.

STRATEGIC PLAN LINK

Healthy Environment – The motion encourages adaptation to climate impacts.

Thriving Culture, Economy and Tourism - The motion ensures the Township is scanning for risks and opportunities.

CLIMATE CONSIDERATIONS

The motion promotes Tay Valley's ability to adapt to anticipated climate disruptions while continuing to reduce its green house gas emissions to avoid adding more CO2 to the atmosphere.

CONCLUSIONS

Adaptation planning supports the Township's efforts to manage the unavoidable impacts to residents and to the Township's physical assets from the amount of CO_2 already in the atmosphere.

Working with residents and local groups allows the Township to better understand and prepare for the impacts of climate disruptions on:

- food and agriculture,
- buildings and roads,
- natural environment,

- residents' health, and
- businesses and the economy.

ATTACHMENTS

1. Building Resilience to Climate Change: Suggestions from Residents for a Climate Adaptation Plan for Tay Valley Township

Prepared and Submitted By:

Noelle Reeve,
Planner

Approved for Submission By:

Amanda Mabo,
Chief Administrative Officer/Clerk

BUILDING RESILIENCE TO CLIMATE CHANGE:

SUGGESTIONS FROM RESIDENTS FOR A CLIMATE ADAPTATION PLAN FOR TAY VALLEY TOWNSHIP

Climate Impacts Tay Valley Residents Have Experienced

Forty Tay Valley Township organization representatives (from the farm, environmental, lake, and economic sectors) and residents met for two engagement sessions in August 2025. They discussed climate change risks and vulnerabilities and possible responses to these for Tay Valley Township's corporate responsibilities and responsibilities for its residents.

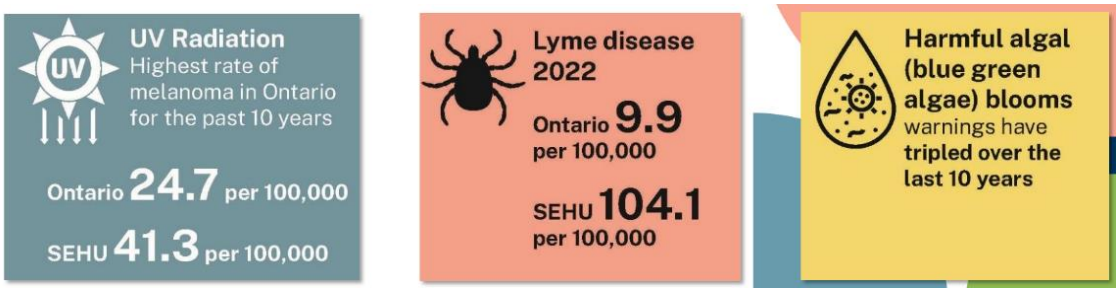
An additional 132 residents responded to a survey on the same topic of building resiliency to climate change through adaptation.

Almost ¾ of the residents who took the climate change resilience survey indicated that the top three impacts they had experienced were:

- Extreme Heat,
- New Pests (e.g., Lyme disease from ticks), and
- Increased Prices of Food.

