Electric Vehicle Council of Ottawa

Electric Vehicle Society

February 26, 2020

Electric Vehicle Council of Ottawa Monthly Meeting

Agenda

- EV roll call, introductions
- City of Ottawa – Energy Evolution!
- EV News/status – Mitchell
- Upcoming/past events – Raymond
- Round table discussions

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Energy Evolution City of Ottawa

Energy Evolution: Ottawa's Community Energy Transition Strategy

Electric Vehicle Council of Ottawa

February 26th, 2020

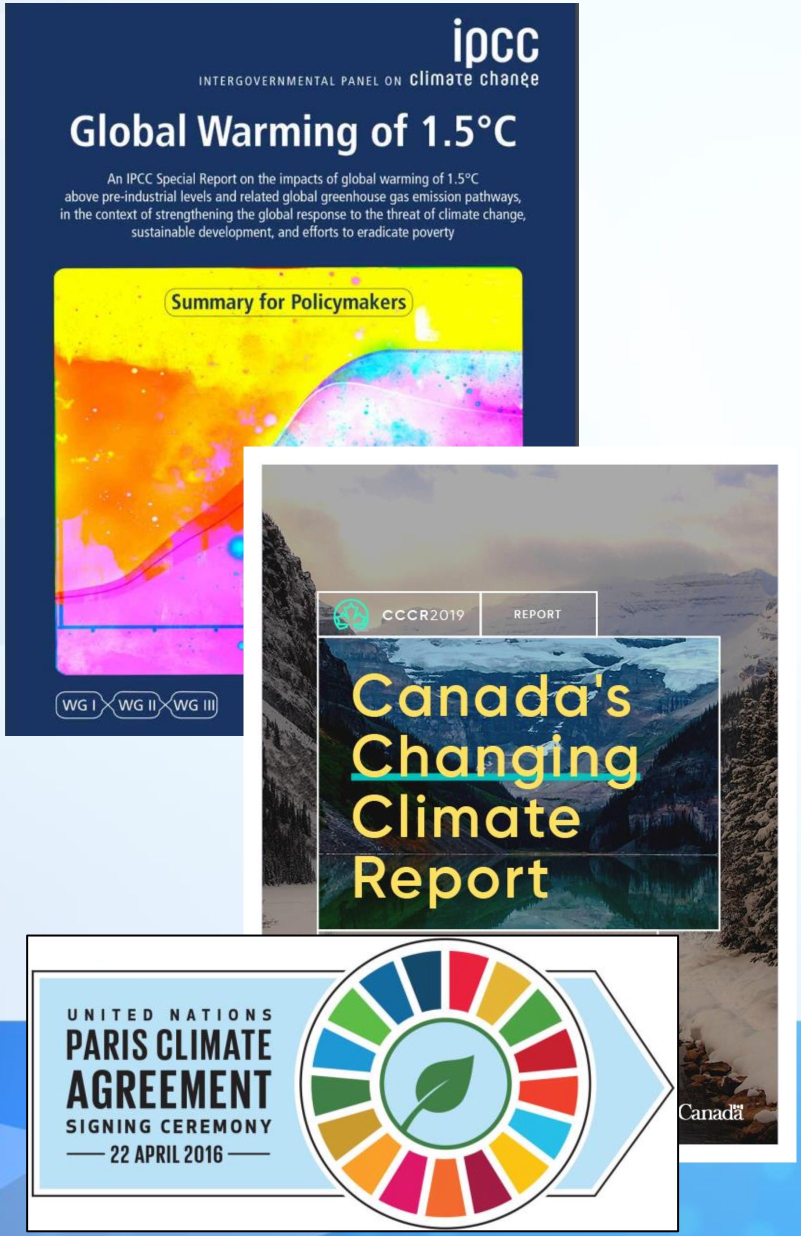
Ottawa

Agenda

1. Overview of Emissions, Targets and Energy Evolution
2. 100% GHG Reduction Scenario and What it Looks Like
3. Focus on Transportation
4. Next Steps

Introduction

- Limiting warming to 1.5°C will avoid much of the risk
- Meeting a 1.5 °C target is possible with "rapid, far-reaching and unprecedented changes in all aspects of society.“
- Ottawa declared a climate emergency on April 24, 2019
- On January 29th Council unanimously accepted the *CCMP* which set GHG reduction targets



