Electric Vehicle Council of Ottawa

Electric Vehicle Society

March 29, 2021

Electric Vehicle Council of Ottawa Monthly Meeting

Agenda

- Overview of agenda/introductions – Raymond Leury
  - **Zero-Emission Vehicle Infrastructure Program (ZEVIP)**
- Hydrogen – Darryl McMahon
- EV News – Mitchell House
- New Flyer Electric Bus – Mike Banks
- Past/Upcoming Events – Raymond Leury
- Round table

Zero-Emission Vehicle Infrastructure Program (ZEVIP)

Zero-Emission Vehicle Infrastructure Program (ZEVIP)

- Request for Proposals (RFP) focusing on:
  - Public places - service stations; retail; restaurants; arenas; libraries; medical offices; park and ride; etc.
  - On-street – local government
  - Multi-unit residential buildings (MURBs)
  - Workplaces – for employees
  - Light, Medium and Heavy-Duty Vehicle Fleets – taxis, school buses, etc.
  - Now open until **June 22, 2021**
- NRCan will target having **funding decisions by October 2021.**
- Proponents may have up to **30 months from the date of agreement signature** for the completion of EV charging projects, and up to 36 months from the date of agreement signature for hydrogen refueling projects.

Source: https://www.nrcan.gc.ca/energy-efficiency/transportation-alternative-fuels/zero-emission-vehicle-infrastructure-program/21876

How much can you receive?

- NRCan's contribution through this Program will be limited to fifty percent (50%) of Total Project Costs up to a **maximum of five million dollars ($5,000,000) per project**.
- The maximum funding per type of infrastructure is as follows:

Type of Infrastructure	Output	Maximum Funding
Level 2 (208 / 240 V) connectors	3.3kW to 19.2kW	Up to 50% of total project costs, to a maximum of $5,000 per connector *
Fast charger	20kW to 49kW	Up to 50% of total project costs, to a maximum of $15,000 per charger
Fast charger	50kW to 99Kw	Up to 50% of total project costs, to a maximum of $50,000 per charger
Fast charger	100 kW and above	Up to 50% of total project costs, to a maximum of $75,000 per charger
Hydrogen refuelling station	Dispensing at 700 bar minimum	Up to 50% of total project costs, to a maximum of $1,000,000 per site

Electric Vehicle Council of Ottawa

Electric Vehicle Society

*To calculate the funding for level 2 chargers, each connector can count as a unit towards the minimum of 20 chargers if each connector can charge a vehicle at the same time.
**10,153 psi or 691 Atmospheres

Let’s talk about Hydrogen
Darryl McMahon

EV News – March 2021

Summary

- VW/Audi to halt Combustion Engine Development
- Volvo and Mini All-Electric
- VW Power Day – EV Sales Projections
- Kia EV6/Hyundai Ioniq 5
- Canoo Electric Pickup

VW and Audi Ceasing Development of New Engines

- Europe: 70% of sales to be electric by 2030
- US: 50% by 2030
- Existing models will utilize existing engines, and offer plug-in hybrid powertrains with up to 100 km range
- Future products to be offered with fixed hardware, and features to be enabled through software
- Anticipating new upcoming Euro 7 emissions standards “scenario that makes it almost impossible to still register internal combustion engines after 2025”

Mini and Volvo to become All-Electric

- Mini
  - Plan to only sell pure electric cars from 2030 onwards.
  - Last model with engine will be released in 2025
- Volvo
  - Will only offer vehicles with pure electric powertrains in 2030
  - Phase out every model with an engine
  - Selling models exclusively online, using pre-configured vehicles to accelerate ordering and production

Volkswagen Power Day

- New, uniform battery cells, with different cell chemistries to accommodate different vehicle needs
- Reducing costs by 30%, and up to 50% for smaller vehicles, with recyclability of 95%.
- High-performance battery cells being developed for Porsche and Audi brands using silicone-based anodes instead of graphite.
- VW Group alone will need 240 GWh of cells by 2030; constructing 6 factories producing 40 GWh of cell annually (partnered with Northvolt on 3 plants already under construction)
- Co-operation with BP, Iberdrola and Enel on installing 18,000 fast chargers in Europe. Ionity network will also grow, with new stations having at least 6 and up to 12 350 kW charging stations
- 3,500 fast chargers in North America by the end of 2021.
- Plans for vehicles to integrate with private, business and public energy systems, including buffering solar power for later consumption in households, or operating vehicle batteries within the existing grid.