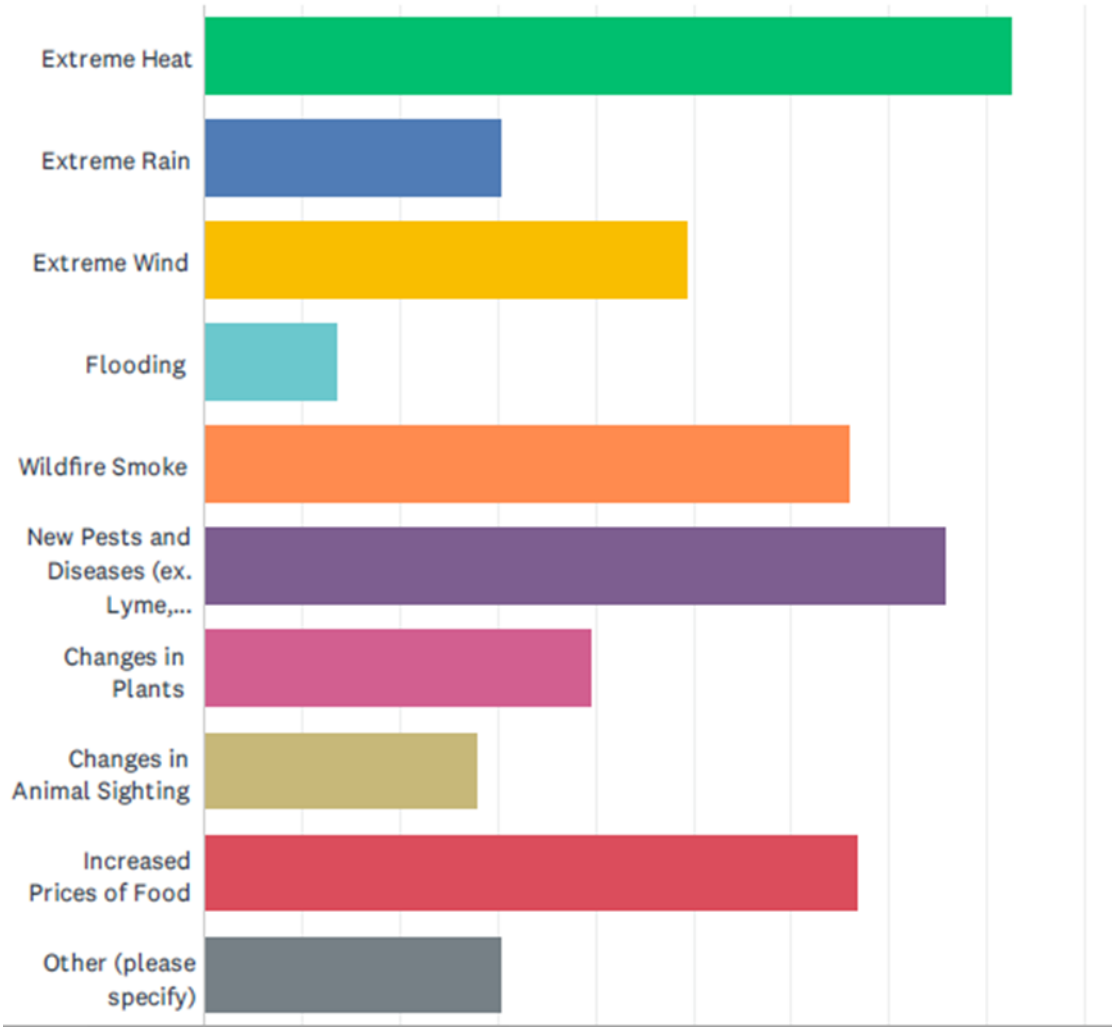
Wildfire Smoke and Extreme Wind were the next most mentioned impacts they had experienced from climate change. Wildfires have occurred to the north of Tay Valley affecting air quality every year since 2022. Tay Valley also experienced a Tornado in 2024 and a Derecho in 2022.

The South East Health Unit confirms some of the health concerns mentioned by residents.



The Table below provides more detail on how climate change and extreme weather have impacted Tay Valley residents' quality of life.

72% of Tay Valley respondents felt extreme weather had impacted their quality of life



Climate Hazards and Impacts in Tay Valley Township

Staff shared information with residents who participated in the engagement sessions in August about climate hazards identified by the National Capital Commission for the Ottawa region. (See below.)

	What to expect*	2030s	2050s	2080s
Temperature	Average temperature	↑ 1.8°C	↑ 3.2°C	↑ 5.3°C
	Very hot days (above 30°C)	2.5 times more	4 times more	6.5 times more
	Very cold days (below -10°C)	20% less	35% less	63% less
Seasons	Winters shorter by	4 weeks	5 weeks	8 weeks
	Springs earlier by	2 weeks	2 weeks	4 weeks
	Winter freeze-thaw	↑ 13%	↑ 33%	↑ 54%
Precipitation	Fall-winter-spring precipitation	↑ 5%	↑ 8%	↑ 12%
	Intense precipitation	↑ 5%	↑ 14%	↑ 19%
	Snowfall	↓ 10%	↓ 20%	↓ 44%
Extreme events	Possible increases in freezing rain			
	Warming favours conditions conducive to storms, tornadoes, wildfires			

(Source: NCC Climate Vulnerability Risk Assessment, 2023)

Since then, staff have reviewed the mapping by Climate Insight and other data sources to identify the following impacts.