Current GHG emission reduction targets

Community 2012 baseline	
2025	43%
2030	68%
2040	96%
2050	100%

Corporate 2012 baseline	
2025	30%
2030	50%
2040	100%

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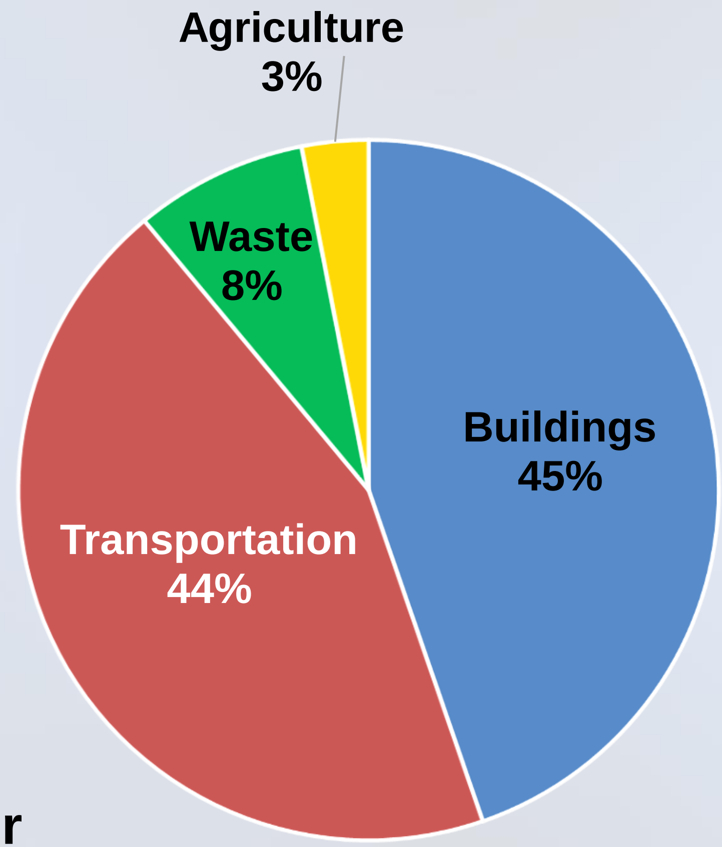
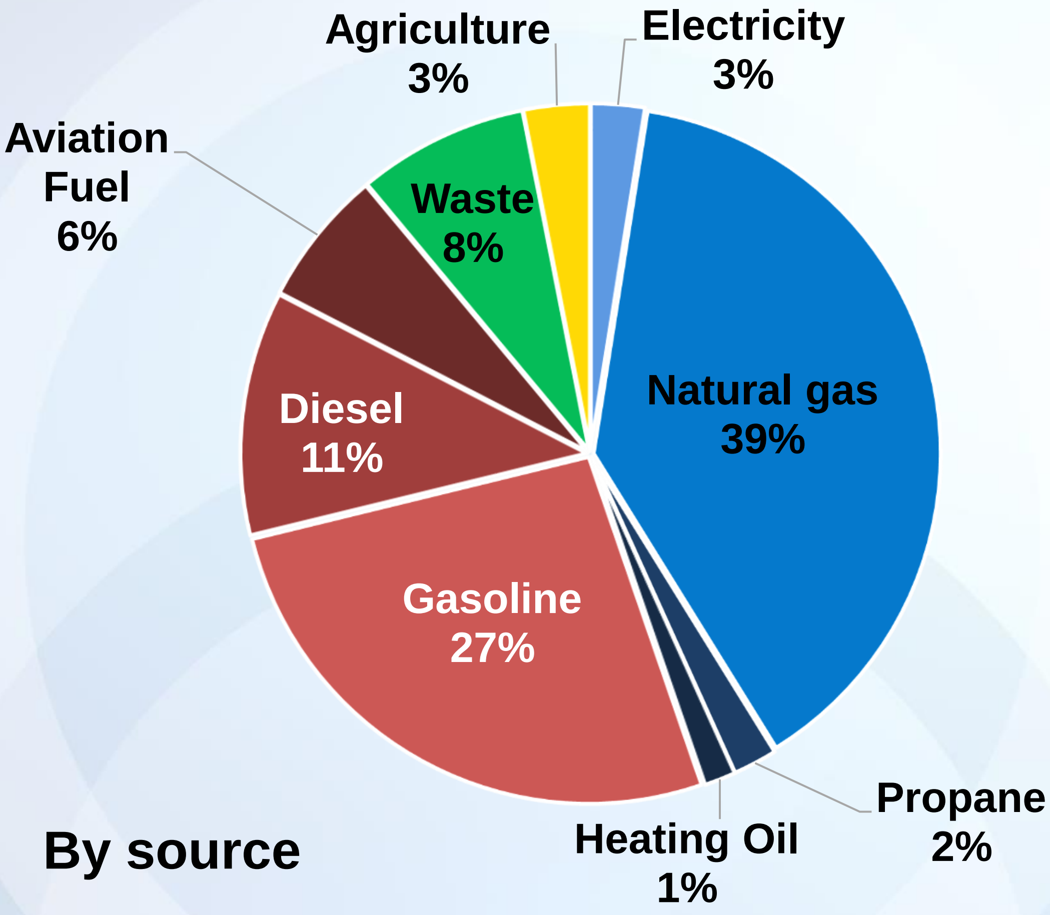
Community emissions (2018)



