



# CLIMATE ACTION PLAN – PHASE 2 WHITE PAPER

Range Anxiety: “Is the driver’s fear that a vehicle has insufficient energy storage to cover the distance to the destination (and return).”

# BACKGROUND

Amherstburg is a tourist town and given the County's dependence on automobiles, that is the normal way for people to visit our town. With the increasing trend to electric vehicles the town needs public electric vehicle (EV) charging stations. Currently our town is what is called an "EV Charging desert" - meaning there are no charging stations for visitors to recharge their cars. Essex Powerlines Corporation (EPC) has introduced an incentive plan to help communities fund the installation of charging stations. The funds are limited and there will be significant competition for them.

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## RECOMMENDATION

Amherstburg moves quickly to take advantage of the Essex Powerlines “Charge Up Windsor Essex County” funding program to locate 2 - 4 public charging locations in the downtown core, where each of those locations includes 2 - 4 charging stations.

## RATIONALE

The climate crisis continues unabated. Across the world last year’s weather disasters included record shattering heat waves, more violent storms, persistent droughts, and devastating wildfires. Billion dollar weather disasters are becoming much more common. And Amherstburg is not immune. The Climate Emergency Declaration that Amherstburg County Council made in November 2019, committed to, among other things, “implementing climate action and making a transition to a low-carbon economy, which also represents a significant opportunity to stimulate economic growth, increase job opportunities, and develop new technologies”.

T.H.R.I.V.E. is pleased that the town has agreed to the Tree Planting test study and is helping finance rain barrels. These are small, but important, pieces to a much bigger climate action puzzle. Budgeting \$125,000 for a Climate Change Adaptation / Action Plan in 2022 is an excellent next step. We recognize that a significant amount of time is needed to develop clear strategies and funding mechanisms for this Action Plan. However, it is our belief that climate change is so important that it should be treated as an ongoing line item. Accordingly, the funding should not have been taken out of RESERVES.

However, we also believe that there are important ‘no-regret’ actions (or ‘low-hanging fruit’) that can be undertaken prior to the approval of the plan, which is expected to take at least 18+ months. In May 2021 the County of Essex council, including Amherstburg’s two representatives, approved the Essex County Regional Energy Plan. The Plan identified the strategies needed to reduce greenhouse gases across all sectors including transportation. This excellent report contains a great deal of information and opportunities where Amherstburg can lead with necessary actions

One piece of low-hanging fruit is fostering an environment favourable to electric vehicle drivers through the installation of electric vehicle (EV) infrastructure. In June 2021, the federal Ministers of Transport and Environment and Climate Change announced that Canada is setting a mandatory target for all new light-duty cars and passenger trucks sales to be zero-emission by 2035. This is accelerating Canada’s previous goal, which was set for 2040. To meet this objective, Canada has set the following targets:  
10% of all new vehicles to be zero emission vehicles (ZEVs) by 2025;  
100% by 2035.

Ontario has just launched its ONroute EV Charging stations with chargers being installed along the 401 in Cambridge, West Lorne, and Dutton. As more electric vehicles come onto our roads each year, it's vital that we build infrastructure locally to support them. As of January 2022, there are 73,000 EVs registered in Ontario. By 2030, one of every three automobiles sold will be electric.

Every automaker has made a commitment to electrification of its fleet. See Appendix 1 for a list of automakers and their commitments to electrification and carbon neutrality. Currently, electric vehicles represent about 2% of total global vehicle sales and will be about 24% of total sales by 2030. The recent dramatic uptick in gas prices and the ongoing international issues re: oil supply will encourage more individuals to consider purchasing electric vehicles. Total Global EV sales are projected to grow from 2.5 million in 2020 to 11.2 million in 2025, then reaching 31.1 million by 2030. See Image 1 for the outlook for annual global passenger-car and light-duty vehicles sales. Additionally, projections indicate Ontario will have almost three million ZEVs on the road by 2035.