Extreme Heat and Cold

1. Reduced air quality from warmer summer temperatures
2. Cold-related health and safety issues among vulnerable populations due to more extreme cold days in winter
3. Heat-related health and safety issues amongst vulnerable populations due to more extreme heat days in summer
4. Freezing of water service lines and water mains due to extreme cold temperatures
5. Reduced productivity of outdoor staff during hot days.

Invasive Species

6. More frequent and rapid spread of invasive species due to more favourable climatic conditions

Water Quality

7. Negative impacts to water quality from stormwater runoff
    a. 8Illness due to bacteria or other water quality concerns as a result of warmer water

Temperature Variability in shoulder seasons

8. Damage to private property (e.g. building foundation, landscaping) from more frequent freezing and thawing cycles
9. Damage to roads (e.g. wear and tear, cracks, potholes) from more frequent freeze-thaw cycles
10. Overburdening of the ditches and culverts from rapid snowmelts
11. Water quality concerns resulting from increased use of road salt due to more frequent freezing rain events.

Flooding

12. Flash flooding when ground is frozen from increased rainfall intensity
13. Flooding on public property from increased rainfall intensity
14. Flooding on private property from increased rainfall intensity
15. Temporary loss of outdoor community facilities from increased precipitation (e.g. oversaturated soil in parks, sports fields and outside event spaces)

Erosion

16. Damage to public property from erosion as a result of more runoff from increased rainfall intensity
17. Damage to infrastructure (e.g. wash-out of roads, shoulders, bridges) from erosion as a result of more runoff from increased rainfall intensity

Extreme Events

18. Hazardous outdoor conditions due to extreme weather events (e.g. ice storm, snowstorm, thunderstorm)

19. Tree branches and other debris blocking culverts as a result of extreme weather events
20. Hazardous conditions on roads and sidewalks from more frequent freezing rain
21. Hazardous conditions in public spaces and parks from more frequent freezing rain
22. Damage to public infrastructure due to extreme weather events (e.g. severe winds, ice storm, snowstorm)
23. Impacts to tourism and businesses from extreme weather events (e.g. wind, ice, snow, etc.)
24. Drought
25. Environmental destruction from extreme weather events (e.g. severe winds, ice storm, and snowstorm)

Risk Assessment

Staff have also worked on risk assessment related to the potential impacts from climate change. (See Appendix for vulnerability and risk assessment methods.)

The National Capital Commission graphic below provides a visual summary of the analysis undertaken using the methods described in the Appendix.

