Life with an EV in the Kootenays

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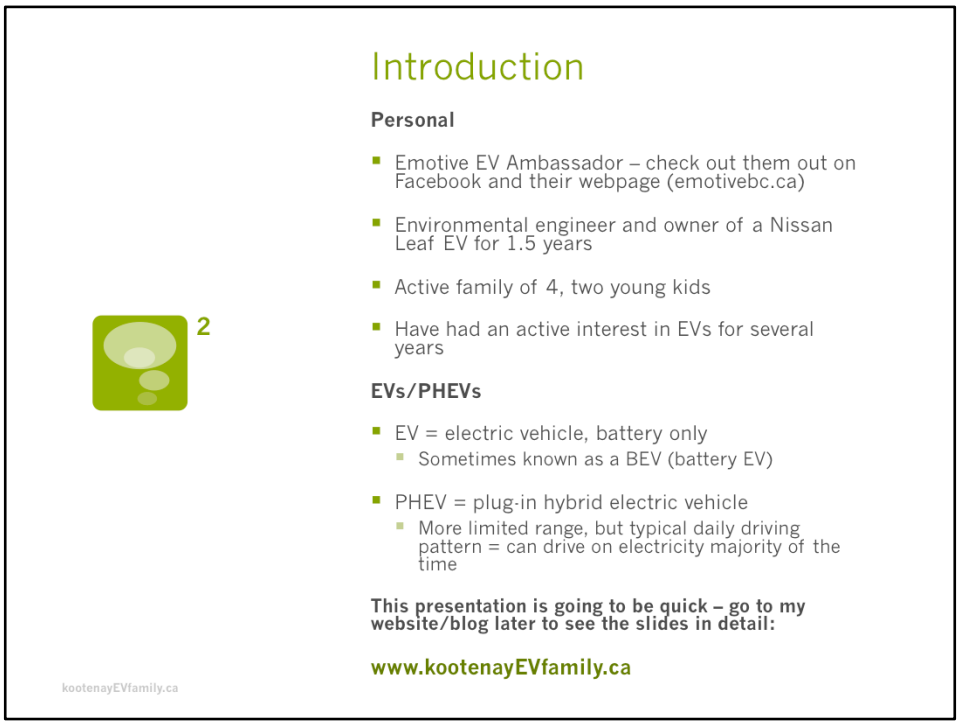
Green Home and Energy Show
Nelson, BC



Emotive is a program by Plug in BC, a collaboration of public and non-profit organizations to bring public awareness to EVs

Why an EV?

Environmental

- Improve local/global air quality
- Lower energy/material use over total life-cycle
- In the Koots, "100 mile clean energy diet"

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EVs are better than gas cars!

- Single gear + torque = instantaneous acceleration
- Smooth and quiet
- Easy home "refueling"
- Cheaper TCO, little maintenance

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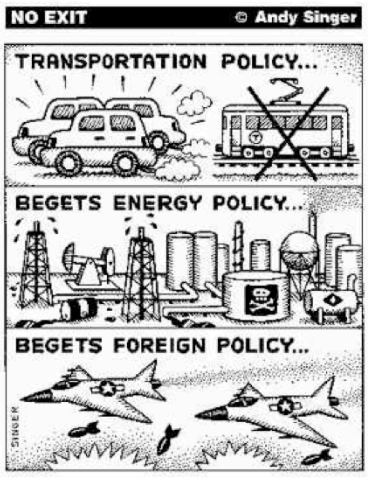
Also helps to avoid…



http://www.lysistrataproject.org/oilandwar.htm

The positives for driving an EV

- Quicker because electric motors provide all of their torque right away
- Smoother because there is no transmission lurching around
- Quiet – there aren't any explosions happening under the hood of your car; only a handful of moving parts instead of thousands!
- Less maintenance because there are less moving parts and no regular fluids to change (aside from brake fluid)

How far can EVs go?