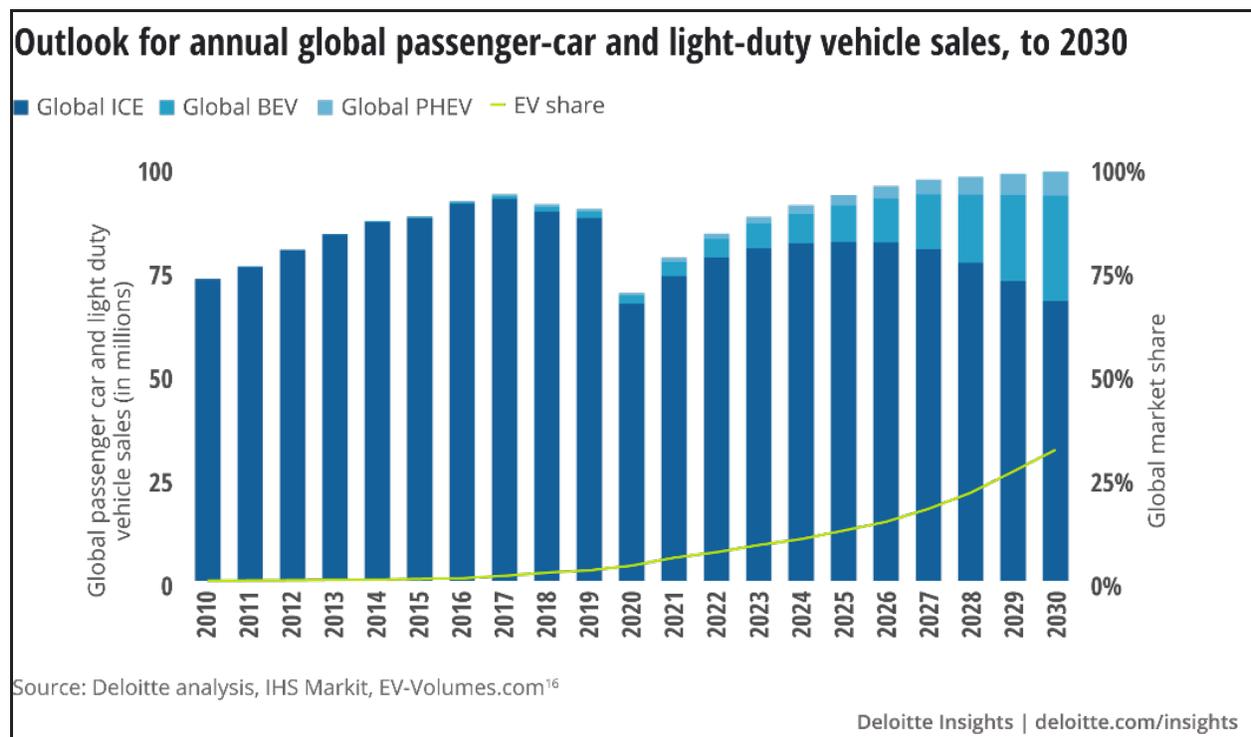


Image 1

Access to localized and visible charging infrastructure is key to alleviating driver concerns about where to charge their vehicle. Furthermore, easy access to quick EV charging stations is a major factor in determining where EV owners choose to spend their travel dollars.

A new study by the Nuclear Innovation Institute (NII) <sup>[2]</sup> warns that rural regions in Ontario could be at risk of losing tourist business unless they provide more charging opportunities for Ontario's growing number of EV drivers to plug in. Ensuring Amherstburg is ready for heavier EV tourist traffic requires a coordinated approach to adding charging capacity and ensuring the right kinds of stations are installed in the right places. This could be considered as one part of a comprehensive sustainable transportation action plan for the town.

Surrounding towns are also aware of the future need for charging stations. While the number of public charging stations is currently low in Windsor-Essex County, this will change with the Essex Powerlines' incentive and the political realization by towns that they need EV chargers to be competitive for tourist dollars.

As pointed out in T.H.R.I.V.E's first Climate Action White Paper, climate change imposes financial and liability risks on municipal governments. Litigation related to climate change continues to be on the rise all over the world, and the most frequent targets are governments and public authorities. The time is now to act and get ahead of as many climate issues as we can.

## Electric Vehicle Charging Station Details

Ultimately, the financial analysis and decisions on what type of EV charging stations Amherstburg needs, lies with town administration. To support this decision-making, we have undertaken some preliminary research on the types of chargers, wattage, charging time, connector type, and cost to the driver (see Table 1).

It is our recommendation that, in order to encourage tourists to visit downtown Amherstburg, units should be a mix of Level 2 and Level 3 (fast charger).

