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Canadian Institute for
Procurement and Material
Management May 2010

Today's Outline

1. What and Who is Electric Mobility Canada?
2. The Electric Vehicle Technology Roadmap for Canada (evTRM)
3. Current Market Place and an Opportunity to Lead with 'Smart Purchases'
4. Perhaps some Questions?



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1. What is Electric Mobility Canada

- Electric Mobility Canada is a national membership–based not-for-profit organization dedicated exclusively to the promotion of electric mobility as a readily available and important solution to Canada’s emerging energy and environmental issues.
- Founded in 2005 we have grown every year and currently are seeing growth and support from all business sectors in Canada
- We also work with EDTA our American counterpart on creating Harmony on a number of fronts



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Membership Categories

Voting Members

- Industry (OEM's, Supply Chain & Consultants)
- Energy Providers (Provincial and local)
- End Users (Private and public fleets)
- NGO's Research Centres, Labour

Non Voting Members

- Supporters
- Associates (Government Agencies)



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2. What is a Technology Road Map?

The Technology Roadmap (TRM) concept is a consultative process that is designed to help industry, its supply-chain, academic and research groups, and governments come together to jointly identify and prioritize the technologies needed to support strategic R&D, marketing and investment decisions. These technologies will be of critical importance to an industry in the next five to ten years.



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Canada's EV Roadmap Objectives



- Encourage the rapid adoption of EVs for passenger and commercial transport markets in Canada through appropriate regulations, incentives, infrastructure and education/awareness.
- Develop the EV industry in Canada in areas where Canada has a competitive advantage.
- Power these vehicles with new green electricity.



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The EV Roadmap Vision

By 2018, in addition to Hybrid Electric Vehicles, there will be at least 500,000 other highway capable – plug in electric drive vehicles on the road in Canada. These vehicles will have increased Canadian content over current 2008 internal combustion engine vehicles.

This vision statement acknowledges the environmental, economic, social and strategic necessity to move from fossil fuels to electric mobility solutions for on-road transportation in Canada.



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Why Electric Vehicles

- Oil prices – Very vulnerable at best
- Peak Oil – 1000 Barrels a Second
- Transport Emissions – 30% of the total
- Efficiency of electric motors - 90% +
- Canada's electricity from renewable sources – 60 % of our National Grid is currently 'clean' and improving













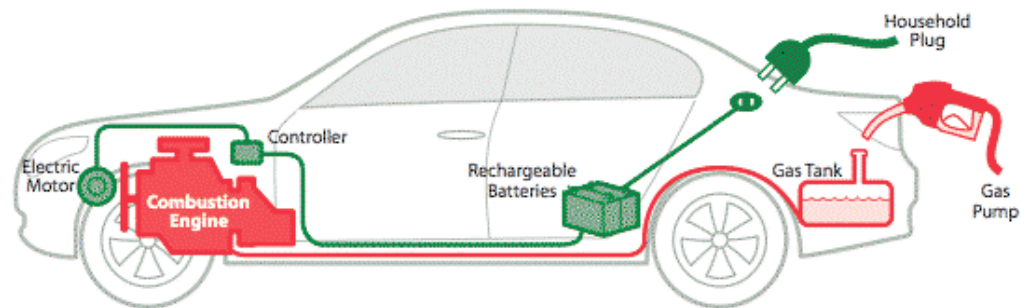
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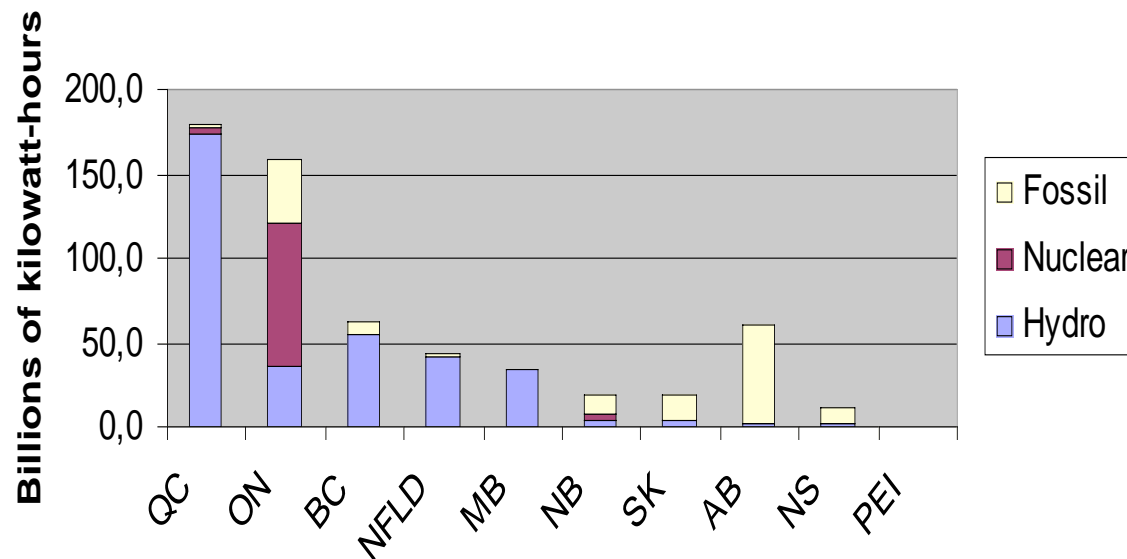
Electric vs. Gasoline