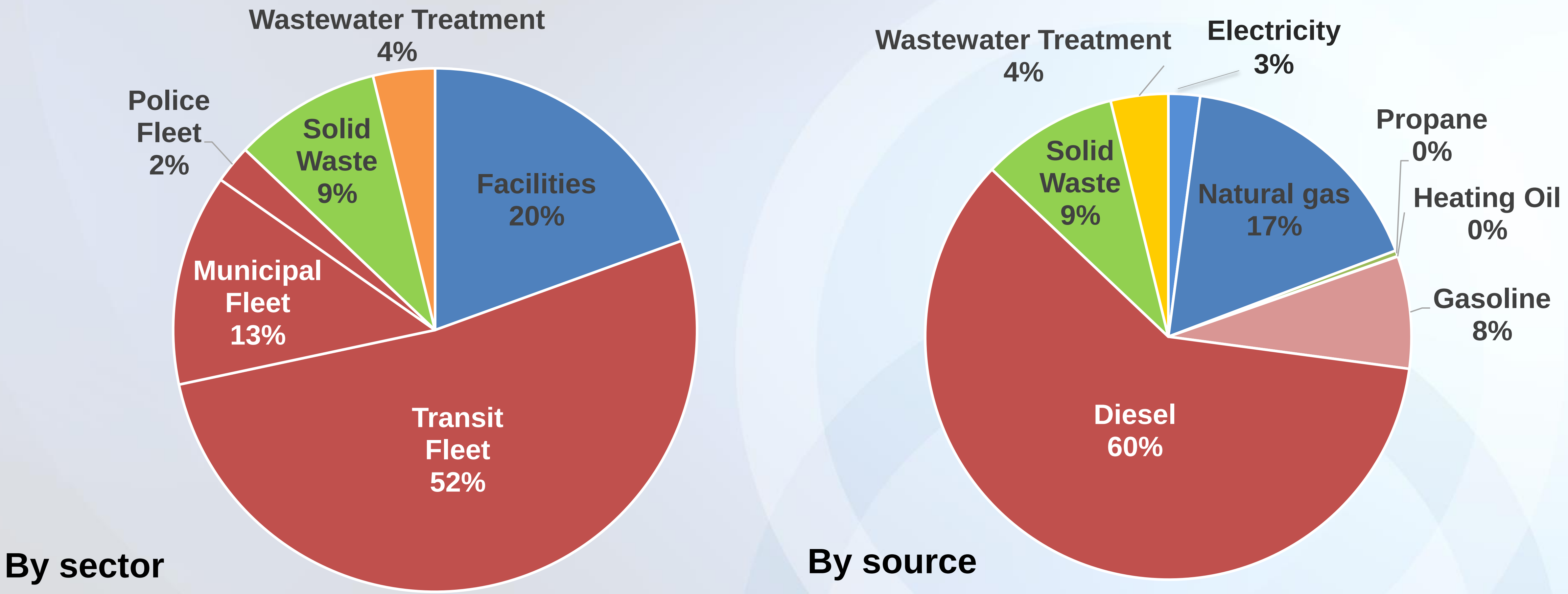
By sector



By source

Total emissions: 5,945 kilotonnes of CO_2e

Corporate emissions (2018)



Total emissions: 232.9 kilotonnes of CO_2e

Climate Projections

- Ottawa experiencing warmer, wetter, and more unpredictable weather
- New data predicts Ottawa will continue to get much warmer
  - Significant increases in extreme heat events
  - More frost-free days
  - Wetter springs and winters

Change	1976-2005 Mean	2051-2080 Low	2051-2080 Mean	2051-2080 High
Typical hottest summer day	33.7 °C	35.6 °C	38.6 °C	42.4 °C
Typical coldest winter day	-29.5 °C	-26.1 °C	-21.0 °C	-15.6 °C
Number of +30 °C days per year	14	33	57	81
Number of +20 °C nights per year	5	18	35	55
Number of below-zero days per year	152	89	111	131
Annual precipitation	886 mm	811 mm	978 mm	1166 mm
Frost-free season (days)	160	173	203	235

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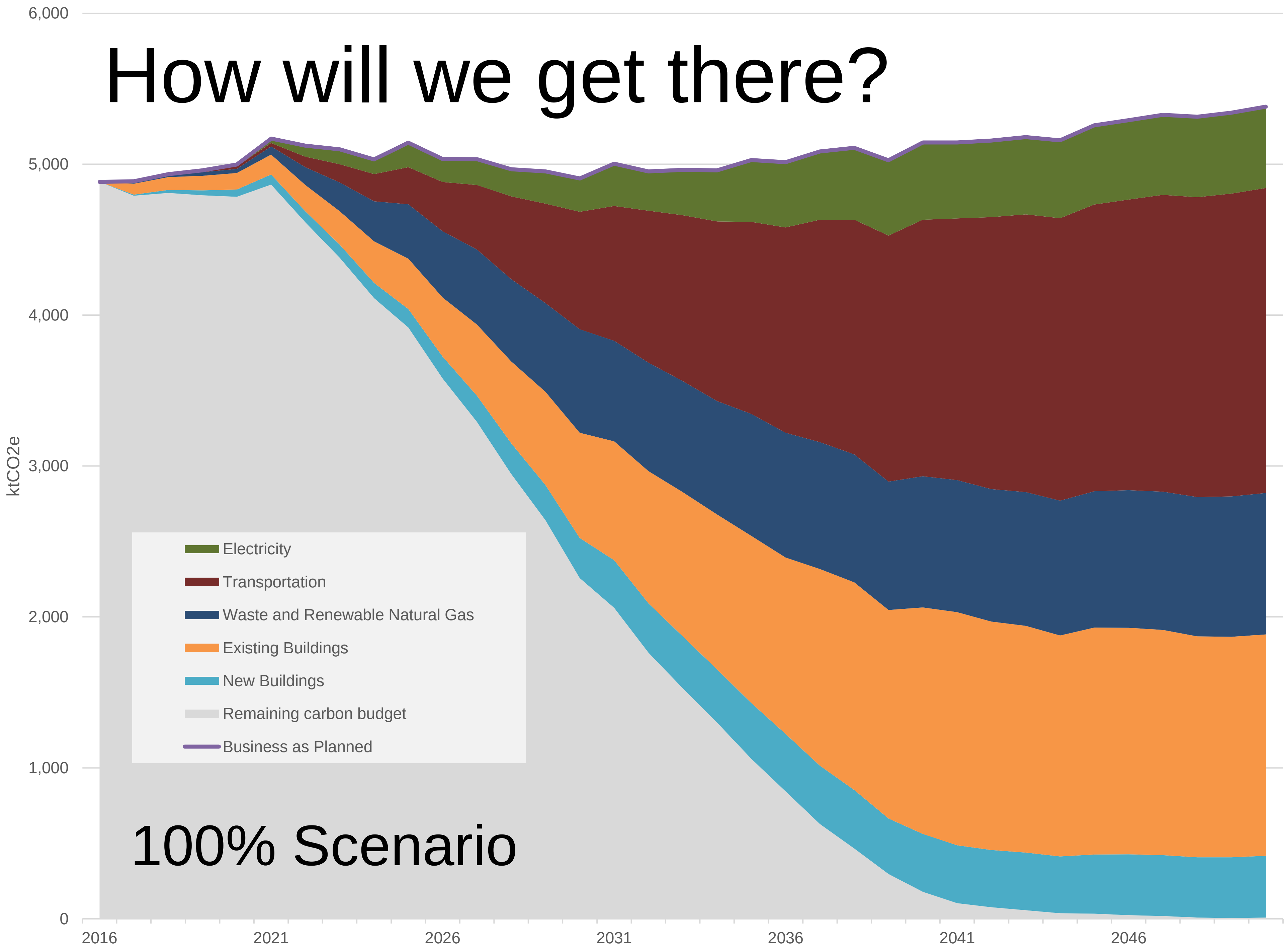
Energy Evolution Vision

