



Conversations
That
Matter



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Electric cars. Are they the future of individual transportation?

The answer depends on who you're talking to. Electric car enthusiasts will say, oh yeah!

However, Energy Transition Specialist Markham Hislam says, maybe, maybe not.

He says that because electric vehicles make up just 2% or less of all automobiles in North America and less than 1% globally. And so you've gotta ask yourself, the electric car was introduced more than 30 years ago, why are sales so slow?

Well, the answers are many, and they include range anxiety, the cost, the limited number of recharging stations, repair facilities, and uncertainty over resale value. Now on the plus side, concern over greenhouse gasses, the cost of gasoline, and technological advances are boosting interest in electric cars.

Now, as we move forward, infrastructure and subsidy purchase programs will be key factors in attracting more owners of electric cars. We invited the president of the Vancouver Electric Vehicle Association, Bruce Sharp, to join us for a conversation that matters about the future of the electric vehicle.

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- [Stuart] Welcome.

- [Bruce] Thank you.

- Did you get here in an electric vehicle?

- I did, I drove my Tesla Model S here.

- What is it about electric vehicles that has people enamored, but also cautious? Because, a number of people that I talk to go, I'm thinking of getting an electric vehicle, maybe not, and then they shy away from it.

- So, the attraction of them is that they're clean vehicles. Specially here in BC where our source of electricity is mostly hydroelectric, renewable energy. So you're not putting nasty things into the air when you're driving the car. That's kind of where it starts but once you have the chance to actually drive one you realize, in fact, they're fantastic cars. They're fun to drive, they're very responsive, they accelerate like crazy and they're a quiet, clean, smooth ride. It's like being in a jet airplane sometimes except way quieter. Why doesn't everyone have one then? There's a couple of things that make people hold back. The initial price of the car is higher than a comparable gas car, although sometimes it's hard to find what one's comparable but generally you've got a wider range of prices for gas cars. And you do save a lot of money in operational costs of an electric car, you're not buying gas obviously or oil and all those things. The maintenance costs are very low because the cars have very few moving parts relative to the thousands of parts you have in these very complicated gas engine cars. You've just got an electric motor and some wheels and that's about it. But even with those monthly savings it more or less balances the initial higher price but only if you get some sort of rebate from the government to help you along with that initial price.

- Only if you get some sort of rebate?

- If you can factor that in then you're gonna be good and you'll come out a little bit ahead if you keep the car long enough, depends on a lot of factors, how much you drive each year, all that kind of thing. But those rebates are really important.

- Do we have a rebate program in British Columbia?

- We do.

- And how does it work?

- So it work, there's a couple of components to it, the main one is right at the dealer if you buy an electric
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vehicle you'll get either \$5,000 off, 2,500, depends exactly on the vehicle and what capabilities it has, electric capabilities. But it just, basically, comes off the top of the price of the car and the dealer manages all that.

- So who pays for that rebate?

- So, that comes out of general revenue from the government.

- From the province of British Columbia.

- From the province of British Columbia, yeah it's strictly a provincial program. There is another program which is called the SCRAP-IT Program. So, if you are buying an electric vehicle that you're taking off the road, an old gas guzzler, you can get money for that, up to \$6,000 for that.

- So that would be, in some cases, more than the value of the vehicle.

- It definitely could be, yeah, some of these are, you know, the older and crummier the vehicle is, you still get that money but you wouldn't get much for it on the used market.

- So you can get the rebate, plus up to \$6,000 for the SCRAP-IT Program.

- That's right.

- So that helps to bring down the cost.

- That helps a lot, yeah, no, when you factor that in and then your monthly savings that brings the price rate down into a range that's much more affordable for people.

- What is the life span of an electric car?