- Numerous factors that impact range:
  - Battery size!
  - Elevation changes
  - Speed
  - Outside temperature (i.e. HVAC use)

Elevation effects on efficiency

	Distance (km)	Efficiency (km/kWh)	Energy Used (kWh)
Nelson to Whitewater	26	2.9	9.0
Whitewater to Nelson	26	-	0
Roundtrip	*52*	*5.8*	*9.0*
Similar distance on flat ground	52	7	7.4

Range (km)	Typ. PHEV	Typ. EV	Tesla
Minor hills, -10C	25 - 50	90 - 120	350
Minor hills, +20C	30 - 60	120 - 150	425
Flat, max range	40 - 80	140 - 180	500

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Typical EV has a battery size of 20 – 30 kWh (the next generation will have 50% more capacity, coming out in around 2017ish)
Typical PHEV 8 – 12 kWh
Model S 85 kWh

Current Public Charging Infrastructure in the Kootenays

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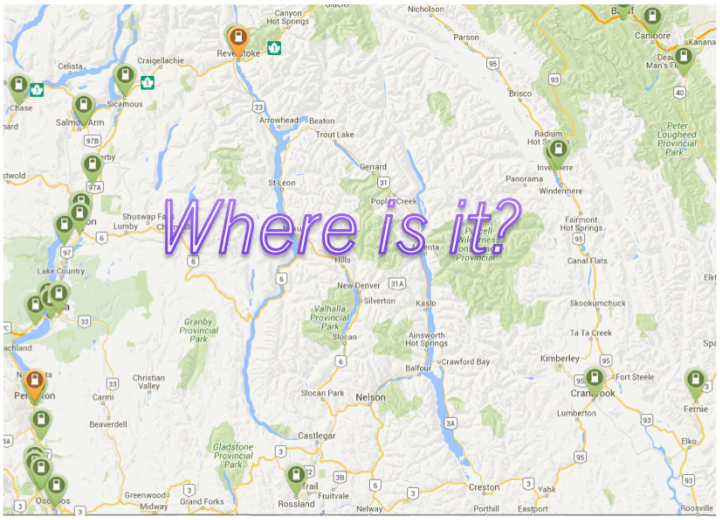

Almost zero! Big gaps in all directions.
Thankfully, Nelson, Grand Forks, Christina Lake and Trail are all installing Level 2 chargers in the next few months, so we are starting to get out of the 'chicken and egg' situation
I share my home charger on Plugshare and have had a few travellers use it

Our Typical Usage (> 90% of our kilometres/year)

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Weekdays

- Wake up to a charged and warm car
- Unplug, off to work
- Drive as normal, but more relaxed! (quiet, smooth, etc)
- Get home, plug car in
- Never stop at gas stations!

Weekends

- Camping trips (charge at the campsite)
  - Nakusp, New Denver, Creston, Grand Forks
- Daytrips within range to:
  - Whitewater for skiing
  - Castlegar/Kaslo/Rossland for hiking/biking
  - Garden centres for plants/soil etc
  - Art/farm/culture tours

What about winter?

- Starts instantly; heat available faster than a gas car
- Range reduced up to 30% on really snowy days; but for my commute, this is irrelevant. This does make a difference for trips beyond Nelson though, since the gaps between current public charging can exceed this range. (Will change with next gen EVs, and doesn't matter for a PHEV)

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Road trips with an EV in the Kootenays and to the rest of BC (the other 10%)

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- Level 2 charging – 2-3 hours per charge = bring patience! However, our kids love travelling by EV – they aren't stuck in the car for 3 hours at a time!
- Can be done NOW with some planning (see my blog for details)
- DCFC charger roll-out critical for viable future practicality of EVs as a conventional vehicle replacement (see EV table for maps)