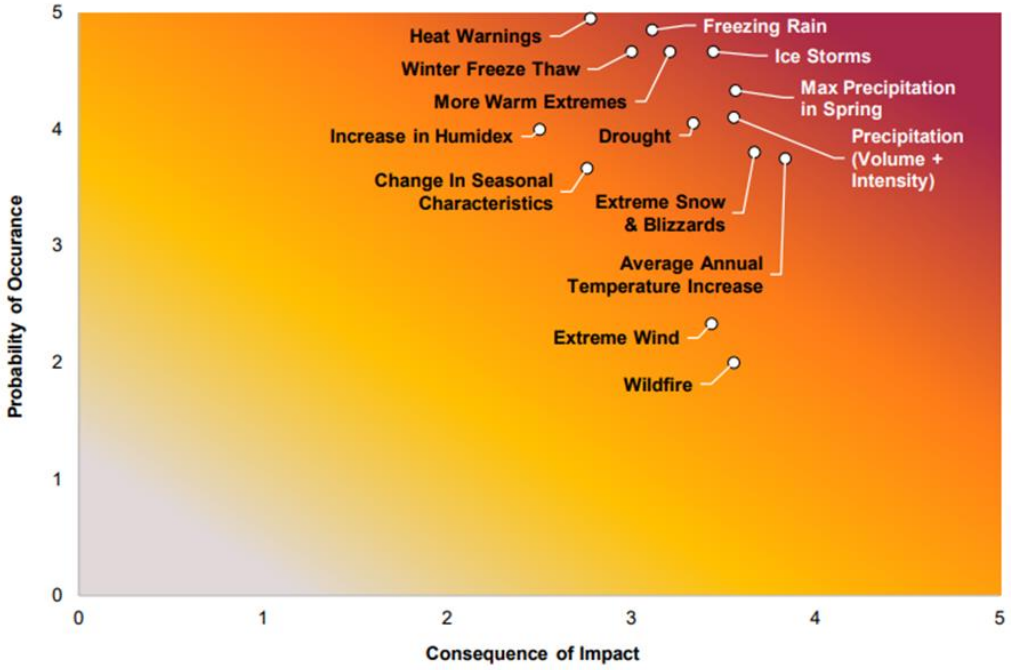


Figure 10. Climate Hazard Risks for the 2021-2100 period

Adapting to Climate Change to Increase Resiliency in Tay Valley Township

Five key local action mechanisms are available to local governments to drive local action on climate change in a preventative way:

- Land Planning - A key role of local government is to manage local places in a coordinated, planned way that reflects the community's shared vision of a safe and sustainable place to live.

- Licensing and Regulations - Local governments set the local regulatory framework through assessments and approval processes, the use of surcharges and rebates, and the enforcement of bylaws to implement and enforce adaptive policies.
- Leadership and Awareness - Local governments are in close contact with community organizations, businesses, residents and other stakeholders. The influence that results from this contact can be used to develop a shared understanding and encourage community-wide responses to climate change.

- Community Engagement and Service Delivery - Local governments are committed to protecting the health, safety, and well-being of residents, while ensuring opportunities for active civic participation. They do this by delivering services to the community and through programs, partnerships, and projects.

- Operations and Workforce - As responsible corporate citizens, local governments can act as leaders in climate adaptation by ensuring climate change considerations are integrated into the services they deliver, the management of public spaces and buildings, and workforce development programs (through training and education).

Feedback from residents on actions they would like to see Tay Valley Township government take included the following goals.

Goal 1: Maintain Public Health and Safety

1.1 Improve communications to the public regarding road conditions and safety during extreme weather events. Consider providing LORA technology for public bandwidth - $60 Meshtastic signal booster to share information during emergencies.
1.2 Facilitate the creation of phone trees/neighbourhood pods.
1.3 Identify escape routes and boat resources to help people.
1.4 Partner with Southeast District Health Unit to address climate change considerations in food-security communications and programming.

1.5 Consider impacts and risks of increased disease vectors in design of stormwater infrastructure (e.g., avoiding ponding/standing water).
1.6 Promote food sovereignty.
1.7 Communicate, communicate, communicate.

Goal 2: Minimize Risks to Buildings and Property

2.1 Promote higher building standards which reflect newest climate projections by updating by-laws, development guidelines, and zoning regulations.
2.2 Share information on Firesmart, Net Zero when build new or retrofitting

Goal 3: Strengthen Infrastructure Resilience

3.1 Facilitate net metering with neighbours.
3.2 Increase natural and forested areas within sub-watersheds with high surcharge and runoff.
3.3 Enforce the site alteration by-law including erosion and siltation requirements to protect wetlands.
3.4 Investigate and apply methods of incorporating climate change considerations into infrastructure (grey, green, and urban forests) asset management e.g., permeable pavement.
3.5 Develop a policy for regularly updating infrastructure design and retrofit standards repairs to reflect new climate change projections and green infrastructure technologies.
3.6 Investigate and explore opportunities to collect and recycle water and storm water for further use in future buildings and developments.
3.7 Upsize storm water infrastructure as part of renewal (where possible).

Goal 4: Help Local Business including Tourism Adapt

4.1 Assess new opportunities for different forms of business and tourism as a result of a changing climate.
4.2 Provide guidance to local business on how to maintain business continuity (e.g. supply chain) during extreme weather events.
4.4 Establish a local best practice network (e.g. business continuity, green business practices, adaptation measures) for businesses to build resiliency.

Goal 5: Protect Biodiversity and Enhance Ecosystem Functions

5.1 Develop municipal by-laws, standards, and permitting processes to advocate/enhance green space, green roofs, and tree canopy on private and public properties.