Kia EV6 and Hyundai Ioniq 5

- 58 or 73 kWh battery packs (North America likely getting only larger battery)
- Rear or AWD
- 800-volt charging enabling 10-80% charge in 18 minutes
- Likely 40,000-45,000 USD starting price (Special Edition MSRP of ~$63,000)
- Likely range of 400-500 km depending on season

Canoo Electric Pickup

- Designed as the anti-Cybertruck
- Bubbly design, with multiple utility functions
  - Extendable truck bed to move from 6 feet to 8 feet
  - Fold-out side table from truck bed
  - Modular bed dividers
  - Front frunk folds out, with multiple outlets and a workbench
  - Roof rack for carrying additional payload
- Design is mostly steel, so will likely cost close to/less than competition

Meet Ottawa's New eBuses!

Michael Banks
Vice-President, EVCO

Electric Vehicle Council of Ottawa

Electric Vehicle Society

Overview

- We did it!! (But the work is not done!)
- Albuquerque, a cautionary tale (& ammo for detractors)
- A change in course for the City of Ottawa (thanks to us!)
- Meet the new buses!
- Made in Canada for Canadian weather
- Charging Specs
- Bus Specs
- How do they stack up?

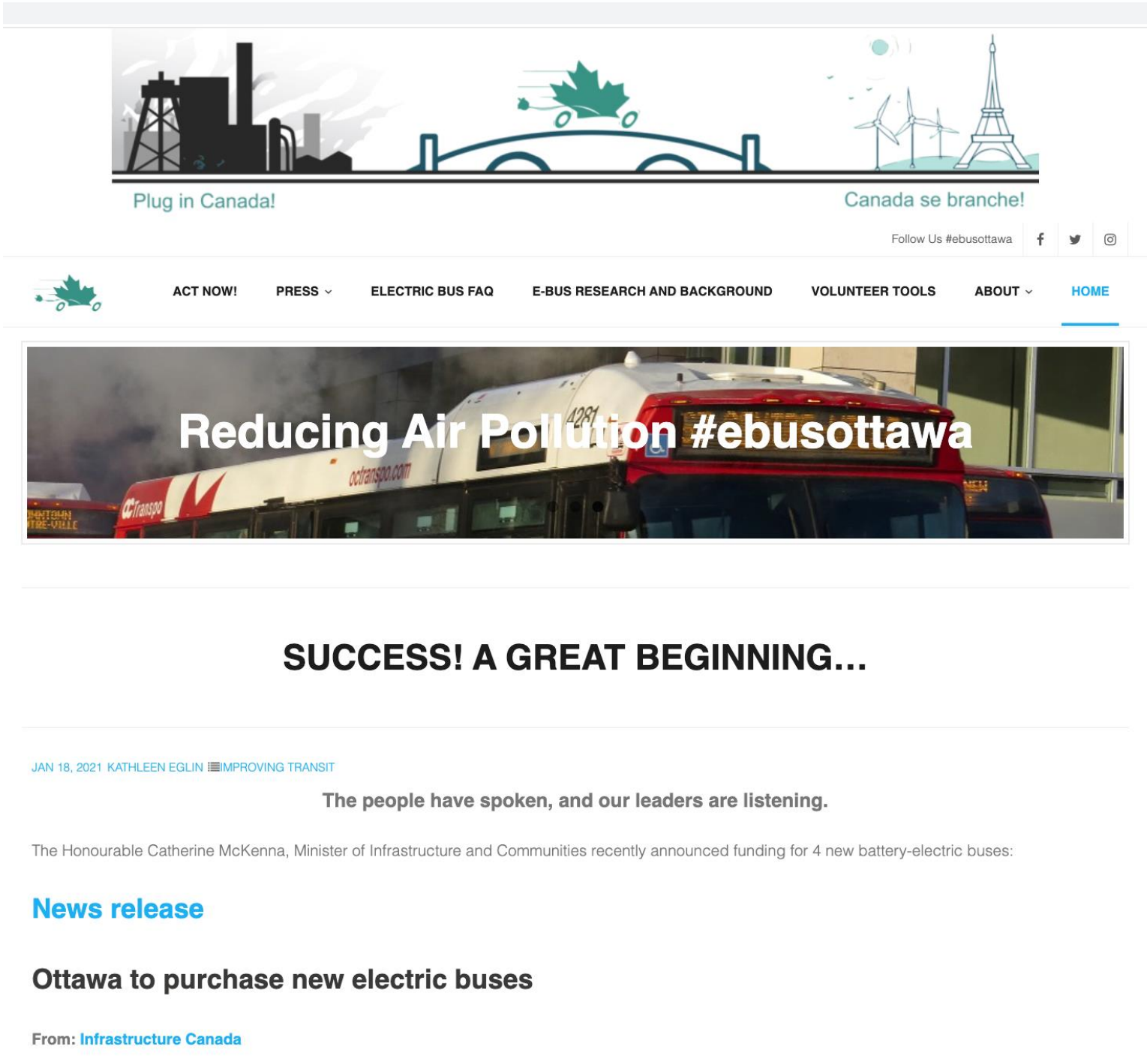
We Did It!!