Ottawa is a thriving City powered by clean, renewable energy.

Approach

1. Reduce energy use through conservation and efficiency
2. Increase the supply of renewable energy through local and regional production and prioritize its procurment

How will we get there?



Potential GHG Reductions

Electricity: 9.1%

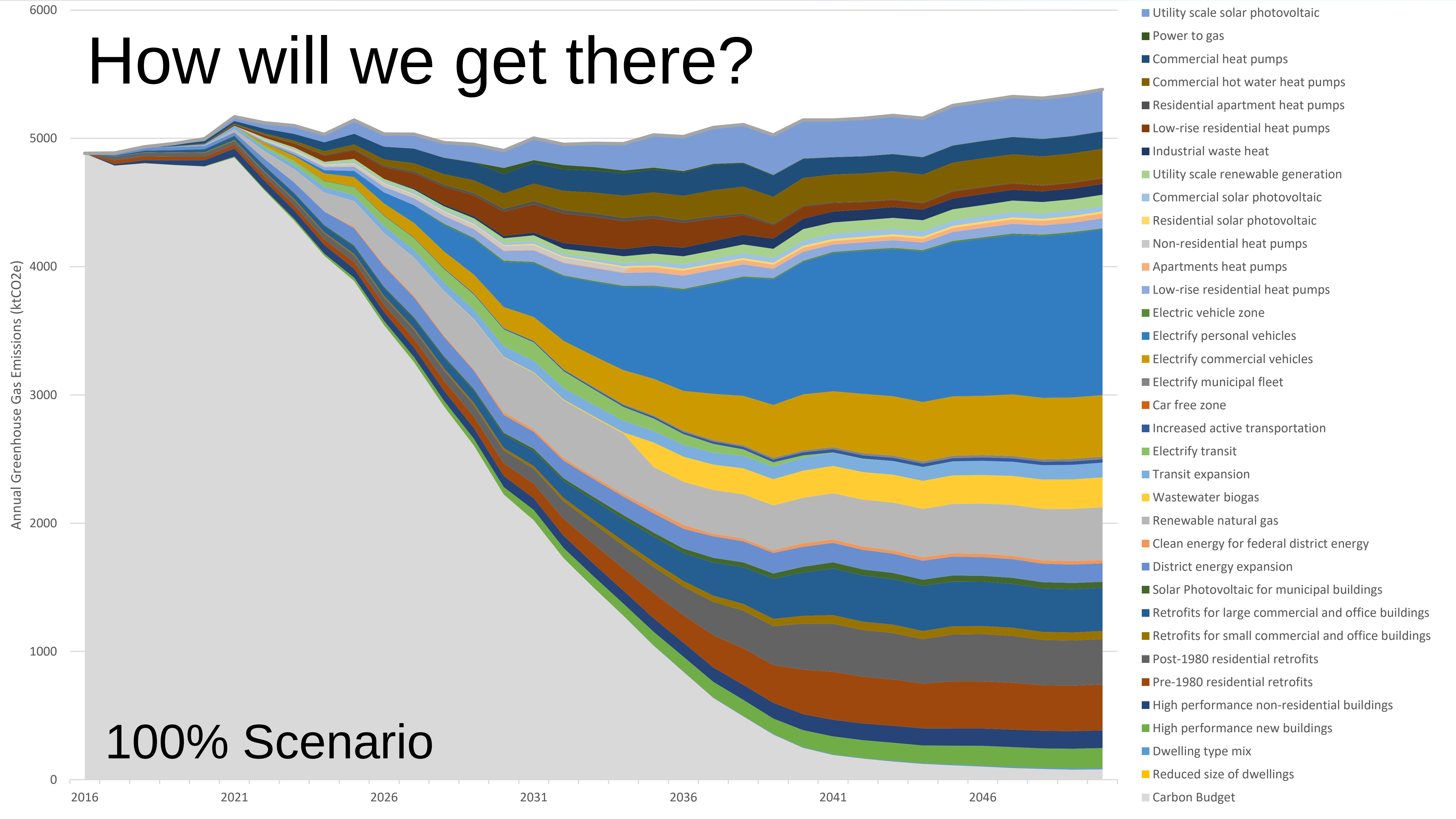
Transportation: 37.5%

Waste and Renewable Natural Gas: 17.5%

Existing Buildings: 27.2%

New Buildings: 7.6%

How will we get there?