## Table 1 - Description of infrastructure that could be deployed at charging stations <sup>[3]</sup>

(Note: Level 1 chargers are for home use only and are not considered in this whitepaper)

Type of Infrastructure	Power (kW)	Approximate Charging Time (Empty Battery)	Public Connector Types	Average Cost to Driver
Level 2	3 to 20, Typically 6	200km (124 miles): +/- 5 hours  400km (249 miles): +/- 11 hours	Port J1772	\$1/hour
Level 3 (Fast Charger)	Typically 50, Occasionally 20	80% of 200km (124 miles): +/- 30 min  80% of 400km (249 miles): +/- 1 hour	CHAdeMO  SAE Combo CCS (not compatible with Tesla)	\$15/hour

EV drivers are accustomed to paying to charge their vehicle and we support these units being pay-per-use. Funds generated by use of the charging stations administered through a subscription service, will help fund the chargers.

When installing the initial chargers, thought should also be given to how capacity can be increased as demand for EV charging increases. Table 2 shows the types of EV chargers that are currently installed around Windsor-Essex and financing options.

**Table 2 - The types of EV chargers that are currently installed in Windsor-Essex County<sup>[4]</sup>**

Manufacturer	Estimated Level 2 Unit Cost	Estimated Level 3 Unit Cost	Financing Option	Subscription Solution	Notes
ChargePoint <sup>[5]</sup>	<a href="#">Dual-port Bollard style</a>  Outright purchase of \$13-18K	<a href="#">Dual-port Bollard style</a>  Outright purchase of \$64-83K	Terms range from 12 to 60+ months subject to credit approval.  Monthly payments as low as \$100 per parking space, per month.	Billed annually for a 5-year subscription term (includes final install, set-up, monitoring, software updates/issues, repairs).  \$2,160/year for 1 dual-port Level 2 charging station.  \$11,400/year per 1 Level 3 charging station.	Images 2 and 3 below
FLO <sup>[6]</sup>	<a href="#">Dual-port Pedestal</a>  Outright purchase of \$10-13K	<a href="#">Dual-port Pedestal</a>  Outright purchase of \$42-50K	Could not determine if financing was available.	Could not determine if there were extra costs for the network services.	Images 4 and 5 below
Sun Country <sup>[6]</sup>	<a href="#">Single port (pedestal mount &amp; additional charger sold separately)</a>  Outright purchase of \$1-2K	N/A	Could not determine if financing was available.	Network Activation: \$200.00 / Unit - 1 time fee. Network Services: \$24 / port / month + 10% transaction fee (includes monitoring, software updates/issues, repairs, 24/7 support).	Image 6 below
ivy <sup>[7]</sup>	Dual-port Pedestal  Could not determine outright purchase cost.	N/A	Could not determine if financing was available.	Billed annually for a 10-year subscription term ((includes final install, set-up, monitoring, software updates/issues, repairs). \$2,200/year for 1 dual-port Level 2 charging station.	Image 7 below