6 Greenboro
6619
#eBus Ottawa
Sign the Petition
Tell your Friends About It


Going Electric
Virage électrique
OC Transpo
4345

…but the work continues

- eBuses are now seen as a “critical” part of the city’s climate change initiatives
- “Moving from diesel to electric is instrumental in meeting our carbon emission goals,” Watson said Thursday March 4th
- City needs to commit to making 2021 the last year for new diesel buses in Ottawa



Electric Vehicle Council of Ottawa

Electric Vehicle Society

A Cautionary Tale for eBus Supporters: Albuquerque NM

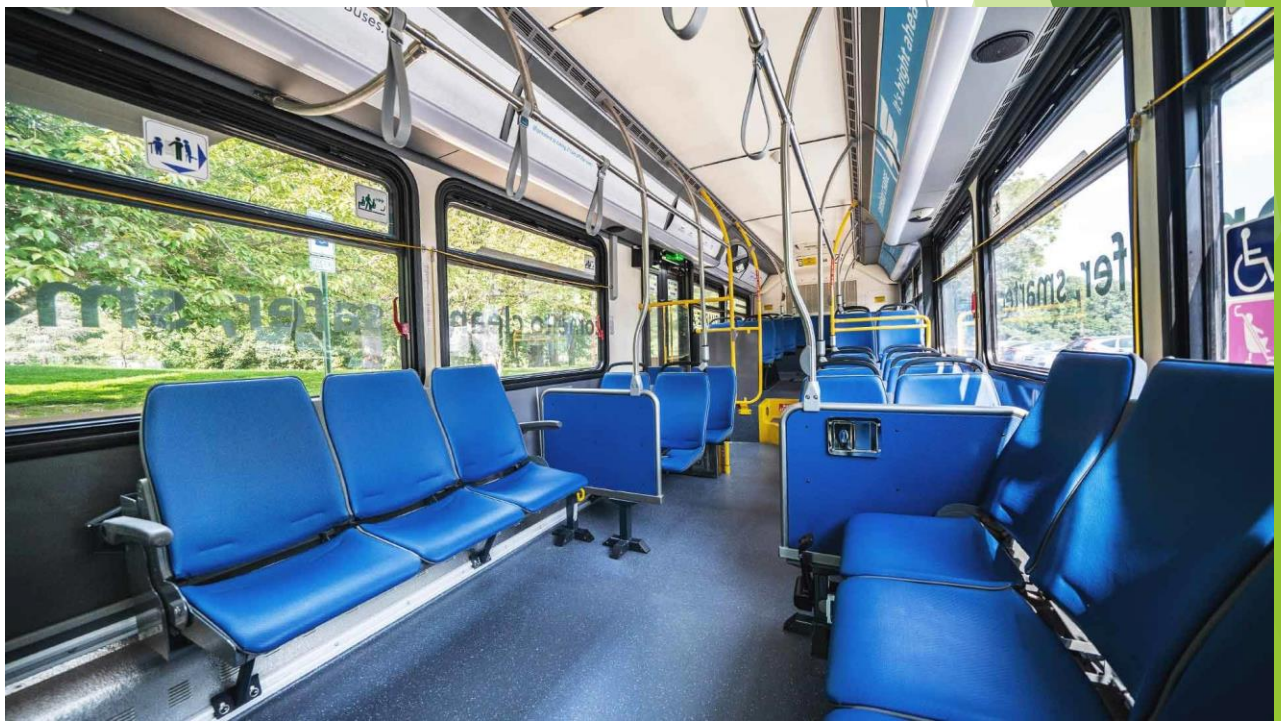
- Contracted BYD in 2016 for 18 all-electric buses.
- Buses arrived starting in 2017 & had immediate issues
  - Could not meet stated range
  - Poor build quality with battery overheating, exposed wires, faulty brakes, defective charging system.
- Project was canceled after just months and the city sued BYD.
- Settled in May 2019 (and never paid BYD).
- August 2020 city contracted Proterra for a new bus fleet.
- Alburquerque is a unique case study.