5.2 Increase education and communication to public about invasive species (e.g. dog strangling vine, garlic mustard, round goby, zebra mussels).
5.3 Promote the planting of native vegetation along lakes, rivers and creeks to reduce erosion risk, maintenance needs, and enhance local biodiversity.

Goal 6: Minimize Disruption to Community Services

6.1 Adopt a communication tool (e.g. an app) which tells residents the plowing/sanding/ salting status of roads in order to better plan routes for driving in hazardous conditions.
6.2 Develop teleworking and other alternative work arrangements for staff (e.g. Stay-at-home days/ shifted/flex) that eliminate commuting during extreme weather events and hazardous road conditions.

Goal 7: Build Physical Community Resilience

7.1 Victory gardens for food sovereignty.
7.2 Encourage residents to plant gardens with native species that provide habitat and enhance local biodiversity.
7.3 Support ongoing community initiatives that address extreme heat and cold (Add Warming capability as well as the Cooling centre in Maberly).
7.4 Create naturalized and edible landscapes on Township land using existing resources.
7.5 Develop communications campaign with messaging to residents on lot-level resiliency actions (e.g. green roofs, shade structures, rain gardens, etc.).
7.6 Continue with active tree planting and preservation, community partnerships, and naturalization programs.
7.7 Build on social connections that already exist

These suggested goals and actions will be validated and further refined through additional public engagement.

Actions and strategies municipalities can take may be categorized into the following action types:

• No regret – Actions that are cost-effective and justified regardless of whether a climate event occurs or not.

• Low regret – Low-cost options for which the benefits, although primarily realized under projected future climate change, may be relatively large.

• Win-win – Actions that minimize the impacts of future climate events and have other social, environmental or economic benefits.

- Flexible – Incremental adaptation options rather than undertaking large-scale adaptation actions all at once.
- Large-scale – initiatives requiring significant time and or resources.

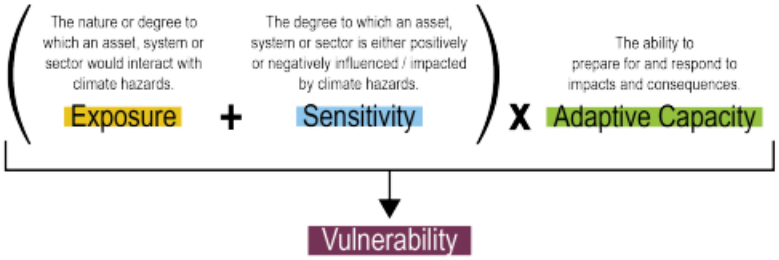
More information on prioritizing actions is provided in the Appendix.

The final step in choosing adaptation activities to seek funding for from the Federation of Canadian Municipalities will be to identify priorities using criteria from the Building Adaptive and Resilient Communities Guide (BARC) and from Ontario municipalities (see Appendix).

Appendix

Vulnerability Assessment

For each impact, a vulnerability assessment was completed with staff. Vulnerability is the measure of the extent to which a segment or group of the population, asset, system or sector is susceptible to, or unable to cope with, the impacts as a result of a changing climate. Vulnerability is based on assessing exposure, sensitivity, and adaptive capacity.



Risk Assessment

Following the completion of the vulnerability assessment, the next step was to determine the relative risk posed by each climate hazard by calculating a risk score. To calculate the risk scores, both the probability of each climate hazard's occurrence and its potential consequences were assessed. Risk is commonly calculated by multiplying the probability score by the total consequence score.

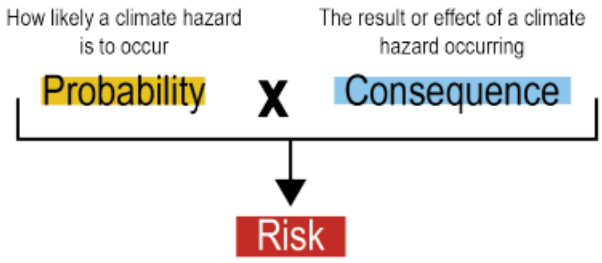
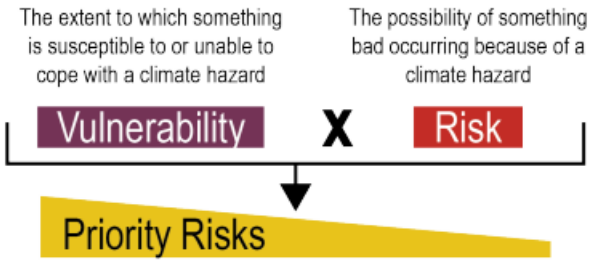