Image 2: ChargePoint Bollard Dual Level 2<sup>[5]</sup>



Image 3: ChargePoint Bollard Dual Level 3<sup>[5]</sup>



Image 4: FLO Pedestal Dual Level 2<sup>[6]</sup>



Image 5: FLO Pedestal Dual Level 3<sup>[6]</sup>



Image 6: Sun Country Highway Single Level 2<sup>[6]</sup>



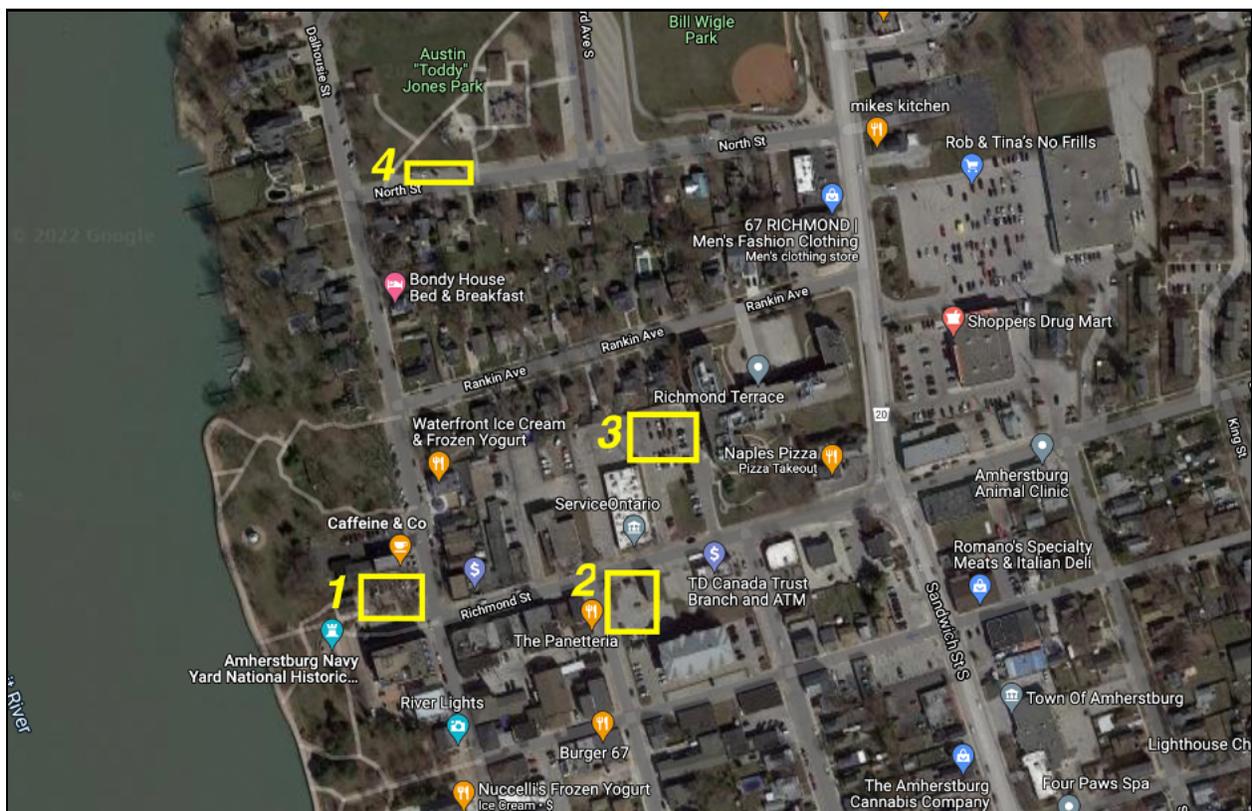
Image 7: ivy Dual Level 2<sup>[7]</sup>

## Charger Locations

The location of the charging stations also needs to be determined by town administration, who should consider the installation and site related costs (i.e. trenching, service connection, site restoration, etc). However, we strongly recommend that charging stations should be in multiple locations where the greatest number of tourists park their cars to experience Amherstburg's sights and amenities.

Possible locations for EV charging locations might include:

1. Public parking lot south of Caffeine & Company
2. Public parking lot at the corner of Richmond St and Ramsay St
3. Parking lot at Heritage Square
4. Toddy Jones Park



# THE OPPORTUNITY – CHARGE UP WINDSOR-ESSEX COUNTY

Essex Powerlines Corporation (EPC) has launched an initiative that will facilitate Community Leaders in developing opportunities for electrification within our region. Specifically they are helping lead a charge to help bolster and transform the region’s transportation sector by helping achieve greater reductions in fuel consumption and GHG emissions. Their program is aimed at aiding the Government of Canada in its transition to a new low carbon economy by reaching its ambitious federal targets of dramatically increasing the sales of EVs.

EPC is currently accepting applicants who are seeking to install new EV charging infrastructure. Selected applicants will be awarded with funding for their new charging infrastructure project for up to 50% of total project costs (or \$100,000). See Table 3 below for funding opportunities.

T.H.R.I.V.E. has had discussions with EPC staff to better understand their plan. We understand that the pace of applications is good and they expect that it will be fully subscribed. Only once an application is submitted can they assign an application number and secure a place in the queue for Amherstburg. T.H.R.I.V.E. believes competition will be significant for the available funds and therefore time is of the essence.

### Important Dates

Final Installation	March 31, 2024
Final Expense Submission	March 31, 2024
Project Completion	March 31, 2024

**Note:** T.H.R.I.V.E. recognizes that the 2022 Capital budget has been finalized. Given EPC timelines, this investment could be funded in the 2023 budget.

### Table 3 – EPC “Charge Up” Funding Opportunities for Different Chargers<sup>[1]</sup>

(Note: Level 1 chargers are for home use only and are not considered in this whitepaper)

Type of Infrastructure	Output	Maximum Funding	Program Limitations
Level 2	3.3kW to 19.2kW	Up to 50% of total project costs, to a maximum of \$5,000 per connector	Total cost can't exceed \$10,000 per connector.
Level 3 (Fast Charger)	20kW to 49kW	Up to 50% of total project costs, to a maximum of \$15,000 per charger	Total cost can't exceed \$30,000 per charger.
Level 3 (Fast charger +)	50kW plus	Up to 50% of total project costs, to a maximum of \$50,000 per charger	Total cost can't exceed \$100,000 per charger.