Electric Vehicle Council of Ottawa

Electric Vehicle Society

A Change in Course for the City of Ottawa (thanks to us!)

- OC Transpo 2020 Business plan, “Alternative Fuels Program for OC Transpo Fleet” was 8th on the list of priorities
- In the 2021 Business plan, “Battery-Electric Bus Project” is 2nd on the list of Top 10 Key Priorities for this year after “Operational Response to COVID-19”.



Electr

Meet The New Buses!

- First battery-electric Xcelsior series of buses was launched by New Flyer in 2009
- New Flyer eBuses have been in service for over a decade now in a number of cities across North America
- Latest and current version is the NG which launched this year.
- Previous version of Xcelsior is already in service in Toronto with the TTC (pictured).

Made In Canada, For Canadian Weather.

- Chicago was the first cold-weather US city to begin switching to ebuses, the bus they chose was the New Flyer Xcelsior for it's ability to handle harsh winters.
- Estimated maintenance savings at $10,000 per year per vehicle - before counting fuel savings.

Electric Vehicle Council of Ottawa

Electric Vehicle Society

Charging Specs

- Buses are charger agnostic - they use industry standards and are compatible with all heavy-duty vehicle chargers including plug-in (CCS) and overhead DCFC.
- Depot charge to full in 3.8 hours (using CCS) for the largest, 525 kWh pack.
- Overhead DCFC capability (en route charging) means buses could stay in service 24/7.

Partnership programs.

New Flyer Infrastructure Solutions™ currently has partnership programs with leading firms including Black & Veatch, ABB, ChargePoint, Burns & McDonnell, Siemens, and Heliox and will continue to grow its key partner network over time to ensure the best value for customers.

BLACK & VEATCH
SIEMENS
heliox
BURNS McDONNELL
chargepoint+
ABB

Electric Vehicle Council of Ottawa
Electric Vehicle Society

Bus Specs

- Available in all sizes currently used by OC Transpo
- The four new eBuses for OC Transpo will be 40’ buses
- Battery capacities range from 160kWh (280km) to 525kWh (404km)
- Capacity 83 people:
  - 40 seated
  - 43 standing

Xcelsior CHARGE NG™ is New Flyer’s next generation battery-electric, zero-emission bus. It is lighter, simpler, has longer range with better energy recovery and is smart city capable – making it the most advanced electric bus on the market.

Available in 3 Lengths

Direct Comparison to Alternatives

- Xcelsior Charge NG is second-lightest bus (when comparing base models)
- Top speed is deliberately limited for all buses
- eBus version is very competitive with incumbent and alternate fuel variants and can be a drop-in replacement for existing Diesel buses.






