Watt's Happening?
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Electric Cars:
do they make cents?

Ernie Freeman of Fort St. John is the proud owner of an all-electric Nissan Leaf. Here he is charging it from the solar array at the Peace Energy Co-op office in Dawson Creek: a zero-emission car powered with sunlight. Pretty cool, and a beautiful vehicle too.

The future of transportation will be electric. Partly for environmental reasons, but mostly because electric vehicles will have better performance, be cheaper to run and cheaper to maintain.

First let's remember that today's electric vehicle (EV) is primitive compared to what's just around the corner, and still expensive to purchase. But that's changing quickly: as mass production ramps up, prices are plunging, just like the sudden price decrease we have seen with solar power. But even now, electric powered cars and trucks can make both environmental and economic sense.

CHEAPER TO RUN

A detailed analysis at the U. of California, Berkeley, shows that mass-produced electric vehicles with advanced lithium-ion or nickel metal-hydride batteries (like those now being used) have a full lifetime cost per mile (including battery replacements) that competes with a gasoline vehicle when gas sells for more than $2 a gallon.

Gas around the Peace Country is currently selling for about $1.25 per litre, or $5 per gallon. If you drive 50 miles a day in a vehicle that gets 30 mpg, it will cost you $3,000 per year in fuel, and you will create 10 tons of greenhouse gasses each year.

An EV will cost $320 for the year at 8 cents per kilowatt hour (roughly our local rate), and will make zero carbon pollution. Plug it into your own roof-top solar array, and it won't cost anything to charge it up at all.

And that's where we're heading: all-electric, zero-carbon transportation, charged by renewable energy sources like wind and solar power. It's now achievable, and whether you like it or not, that's where the world is heading as quickly as it can. Brace yourself!

BETTER FOR MOTHER EARTH

But in the meantime, do electric vehicles make environmental sense? After all, an awful lot of electricity is still generated by burning fossil fuels.

Well, the good news is, yes. The U. of California study shows that an all-electric fleet in the U.S. would reduce overall carbon emissions nationally by 42%. That's a lot, even now, using fossil-fuel electricity.

All-electric vehicles are also cheaper and easier to maintain. Electrics have no transmission, no spark plugs, no pistons, no starter, no cooling system, no exhaust system, no more "changing the oil." And if burning rubber is your thing, an electric vehicle will have acceleration to die for: zero to full rpm in a fraction of a second.

For the north, EVs feature instant electric heat, instant winter starts and remote start built in via your iPhone (there's an app for that!). Existing battery tech does show mileage loss in the winter, as more juice is used to heat the interior and keep the batteries cozy, but then again, diesel and gas engines lose mileage in the winter too, don't they?

EV charging stations are quick and easy to install, and EV range continues to increase every year. It won't be long before "range anxiety" will be a distant memory. At that point (perhaps 5-10 years from now?) the internal combustion engine will be obsolete.

SUPER EFFICIENT

Only about 15 to 20 percent of the energy in a gallon of gasoline is actually converted into motive power in a gas-powered vehicle. The rest is gobbled up by friction (especially the transmission), radiated as waste heat, and spewed out the tailpipe as poisonous pollution.

The battery discharge/charge efficiency of a modern battery, on the other hand, is 80 to 95 percent, and electric motors are at least 90 percent efficient. That makes an electric car 4 to 5 times more energy efficient than a gas-powered one.

Plug your EV into the solar array on your roof and you also avoid all those nasty up-stream fuel-related efficiency losses and costs. Then the total energy efficiency of electric transportation jumps right off the scale, and the cost of fuel and maintenance drop almost to zero.

Right now, fossil fuels are king. It's all we know. But soon, very soon, that gas-guzzling monster you drive will seem outdated, noisy, dangerous, sluggish, and absurdly expensive to run and maintain. The change is on its way, and it will be better for our stressed-out planet Earth . . . and better for our pocket books too.

Quick Fact: Ontario announces weeping climate action plan

The Ontario government has announced a plan to spend more than $7 billion over four years to slash the province's carbon footprint. Highlights include: $3.8 billion to help retrofit buildings and move them off of natural gas heat; $285 million for EV incentives (including up to $14,000 rebate per car and up to $1000 to install a home charging system); $280 million to help school boards and trucking companies buy electric and lower-carbon vehicles; $200 million for more cycling infrastructure; $375 million for more clean-tech research; $1.2 billion to help industry to cut emissions and become more energy efficient, and $174 million to make the government carbon neutral. Still under revision but to be released soon, the many programs will be paid for by Ontario's upcoming cap-and-trade system.