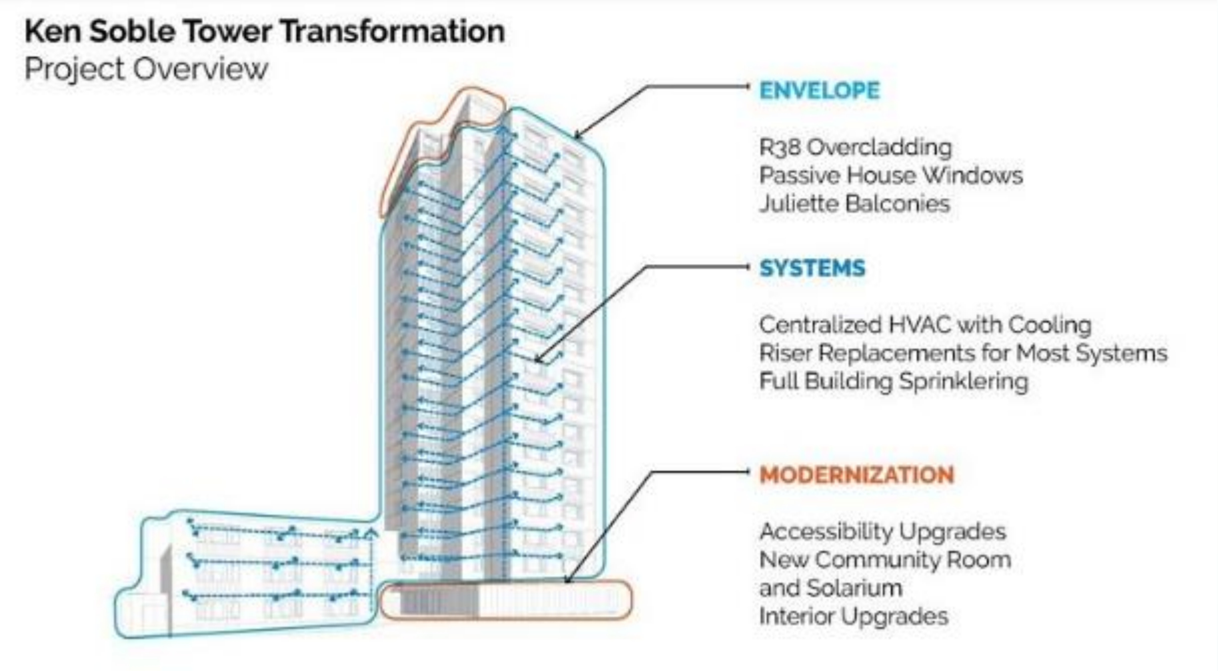


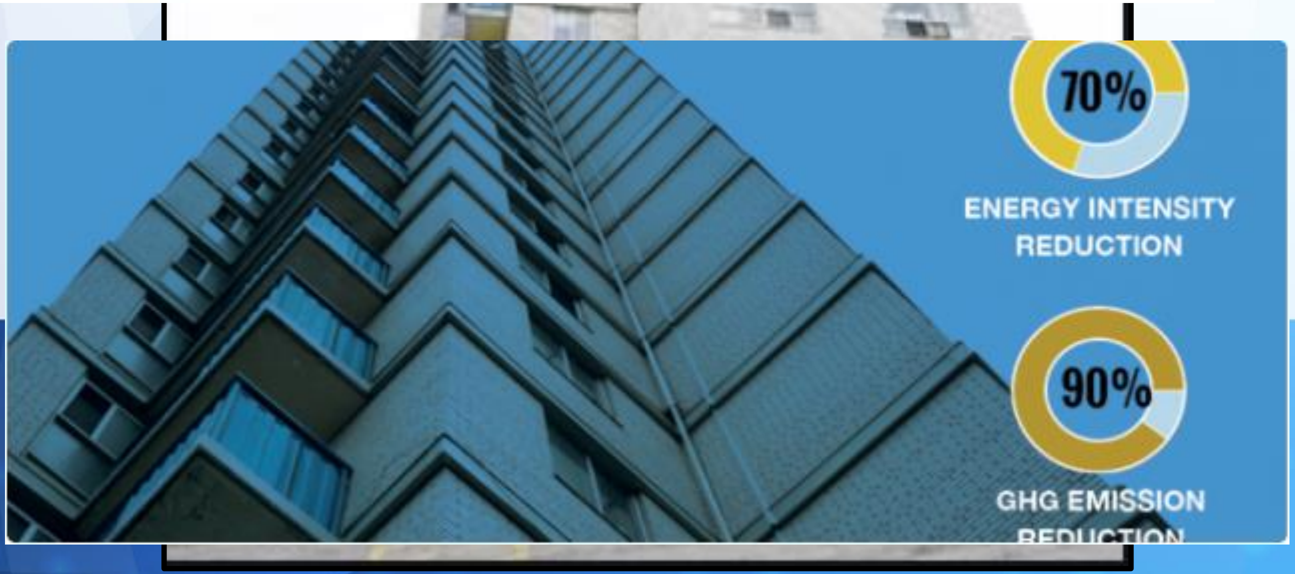
New Buildings – Preliminary Actions

- Develop a new High-Performance Development Standard
- Update City Green Building Policy

Existing Buildings – What the Future Looks Like

- Residential and commercial buildings are much more energy efficient (60-70% thermal savings and 30-40% electrical savings)
- 16% of municipal buildings retrofit to net zero emissions by 2030





Waste and Renewable Natural Gas – Preliminary Actions

- Align Waste Master Plan and concurrent projects with EE
- Optimize Renewable Natural Gas
  - Sewage and organics waste biogas
  - Rural agricultural biogas
  - Power to gas strategy

Electricity and Energy Storage – What the Future Looks Like

- Per capita energy use, space heating and water heating demands decrease
- More distributed energy generation 3.2 GW Wind, 1.1 GW Solar, 700MW storage
- Generally, direct fuel switching is not an option