Electric vs. Gasoline

No Tailpipe Emissions 	 Greenhouse Gases/Pollution
Utility Company 	 OPEC
100+/- Mile Range 	 300+ Mile Range
Hours to Recharge 	 Minutes to Refuel
2 cents per mile 	 12 cents+ per mile



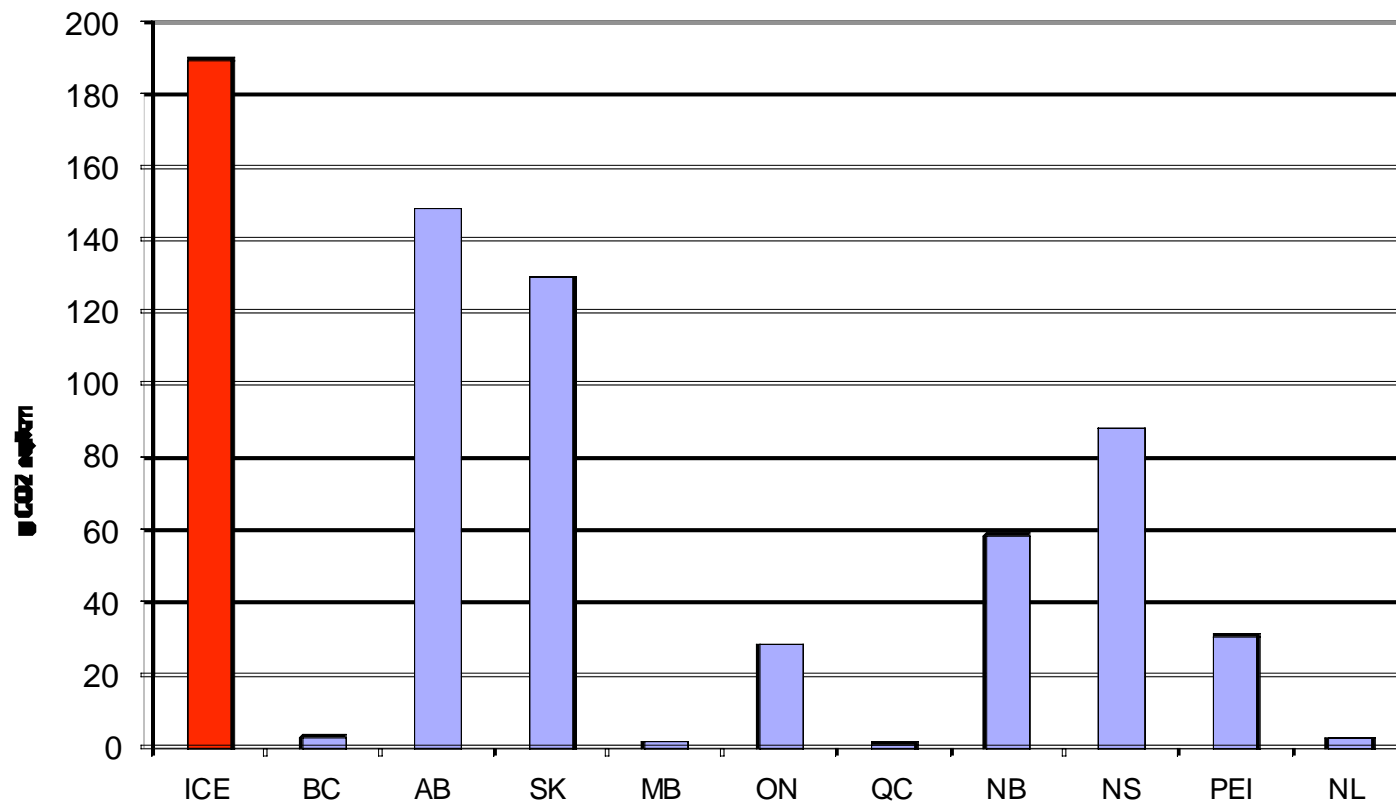
Electricity Generation in Canada - 2006



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EV emissions across Canada



Customer Surveys

- Canadians have both positive and negative impressions of electric vehicles
- Six in ten Canadians are at least somewhat interested
- Reliability and maintenance/operating costs are seen as key barriers

(Source – Pollution Probe)

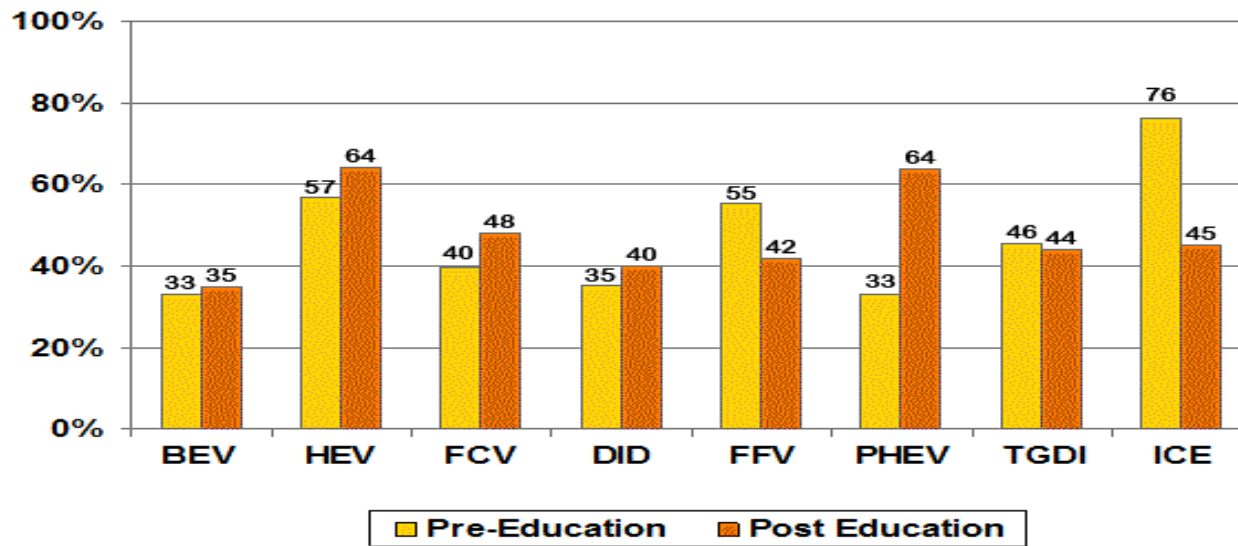


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Synovate Survey

What type of vehicle would you prefer to buy?



BEV: Battery-Electric
HEV: Hybrid-Electric
FCV: Fuel Cell
DID: Direct-Inject Diesel / Advanced Diesel
FFV: Flex-Fuel
PHEV: Plug-in Hybrid
TGDI: Turbo Gasoline Direct-injection
ICE: Internal Combustion Engine / Traditional Gasoline



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Market Forecasts - US

- 1.2 million Hybrids by 2015
- 250,000 BEVs by 2015
- 75% of all mileage driven by 2040

Things could change faster

- Price of oil up
- Cost of batteries down



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3. Electric Vehicles are Here Today

- Hybrids have been around for about a decade
- PHEV's and BEV's – starting this year
- 70% of OEMs will be offering them



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Product Roll Out

- Information on new PHEVs and EVs is as currently available in the public domain
- Clearly, not all will be available in Canada in the foreseeable future
- Sales will be where incentives exist and where infrastructure readiness plans are in place.