## CONCLUSION

Amherstburg is embarking on a Climate Action Plan. While that plan is months off, it is very safe to assume that it will need to address the increased use of electric vehicles. Thanks to Essex Powerlines, Amherstburg can make that happen now. But competition for their capped funds will be quick and fierce.

As a reminder on November 19, 2019, Amherstburg declared a Climate Emergency and directed administration to prepare a report containing recommendations for priority action items, implementation measures and cost requirements to accelerate and urgently work towards the reduction of emissions and preparing for our climate future.

This White Paper champions electric vehicle charging that addresses that declaration perfectly. Time is of essence to now help make this happen.

**“The greatest threat to our planet is the belief someone else will save it”**  
**- Robert Swan**

## APPENDIX

Automakers are spending billions developing EV. It only makes sense that Amherstburg invests to prepare for their future new models.

This table shows dates by which automakers say their lineups will comprise only plug-in hybrid electric vehicles (PHEVs) and battery-electric vehicles (BEVs), and then only BEVs. Automakers have answered these questions in different ways, such as describing when the last gas or diesel (combustion) platform comes to market instead of when the maker will be 100% BEV. Hybrids do not count as electrified vehicles here.

### Automaker Plans for Electrification <sup>[10]</sup>

Vehicle	Date for PHEVs- BEVs Only / Date for BEVs Only	Date for Carbon Neutrality	Planned spending on EVs	Milestones
Bentley	By 2026 By 2030	By 2030	N/A	First battery EV in 2025
<a href="#">BMW</a>	N/A N/A	100% renewable energy by 2050	\$6.5 billion (2019 figure)	2 million fully electric vehicles by the end of 2025
<a href="#">Ford</a>	N/A N/A	By 2050	\$22 billion through 2025	76% carbon emissions reduction by 2035
<a href="#">Cadillac</a>	N/A By 2030	N/A	N/A	No new models with gas engines now
General Motors	N/A By 2035	By 2040	\$35 billion through 2025	Electric Hummers and Silverado coming

<a href="#">Honda</a>	N/A 2022 (Europe), 2040 (North America)	By 2050	N/A	2 new EVs in 2024 to be built by GM
<a href="#">Hyundai-Kia</a>	N/A N/A	Undated pledge	\$7.4 billion in the U.S. by 2025	23 types of EVs and hydrogen cars by 2025
<a href="#">Jaguar Land Rover</a>	100% with some electrification by 2030 By 2030	By 2039	\$3.5 billion annually	6 electric Land Rovers over the next 5 years
Mazda	N/A N/A	By 2050	N/A	First battery EV is the MX-30 in the fall
<a href="#">Mercedes- Benz</a>	All new platforms EV-only in 2025 2030 with caveats in some markets	By 2039	\$47 billion between 2022 and 2030	EQS luxury sedan on sale this fall
<a href="#">Mitsubishi</a>	N/A N/A	25% carbon reduction by 2030	N/A	A plug-in hybrid focus. The Airtrek EV shown for the Chinese market.
<a href="#">Nissan</a>	N/A N/A	By 2050	\$1.3 billion on EV hub in England	8 EVs on the road by the end of 2023
Rolls-Royce	EVs will be available in 90% of segments N/A	By 2030	N/A	Silent Shadow is in development, using BMW technology

Stellantis	70% of European sales, 40% of North American sales electrified in 4 years N/A	N/A	\$35.5 billion in EV spending through 2025	55 electrified cars and trucks for sale in the U.S. and Europe by 2025
Toyota	8 million electrified vehicles by 2030 N/A	By 2050	N/A	70 electrified models by 2025, 15 of them battery EVs
<a href="#">Volkswagen Group</a>	50% fully electric sales in U.S. by 2030 Last new combustion platform in 2026	By 2050	\$86 billion through 2025	The VW Group has 70 new electrified models in the pipeline
Volvo	By 2025, half of global sales fully electric By 2030	By 2040	\$1 billion annually on electrification and autonomy	All fully electric models will be available online only

## REFERENCES

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