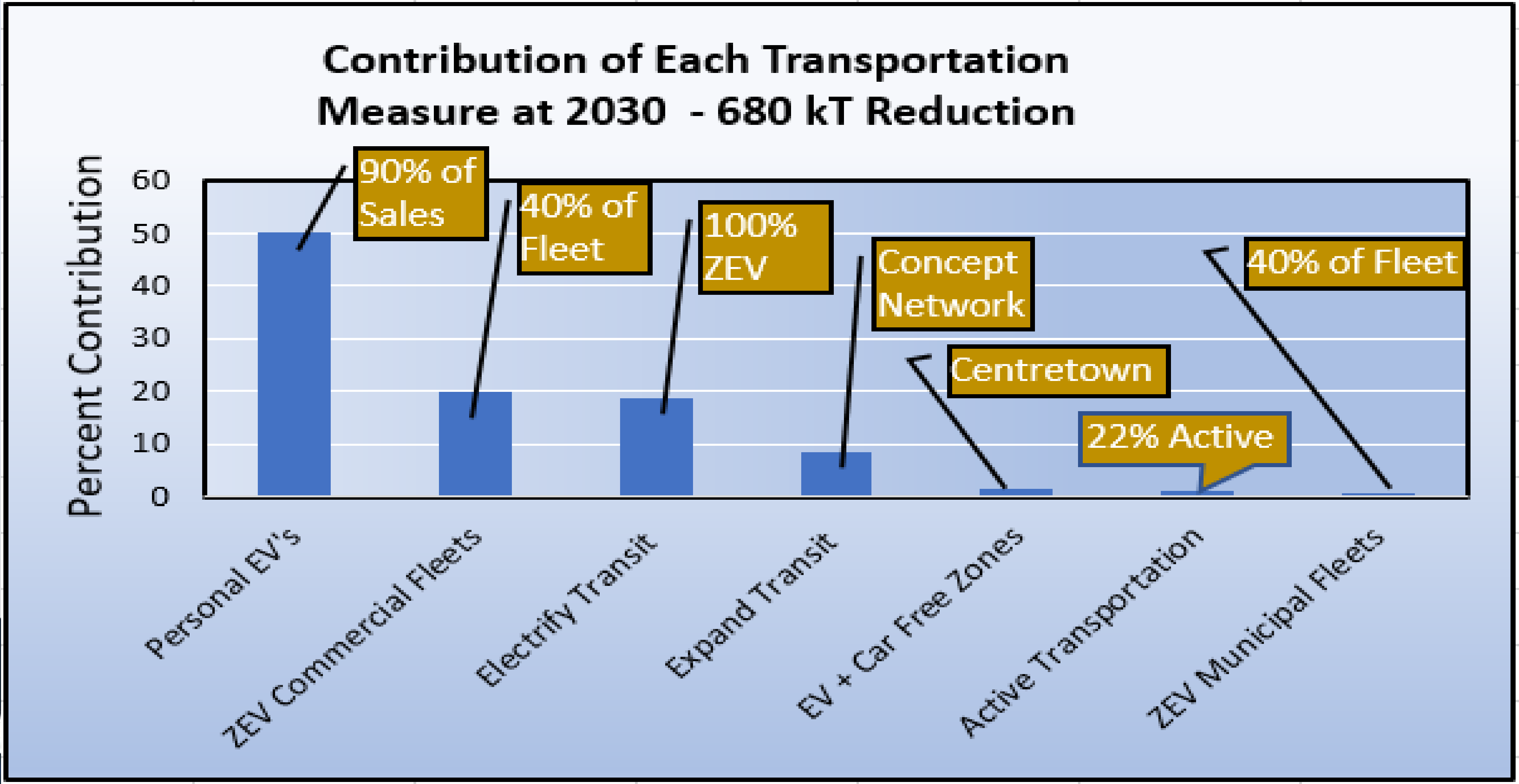
Enhanced Transit

- Concept network is higher frequency and has more Bus Rapid Transit
- 100% Transit Electrification includes all buses, LRT lines, Paratranspo and all expansions

Zero Emission Vehicles (ZEVs)

- EVs are 90% of new light vehicle sales after 2030; would be around 30% of fleet
- The model calls for heavy fleet is ZEV as it’s not certain they will all be BEV

GHG Reduction Drivers in Transportation



Encouraging Personal EV's – What's Easy

What We Know…

A. Knowledge sharing really helps
B. Home charging is critical
C. Workplace charging helps
D. Public charging for top up and reducing range anxiety
E. Some charging uptake data
F. Factors for good charging locations

…What We Can Do

a) EV Events, Discovery Centre, City fleets as examples
b) Work on home or on street charging
c) Encourage workplace charging
d) Install more charging
e) Get more data, use data to assess need for more charging
f) Employ the location factors

Encouraging Personal EV's - Questions

Things we think about:

1. Public Charging: how heavily is it used?
2. How much public charging does the City have to install?
3. To how much of a degree is a lack of home charging an impediment in Ottawa?
4. How should we address home charging problems in existing MURBs

Things we do:

1. Run EV events
2. Install Public Charging

Things we are considering:

1. Expand Policy: Workplace Charging, Re-enforce existing sites, more sites
2. Tracking community public charger utilization
3. Support for MURB's
4. EV Strategy

Proposed Energy Evolution final report (Q2 2020)

- Final energy and emissions model
- Financial and affordability analysis
- Detailed descriptions of proposed projects and action plan
- Spending plan for 2019 Hydro Ottawa dividend surplus, once amount is known