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Green Procurement Opportunities

- Setting green procurement goals enhances a company's reputation and shows that it cares about the environment
- Green procurement goals can be in anything an organization purchases.
- Green procurement goals can also include how the items are manufactured and delivered.

Ford Transit Connect (Azure Dynamics)

Ford Transit Connect (Azure Dynamics)



Technical Specifications

Propulsion Type	Electric
Range in EV mode	80 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium Ion
Battery Capacity	28 kW/h
Charging Voltage	120/240 VAC
Weight	N/A
Top Speed	75 mph
Country of Origin	USA/Canada
Price (US\$ Approx)	N/A

Vehicule Type	Van
Canadian Market Availability	Yes
Marketing Year	2010
http://www.azuredynamics.com/products/transit-connect-electric.htm	



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Nissan Leaf



Nissan Leaf



Technical Specifications

Propulsion Type	Electric
Range in EV mode	100 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	24 kW/h
Charging Voltage	200 VAC
Weight	2980 lb
Top Speed	90 mph
Country of Origin	Japan
Price (US\$ Approx)	30 000

Vehicule Type	5 door
Canadian Market Availability	2012
Marketing Year	2010
www.nissanusa.com/leaf-electric-car/	



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Unicell Quicksider (tested by Purolator)

Purolator Quicksider

(electrovaya battery)



Vehicle Type	Truck
Canadian Market Availability	Demo
Marketing Year	N/A
www.unicell.com/new/media.html	

Technical Specifications

Propulsion Type	Electric
Range in EV mode	40 mile
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	N/A
Charging Voltage	N/A
Weight	N/A
Top Speed	65 mph
Country of Origin	Canada
Price (US\$ Approx)	N/A



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Toronto Electric

Toronto Electric



Technical Specifications

Propulsion Type	Electric
Range in EV mode	210 km
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	27 kWh
Charging Voltage	110-220 V
Weight	1160 kg
Top Speed	99 km/h
Country of Origin	Canada
Price (US\$ Approx)	N/A

Vehicule Type	2 door
Canadian Market Availability	N/A
Marketing Year	N/A
www.futurevehicletechnologies.com/html/faq_s.html	



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Bright Idea

Bright IDEA



Technical Specifications

Propulsion Type	Plug-In Hybrid
Range in EV mode	40 miles
Fuel Economy Hybrid	40 mpg
Battery Type	N/A
Battery Capacity	13 kW/h
Charging Voltage	220V/10A
Weight	3200 lbs
Top Speed	100 mph
Country of Origin	USA
Price (US\$ Approx)	N/A

Vehicule Type	Van
Canadian Market Availability	N/A
Marketing Year	2013
www.brightautomotive.com	



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Chevy Volt

Chevrolet Volt



Vehicle Type	5 door
Canadian Market Availability	2011
Marketing Year	2010
www.qmvolt.com	

Technical Specifications

Propulsion Type	Electric
Range in EV mode	40 miles
Fuel Economy Hybrid	320 Mpg
Battery Type	Lithium Ion
Battery Capacity	16 kW/h
Charging Voltage	120/240 VAC
Weight	3520 lbs
Top Speed	100 mph
Country of Origin	USA
Price (US\$ Approx)	32 500



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Fisher Karma

Fisker Karma



Vehicle Type	4 door
Canadian Market Availability	Yes
Marketing Year	2010
www.fiskerautomotive.com	

Technical Specifications

Propulsion Type	Plug-In Hybrid
Range in EV mode	50 miles
Fuel Economy Hybrid	100 mpg
Battery Type	Lithim Ion
Battery Capacity	22,6 kW/h
Charging Voltage	120/240 VAC
Weight	4650 lbs
Top Speed	125 Mph
Country of Origin	USA
Price (US\$ Approx)	80 000