Looking back at Osoyoos

The DCFC in Sechelt

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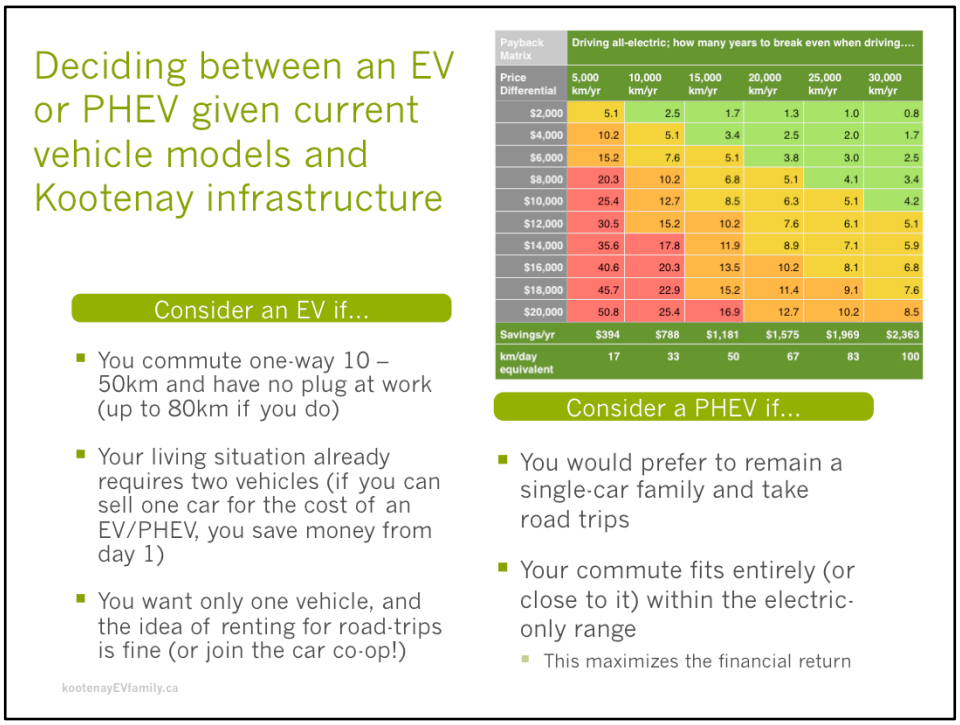
Vancouver to Nelson: the Leaf is not suited for this type of trip unless you have lots of patience! As we get more/better charging infrastructure, this will change. I will create a post detailing the journey for the blog.