For more information

Overall Climate Change Issues

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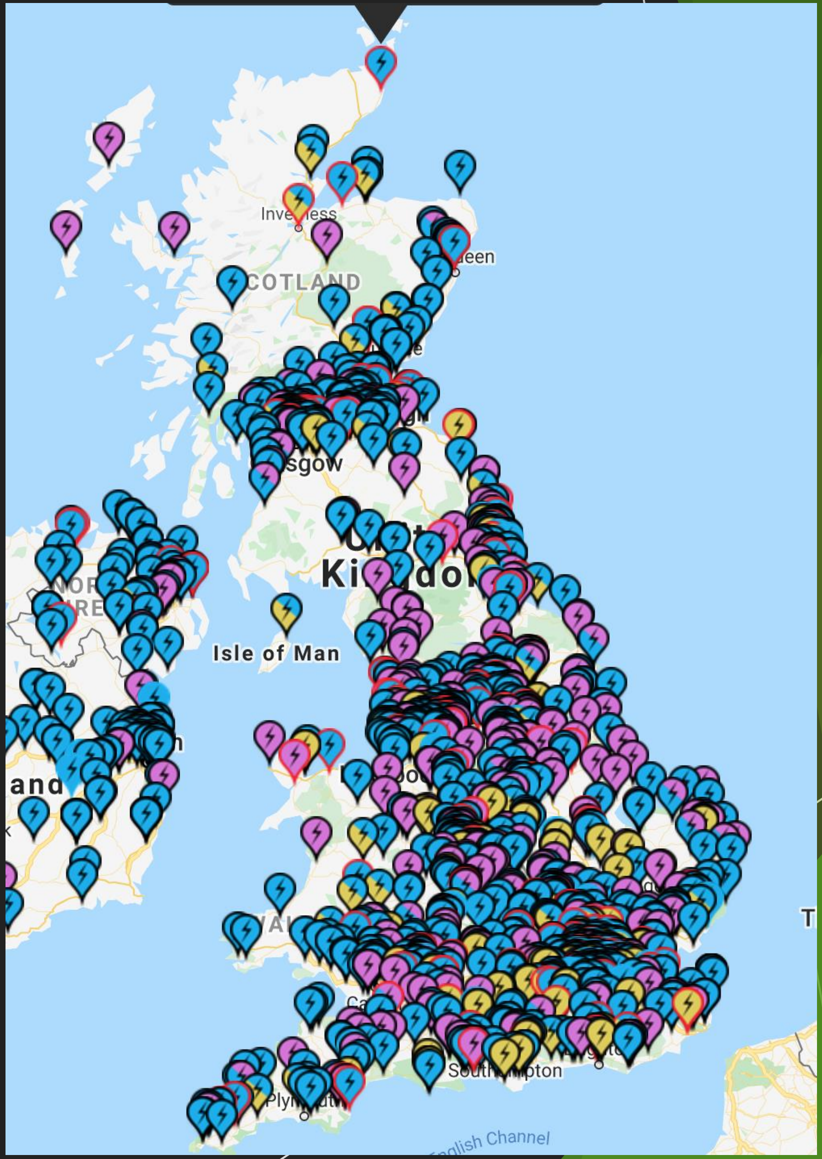
EV News February

UK EV Ban

- Original plan to ban sale of combustion engine vehicles for 2040 amended to target 2035.
- Originally supported plug-in hybrids, but now strictly designed for fully-electric vehicles
- Given 20-year lifetime, the 5 year pushback should reduce the number of fossil fuel vehicles operating on British roads sooner



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https://www.electrive.com/2020/02/04/uk-aims-to-bring-ice-ban-forward-by-5-years/

Sweden electric airports

- First electric domestic flights, as well as short-haul flights between Ostersund and Roros airport in Norway.
- Swedish airline to deploy infrastructure to support electric travel between all 10 of Sweden's airports. Developing new connections for electric travel.
- 2030 goal of having domestic aviation be free of fossil fuels

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https://www.electrive.com/2020/02/17/sweden-to-equip-airports-for-domestic-electric-flights/

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GM Upgrade to Hammertrack

- To become first all-electric factory: GMC Hummer EV and self-driving Cruise electric vehicles
- $2.2 billion overall, and beginning production in March
- Battery sourcing from LG Chem
- New battery architecture with larger footprint, higher energy density, flexible modular design and high-power DCFC

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OPP Tesla Police VEhicles

- OPP seriously (?) asks Elon about which vehicle makes the better police vehicle
- Already done analysis on the cost/benefits of electric vehicles for police
- Dubai police force already ordered Cybertruck

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OPP Highway Safety Division ✓
@OPP_HSD

Hey @elonmusk your staff are already promoting #LawEnforcementTesla vehicles. Let's get some prototypes ready for market. I will volunteer to evaluate😉 DM me #SgtKerrySchmidt 🤓

5 trends of e-mobility

- Two and Three Wheeled vehicles
  - Lower energy demands require smaller batteries, making them cheaper than alternatives
- Municipal electric buses
- Digital ride hailing
  - Incentives and programs for electric driving options
- Last mile delivery
  - Inner city routes with return-to-base
- Two-car families
  - One do-everything car, one daily chores car (electric)

Question has moved from "<u>if</u>" electric vehicles will become mainstream, to "<u>when</u>".

Disruptive technologies find niches with clear wins and grow from there.

Quick easy wins put further R&D helping to lower costs quickly.

Becomes a self-sustaining model

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https://cleantechnica.com/2020/02/19/5-trends-are-ushering-in-the-age-of-electric-vehicles-bloombergnef/

Past Events

Reaching outside the bubble!