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Toyota Prius Plug In



Toyota Prius Plug-In



Technical Specifications

Propulsion Type	Plug-In Hybrid
Range in EV mode	12.5 miles
Fuel Economy Hybrid	50 mpg
Battery Type	NiMh/Lithium-Ion
Battery Capacity	5,2 kW/h
Charging Voltage	110/220 VAC
Weight	3285 lbs
Top Speed	60 mph (electric)
Country of Origin	Japan
Price (US\$ Approx)	40 000

Vehicule Type	5 door
Canadian Market Availability	2012
Marketing Year	2011
www.toyota.co.jp/en/tech/environment/conference09/index.html	



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BYD e6

BYD e6



Technical Specifications

Propulsion Type	Electric
Range in EV mode	250 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium Fe Phosphate
Battery Capacity	72 kw/h
Charging Voltage	220V/10A
Weight	3200 lbs
Top Speed	100 mph
Country of Origin	China
Price (US\$ Approx)	40 000

Vehicule Type	Crossover
Canadian Market Availability	N/A
Marketing Year	2010 (US)
www.byd.com	



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Coda EV

Coda EV



Vehicle Type	4 door
Canadian Market Availability	N/A
Marketing Year	2011
www.codaautomotive.com	

Technical Specifications

Propulsion Type	Electric
Range in EV mode	90-120 Miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium Fe Phosphate
Battery Capacity	33.8 kW/h
Charging Voltage	220V/30 Amp
Weight	3660 lbs
Top Speed	80 mph
Country of Origin	USA
Price (US\$ Approx)	40 000



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Ford Focus (Magna)

Ford Focus EV(Magna)



Technical Specifications

Propulsion Type	Electric
Range in EV mode	100 miles
Fuel Economy Hybrid	N/A
Battery Type	N/A
Battery Capacity	23 kW/h
Charging Voltage	120/240 VAC
Weight	N/A
Top Speed	N/A
Country of Origin	USA
Price (US\$ Approx)	40 000

Vehicule Type	4 door
Canadian Market Availability	TBD
Marketing Year	2011
www.focusev.com	



Lightning GT



Lightning GT



Technical Specifications

Propulsion Type	Electric
Range in EV mode	300 km
Fuel Economy Hybrid	N/A
Battery Type	Lithium Ion NanoSafe
Battery Capacity	36 kW/h
Charging Voltage	120/240 VAC
Weight	N/A
Top Speed	210 km/h
Country of Origin	UK
Price (US\$ Approx)	188 000

Vehicle Type	2 door
Canadian Market Availability	N/A
Marketing Year	2010
www.lightningcarcompany.co.uk	



Mitsubishi i-Miev



Mitsubishi i-Miev



Technical Specifications

Propulsion Type	Electric
Range in EV mode	100 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	16 kW/h
Charging Voltage	120/240 VAC 200 VAC Triphasic
Weight	2380 lbs
Top Speed	130 km/h
Country of Origin	Japan
Price (US\$ Approx)	47 500

Vehicle Type	5 door
Canadian Market Availability	2012
Marketing Year	2010
www.mitsubishi-motors.com/special/ev/	



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Modec

Modec



Vehicule Type	Truck
Canadian Market Availability	N/A
Marketing Year	2007
www.modeczv.com	

Technical Specifications

Propulsion Type	Electric
Range in EV mode	60-100 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion (Zytek)
Battery Capacity	85 kW/h
Charging Voltage	200 VAC Triphasic
Weight	6610 lbs
Top Speed	50 mph
Country of Origin	United Kingdom
Price (US\$ Approx)	40 000



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Scion IQ Electric



Scion IQ Electric



Technical Specifications

Vehicle Type	3 door
Canadian Market Availability	N/A
Marketing Year	2012

www.toyota.com/concept-vehicles/ftev.html

Propulsion Type	Electric
Range in EV mode	100 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	N/A
Charging Voltage	N/A
Weight	N/A
Top Speed	70 mph
Country of Origin	Japan
Price (US\$ Approx)	N/A