40' Model Comparison

	Top Speed	Power Peak	Range	Fuel economy (mpg) or range (in KW / km)	Curb Weight
Xcelsior CHARGE NG™ Explore	65 mph (105 km/h)	160kW base/210kW opt	251 miles (403 km)	–	28,850 lb (13,086 kg)
Xcelsior CHARGE H2™ Explore	65 mph (105 km/h)	160kW base/210kW opt	350 miles (563 km)	–	32,250 lb (14,628 kg)
Xcelsior® Explore	65mph (105 km/h)	–	350-400 miles (563-644 km)	–	29,600 lb (13,426 kg)
Xcelsior Trolley Explore	45 mph (72 km/h)	500kW	9-16 miles (15-25 km) off-wire	–	30,500 lb (13,835 kg)
Xcelsior Hybrid Explore	65 mph (105 km/h)	–	557 miles (896 km)	Up to 5.77 mpg	29,100 lb (13,200 kg)
Xcelsior Diesel Explore	65 mph (105 km/h)	–	475 miles (764 km)	Up to 4.77mpg	27,750 lb (12,587 kg)

Electric Vehicle Council of Ottawa

Electric Vehicle Society

Conclusions

- The city made an excellent choice!
- eBuses work and have worked for over a decade now in similar conditions to Ottawa
- eBuses have comparable range to existing and other alternative buses
- They are not significantly heavier and have no compromises when compared to other buses
- They come in multiple sizes suitable for OC Transpo's current and future needs.
- They are charger agnostic and capable of both AC and DC fast charging using industry standards.
- The current pathfinding buses should set the city up for success in a quick transition to all-electric buses.

See www.plugincanada.ca for more info

Electric Vehicle Council of Ottawa

Electric Vehicle Society

Past Events

Reaching outside the bubble!

Electric Vehicle Council of Ottawa

Electric Vehicle Society


VIRTUAL GREEN DRINKS MARCH 11, 2021
A PRACTICAL GUIDE TO HEAT PUMPS
Join Us On Zoom
Matthew Eglin
President,
Rightwheel Inc.
Rejean Pleau
Electronic Engineering
Technologist
Aaron Thornell
Customer & Member Manager,
CoEnergy Co-op/OREC
Hosted by
SMARTNet Alliance.ca
Every 2nd Thursday of the month
Now Presented Online via Zoom
Please Register Via Eventbrite
To Receive a Link to Join
Space is Limited
RSVP: bit.ly/GDOTTMar2021
@GreenDrinksOTT
Facebook.com/OttawaGreenDrinks
Ottawa-Renewable-Green-Energy-Meetup
GREEN DRINKS OTTAWA

Upcoming Events

Electric Vehicle Council of Ottawa

Electric Vehicle Society

Upcoming Events - regular

April 15 - Green Drinks

Virtual via Zoom

http://bit.ly/GDOTTApr2021

April 26 - Next EVCO meeting

VIRTUAL GREEN DRINKS APRIL 15, 2021
ORGANIZATIONS WITH IMPACT

Join Us On Zoom

Noelle Le Conte-Good
Founder,
The Good Choice Initiative

Kathryn Norman
Program & Communication Coordinator,
Sustainable Eastern Ontario

Kathleen O'Hara
Co-Founder,
Time 4 Action

Ken Johnson
Co-Founder,
Time 4 Action & Below 2C

sted by SMARTNet Alliance.ca

Now Presented Online via Zoom
Please Register Via Eventbrite
To Receive a Link to Join
Space is Limited

RSVP: bit.ly/GDOTTApr2021
@GreenDrinksOTT
Facebook.com/OttawaGreenDrinks
Ottawa-Renewable-Green-Energy-Meetup

Upcoming Events

- March 31st -

Electric Vehicle Council of Ottawa

Electric Vehicle Society

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

Roundtable!!

Electric Vehicle Council of Ottawa

Electric Vehicle Society

Electric Vehicle Council of Ottawa