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Past Events

- Feb 19 – Transit Commission – EVCO Presentation
  - Work Plan 2020 – too slow
    - E-bus purchase 2020
    - E-bus pilot 2021
    - Report
    - “Decide” and buy e-buses - > 2024
  - Proposal from EVCO
    - Engineering work for charging infrastructure in 2020
    - Prepare in 2021
    - Purchase e-bus for large deployment in 2022

Upcoming Events

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Upcoming Events - regular

March 12 – Green Drinks

The Fox & Feather Pub & Grill - 283 Elgin Street – 5:30-8:30

March 30 - Next EVCO meeting

GREEN DRINKS - MARCH 12, 2020
CELEBRATING WOMEN IN SUSTAINABILITY
Bridget O'Flaherty
Sustainability Consultant
Laura Scrimgeour
Strategic BIAS
Kathleen Eglin
Rightwheel Inc / EVCO
Hosted by
SMARTNet Alliance.ca
Every 2nd Thursday of the month
Fox & Feather Pub
283 Elgin, Ottawa
RSVP: bit.ly/GDOTTMar2020
@GreenDrinksOTT
Facebook.com/OttawaGreenDrinks
Ottawa-Renewable-Green-Energy-Meetup
GREEN DRINKS OTTAWA

Upcoming Events

- March 19-22 Ottawa Gatineau International Auto Show
  - Need (lots of) volunteers! – free t-shirt!
  - Will have 3,300 square feet
  - Please sign up on our web site
- March 25 – 7-9PM - Westboro Brainery
- April 19 Kemptville Sustainability Fair and EV Show – 10AM-3PM – need cars and volunteers
- (April 24-26 Salon du véhicule électrique (Montréal))
- (April 27-30 MEC - EVÉ 2020 - Toronto)

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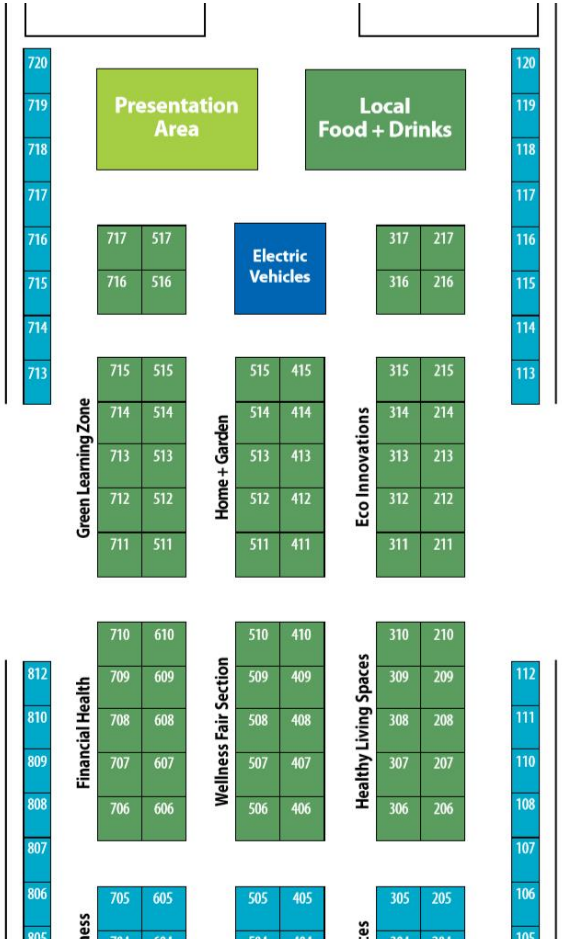
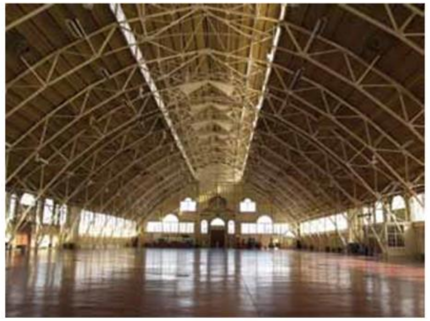
Upcoming Events

- May 2-3 My Healthy Green Planet Expo
  - Aberdeen Pavillion, Lansdowne Park
- May 29 – 11AM-1PM – Transport Canada
- June 14 Envirocenter EV Day
  - Museum of Science and Technology
  - Plug'n Drive
- Jul 1 – Aviation Museum





OTTAWA ELECTRIC VEHICLE DAY

by/par envirocentre

Sunday, June 14th
9am - 4pm
Canada Science & Technology Museum
1867 St Laurent Blvd

- Test drives with Plug 'n Drive
- Vehicle exhibition by the Electric Vehicle Council of Ottawa
- Information booths
- Free & family friendly!

www.envirocentre.ca

CANADA SCIENCE AND TECHNOLOGY MUSEUM

Electric Vehicle Council of Ottawa
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PLUG 'N DRIVE

EnviroCentre acknowledges the financial support from the City of Ottawa.

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Upcoming Events

- Aug 2 – Automotion 2020 – Brockville
- Aug ~5 - 3-8PM Kanata North Summerfest and EV showcase
- Aug 15 - 4th Annual EV Day in Brockville
- Sept 12 – National Capital Car Show
- Sept - Autumn Festival – Innis Ward
- October 3 – GEDO – Green Energy Doors Open
- November ~6 MIFO event

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Presentations

- If you would like to present at a future meeting:
  - Send me e-mail, I will send you the template
  - Provide your slides by the Sunday before the meeting
  - I will integrate into overall presentation

Other

- Hydro Ottawa EV Charging Program
  - http://hydroottawa.com/ev-register
- Become a member of EV Society
  - https://evsociety.ca/join/

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