- Seems like it's gonna be a long time. You know what, people worry about with electric cars, back to what the concerns are, is the battery. We're used to our phones, our laptops, the batteries are not so great after two years or less, sometimes we're not happy about that. That's not the case for electric cars, they do use similar kinds of batteries but they manage the batteries very carefully. They keep the temperature constant and the way that you charge them up is, there's a lot of smarts that happen around that to make sure that it extends the battery life. So those batteries are looking to last for, well, most of them come with a warranty, like eight years, but in experiments people have done and they're tracking how they're working so far, it looks like they're gonna last 10, 15 years easily, if not more and retain most of their ability.

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- Gotta get you to hang on for a second while we take a quick commercial break. We'll be right back.

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- That brings up a question, you know, I wanna go buy a used whatever it is, if it's a gas powered vehicle I know what to check for or I know somebody who knows what to check for. What's the aftermarket like or second hand market like for electric or hybrid vehicles?

- Well, if you're a buyer it's terrific. There's a lot of options of vehicles to buy and the prices are really good. The good news is you can get a very affordable electric car on the used market. Some of it has to do with the fact that the cars have been out there long enough now that they were leased and they're coming off leases now, especially in the U.S. and there's dealers around who kind of specialized in bringing up those leased vehicles into Canada, fixing em' up for Canadian regulations and making them available.

- So you pointed out something a little bit earlier, here in British Columbia we're using hydroelectric power, which has a much lower carbon footprint than coal generated or cogeneration or a variety of other ways of generating power. What's that equation when you move into, let's say, eastern United States where coal power generation is the primary source of generating electricity, does that not then negate the benefits of an electric vehicle, from a carbon footprint perspective?

- Sure, it reduces a little bit but it doesn't negate it and even in those states where the source of electricity is pretty nasty, driving an electric vehicle is still comparable to driving an extremely efficient gas engine vehicle. These are complicated calculations and you wanna do this sort of cradle to grave calculation, including the manufacturer of the car, the manufacturer of batteries, all these things and really go end to end on that. But people have done that study carefully and even in the worse places there's still an advantage to own electric cars and on average they're much, much better.

- Mhm, there are critics of the electric car businessman, I was doing some research for this, I was like, holy smokes, people really come up with all sort of reasons why going electric maybe isn't as environmentally benign as you think it is.

- Yes.

- And one of them being the batteries. The products that are used in them, lithium ion, cobalt, where they come from, the transportation costs of getting there and so on and then the life and what happens afterwards. How do you answer that when somebody goes, but, but, but, but, but?

- But, but, yeah. No, there's quite a meme out there, electric cars aren't as green as you think they are. So Conversations That Matter is an Oh Boy Productions program. Please help us to continue to produce this program by making a donation at www.conversationthatmatter.tv

I'm here to tell you, yeah they are as green as you think they are, maybe more green than you think they are. Let's face it, there's some powerful economic forces that are kind of invested in electric cars not being the way of future and sticking to what we've got now. But, there's some arguments there that we need to address as well. The batteries, they sound like, you know, batteries aren't very toxic, no, they're fine. A lithium ion batteries are, in fact, rated as landfill safe so if you do just have to dispose of them they're not going to create a lot of toxic waste.

- So, to that point, just if you don't mind me jumping in.

- [Bruce] Yeah, sure.

- The natural product, the lithium, is not an ever abundant or non, continuously renewable supply. Are we not better of being able to say, can we re-harvest that from the batteries and put it back into use again or is it a one time use?

- No, absolutely reuse is important. I started with the disposal, that's just the worst case and you don't normally dispose of them. You either recycle the battery materials or you repurpose the use of the battery. So instead of having it drive a car you use it for stationary storage, so if you've got solar panels in your house, for example, and you want to store the electricity coming of that into a battery, you can use old electric vehicle batteries for that.

- And then it would have a much longer life?

- They'll last, basically, forever, yeah, in that situation.

- Do you see electric vehicles are the vehicle, or transportation model, that we ultimately are transitioning to or is it another step to what will become the replacement of the automobile?