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Smart ED



Smart ED



Technical Specifications

Propulsion Type	Electric
Range in EV mode	72 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-ion
Battery Capacity	14 kW/h
Charging Voltage	220 VAC
Weight	1882 lbs
Top Speed	60 mph
Country of Origin	Germany
Price (US\$ Approx)	N/A

Vehicle Type	3 door
Canadian Market Availability	2012
Marketing Year	2011
www.smart.com	



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Smith Edison Electric

Smith Edison Electric



Technical Specifications

Propulsion Type	Electric
Range in EV mode	60-100 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion Iron Phosphate
Battery Capacity	40 kW/h
Charging Voltage	220 VAC
Weight	5000 lbs
Top Speed	50 mph
Country of Origin	United Kingdom
Price (US\$ Approx)	40 000

Vehicle Type	Truck
Canadian Market Availability	N/A
Marketing Year	2010
www.smithelectricvehicles.com	



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Subaru Stella

Subaru Stella



Technical Specifications

Propulsion Type	Electric
Range in EV mode	55 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	9.2 kW/h
Charging Voltage	N/A
Weight	2340 lbs
Top Speed	60 mph
Country of Origin	Japan
Price (US\$ Approx)	29 000

Vehicle Type	5 door
Canadian Market Availability	N/A
Marketing Year	2009
www.subaru-global.com/eco_ev.html	



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Tata Indica Vista

Tata Indica Vista



Vehicle Type	5 door
Canadian Market Availability	N/A
Marketing Year	2011
www.tatamotors.com/our_world/press_releases.php?ID=419&action=Pull	

Technical Specifications

Propulsion Type	Electric
Range in EV mode	120 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	N/A
Charging Voltage	N/A
Weight	N/A
Top Speed	65 mph
Country of Origin	India
Price (US\$ Approx)	N/A



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Tesla S

Tesla S



Vehicule Type	4 door
Canadian Market Availability	2011
Marketing Year	2010
www.teslamotor.com	

Technical Specifications

Propulsion Type	Plug-In Hybrid
Range in EV mode	150 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium-Ion
Battery Capacity	42 kW/h
Charging Voltage	220 VAC
Weight	3825 lbs
Top Speed	125 Mph
Country of Origin	USA
Price (US\$ Approx)	57 400



Aptera 2e



Aptera 2e



Technical Specifications

Propulsion Type	Electric
Range in EV mode	100 miles
Fuel Economy Hybrid	N/A
Battery Type	Lithium Iron Phosphate
Battery Capacity	10-13 kW/h
Charging Voltage	110 VAC
Weight	1500 lbs
Top Speed	N/A
Country of Origin	USA
Price (US\$ Approx)	25 000 - 45 000

Vehicle Type	3 wheels / 2 seats
Canadian Market Availability	N/A
Marketing Year	2010
www.aptera.com/index.php	



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Future Vehicle Technology

Future Vehicle Technology



Technical Specifications

Propulsion Type	Electric
Range in EV mode	125 miles
Fuel Economy Hybrid	275 mpg (city) 165 mpg (highway)
Battery Type	N/A
Battery Capacity	N/A
Charging Voltage	N/A
Weight	N/A
Top Speed	135 mph
Country of Origin	Canada
Price (US\$ Approx)	N/A

Vehicle Type	3 wheels 1 seat
Canadian Market Availability	N/A
Marketing Year	N/A
www.futurevehicletechnologies.com/html/faq_s.html	



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Persu Hybrid

Persu Hybrid



Technical Specifications

Propulsion Type	Plug-In Hybrid
Range in EV mode	20 miles
Fuel Economy Hybrid	75 mpg
Battery Type	N/A
Battery Capacity	N/A
Charging Voltage	N/A
Weight	1500 lbs
Top Speed	100 mph
Country of Origin	USA
Price (US\$ Approx)	N/A

Vehicle Type	ULV (Urban Life Vehicle) 3 wheels
Canadian Market Availability	N/A
Marketing Year	2010
www.persumobility.com	



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4. Questions and Answers & You are invited to Vancouver

EV•2010•VÉ **Conference and** **Trade Show**

September 13 to 16, 2010
Vancouver, BC Canada



EV•2010•VÉ **Conférence et** **salon commercial**

13 au 16 septembre 2010
Vancouver, CB, Canada



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