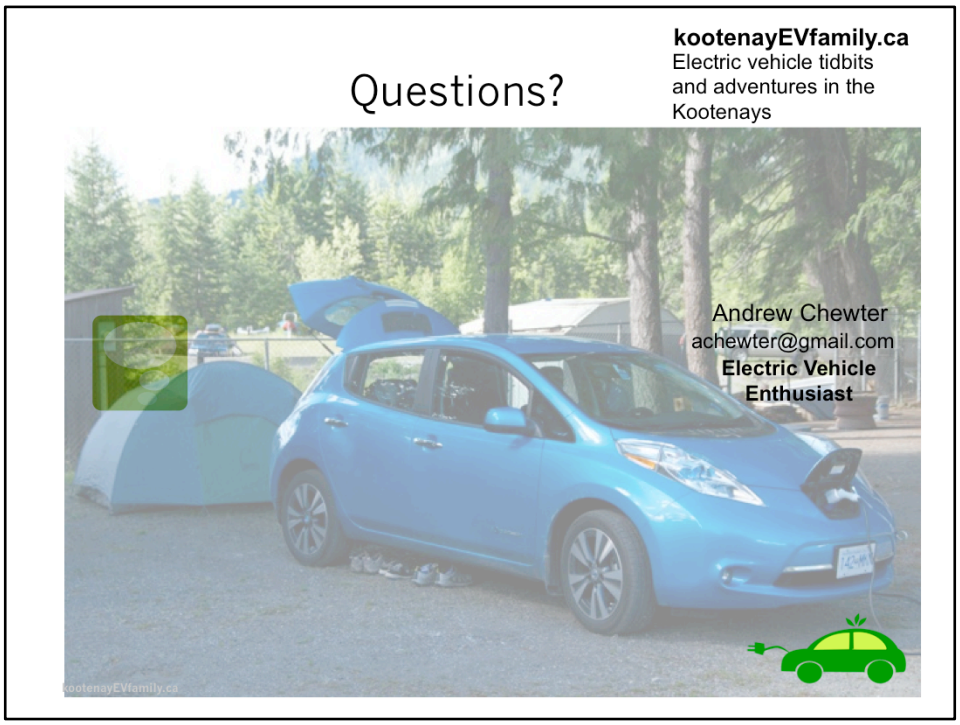


One-way distances

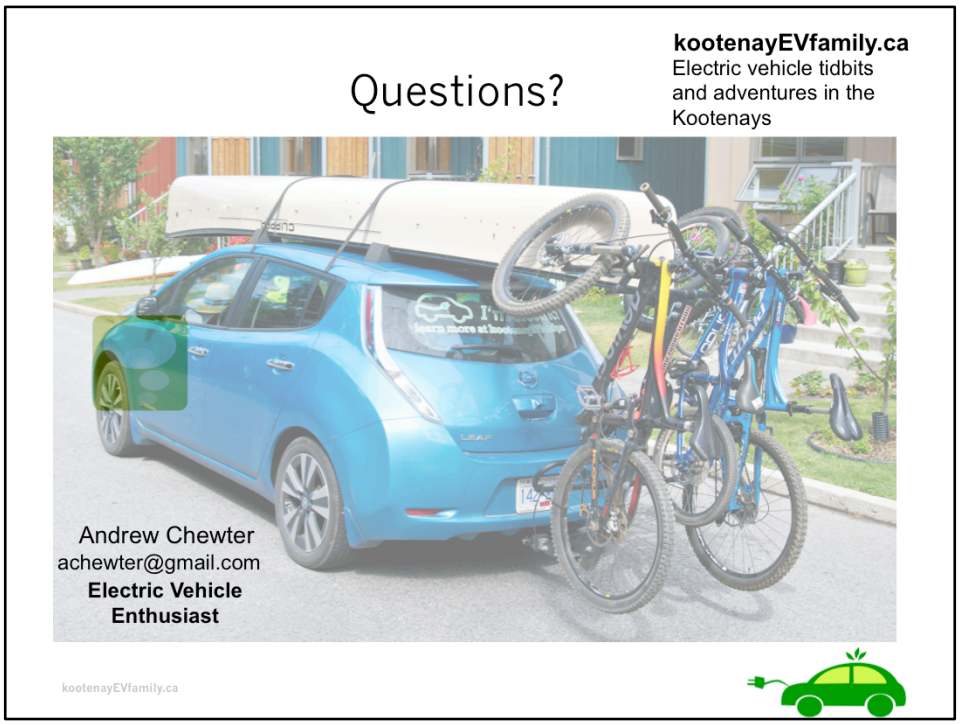
My website includes more detail on the assumptions in the Payback Matrix

If you are only commuting 5,000km/yr and keeping a car just for that, sell it and ride a bike, an ELF, and/or take the bus! (Your insurance/gas/maintenance savings will pay for even an ELF in just a year or two)

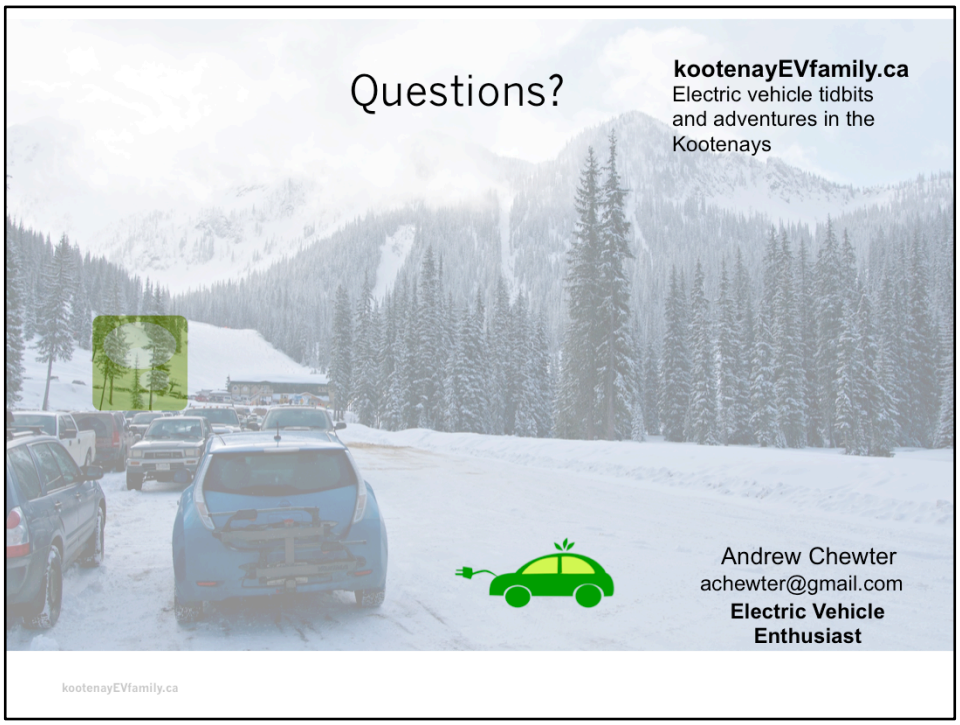
Between New Denver and Kaslo



Camping in New Denver



Went biking in Castlegar at the college trails with the kids, then to Glade to canoe up the river to see the generating stations near South Slocan



Whitewater on Easter Weekend; it handled the crazy mud bogging fine with the LEAFs excellent clearance (for a 2wd car) and traction control