Exhibit 5: Risk Assessment Consequence Criteria

SOCIAL FACTORS	ECONOMIC FACTORS	ENVIRONMENTAL FACTORS
Public Health & Safety	Property Damage	Air
Displacement	Local Economy and Growth	Water
Loss of Livelihood	Community Livability	Soil & Vegetation
Cultural Aspects	Public Administration	Ecosystem Function

(Source: Barrie Adaptation Plan)

Once the vulnerability and risk ratings were assessed, a risk and vulnerability matrix was utilized to determine the level of intervention required.



Assessing Adaptation Priorities for Action

The following criteria are proposed by BARC.

Climate Hazard

- Is the community already experiencing the climate impact that the action is intended to address? If not, is it expected in the medium term?
- Has the climate impact that the action is intended to address been rated high or medium risk through a vulnerability and risk assessment?
- Will this action help address a primary climate hazard?

Implementation Feasibility

- Has this action been prioritized in an existing work plan?
- Is this action considered a quick win?
- Can the project be implemented independently, without relying on other projects or sequencing?

Financial Considerations

- Are the projected costs low enough that they can be incorporated into existing budgets?
- Has funding for this action already been approved?
- Are relevant grant opportunities currently available, and is applying for them feasible?

Multi-solving Potential

- Is this action aligned with other strategic and/or master plans?

- Will this action contribute to reducing greenhouse gas emissions?
- Does this action support other community priorities (e.g., housing, affordability, biodiversity)?

Support and Buy-in

- Does the designated project lead currently support this action?
- Is there public support for this action?
- Is there buy-in from elected officials?
- Do local businesses or community organizations support this action?

Data Availability

- If data is needed to advance the action, is sufficient and accessible data available?

Prioritization criteria used by the Town of Barrie are shown below.

Exhibit 6: Action Prioritization Criteria

		1 (LOW)	2 (MEDIUM)	3 (HIGH)
SUSTAINABILITY	*Mitigation co-benefits*	Could result in increased GHG emissions	Not likely to affect GHG emissions	Could reduce GHG emissions
	Equity	Benefits only to some people	Benefits to many people	Significant benefits to many people
	Implementation Cost	Cost is high relative to cost of inaction	Cost is moderate relative to cost of inaction	Cost is low relative to cost of inaction
EFFECTIVENESS	*Robustness*	Effective for a narrow range of plausible future scenarios	Effective across many plausible future scenarios	Effective across a wide range of plausible future scenarios
RISK AND UNCERTAINTY	*Urgency*	Impacts are likely to occur in the longer term	Impacts are likely in the near to mid term	Impacts are already occurring
OPPORTUNITY	*Ancillary Benefits*	Will contribute little to other goals and programs in the community	Will contribute somewhat to other goals and programs in the community	Will contribute significantly to other goals and programs in the community
	No Regret	Will have little or no benefit if climate change impacts do not occur	Will have some benefits regardless of actual climate change impacts	Will result in significant benefits regardless of actual climate change impacts
	Window of Opportunity	There is no window currently	A window of opportunity could be created	A window of opportunity exists to implement
IMPLEMENTATION	*Public (or political) Acceptability*	Could face some public or political opposition	Not likely to receive much public or political attention	Likely to receive public/ political support
	Funding Sources	Additional funding sources are required but have not been identified	Additional funding sources may be required	Funding is available or not required
	Capacity (information, technical, staff, resources)	Current capacity is insufficient and gaps cannot be easily addressed	Gaps exist in one or more areas but can likely be addressed	Current capacity is sufficient to implement the action
	Institutional	Implementation requires coordination with, or action by, other jurisdictions	Implementation may require external approval/ coordination	Implementation is within local control