- I think it's a component of what will become a replacement for the automobile and I think it's a really important component. Certainly when you get into this world of electric vehicles and own one and drive one, it feels so natural, you wonder how anybody put up with these gas vehicles for so long. And when I say it's a component, the other component that's coming along, of course, autonomous vehicles, self driving cars. Who knows exactly what the time frame for that is.

- If it will actually happen.

- Or if it will actually happen. I think some version of it will actually happen and there's a wide range of possible futures there but they are generally connected to electric cars as well. You'll notice, whenever you hear about these autonomous vehicles, almost all the time they're using an electric car and that's the way of the future, for sure.

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- Tesla looks like it's the closest to delivering on that promise at this point.

- Tesla is definitely doing tons of work, most car companies are doing a lot on that. The Waymo, which is a spin off from Google, are right now driving fully, or having fully autonomous vehicles available in places like Phoenix and so on, you can just--

- In urban environments?

- In urban environments, yes.

- 'Cause there is an urban rural component to autonomous vehicles.

- Well, there is, it's a question of what places do you have well mapped out and just how much training has the car had for that specific area. So, in some ways rural is easier, fewer roads, less pedestrians, less complicated things going on there, but right now you can have full self driving cars but in restricted areas where they kind of know what to do and they know the landscape of that territory.

- This is our second break, we'll be back in a moment.

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- What do you say to the argument that, well, an electric car is just another version of individual transportation, which takes up an awful lot of space. And space becomes a challenge as we have growing density in urban environments. Is the electric car gonna get reduced down to electric seat or scooter or something? Because the space becomes a requirement. Are we still not still locked in the idea of this is my personal vehicle and I'm gonna drive around and take up all this space.

- So, electric cars, by themselves, don't solve congestion problems. Our point of view is that people are probably going to buy personal vehicles for quite some time before a replacement comes along. And if they're gonna do that it's better that they drive electric than not. The congestion problem and just the number of cars and so on, that's more on the side of the autonomous vehicles. If that really comes to pass and it works well then, all of a sudden, the need for a personal vehicle becomes much less.

- Mhm, and so then that makes it far more practical.

- That makes it more practical to have fewer cars and to not have your own car, for sure. And I bring it up in the context of electric cars 'cause you can be sure those autonomous vehicles will be electric.

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- And in an urban environment where there's congestion, I go, bring it on. Because I'd rather be doing something else than sitting behind the wheel getting frustrated by the drivers that's in front of me.

- Definitely, and breathing their fumes.

- But out when I'm driving into the interior, I actually wanna drive, I like driving in that kind of. So I think that we're gonna have a mix, and we always have a mix of different types of transportation on the road and I think that that's probably not gonna go away for a long time to come, but that transition is happening. But it's happening slowly, what's the percentage of people who own electric vehicles in North America? Or the car population, not people, but what's the percentage of the car population?

- It's certainly pretty small right now and in terms of new vehicles being sold we're in the, somewhere between the one and two percent of new vehicles are electric.

- And there's about four, four and a half million new cars that are brought onto the road each year in North America.

- Sounds about right, yeah.

- So we're talkin' very small numbers.

- Yeah, we're talking in the hundreds of thousands, like total, and not, around the world I think there's a couple million electric cars, maybe, but that's a small percentage right now.

- If we want to make that transition there are infrastructure issues that have to be put into place to be able to accommodate that. I was driving through northern California back in December and stopped to get gas for my gas powered vehicle and there was a Tesla refueling station. Eight cars all plugged in another eight or 12 waiting. I had fueled up, got something to eat, dealt with a few other things and the vehicles that were there at the plug in station when I arrived were still there when I was leaving. This becomes a bit of an issue. So, how do we start to build out that, because without it I don't see the population of electric vehicles really surging forward. But without the surge, then you don't get the infrastructure, it's a chicken and egg kinda thing.

- It is a chicken and egg and this is why we keep looking to government for leadership in this to help make it happen and they definitely have an important role to play there on the infrastructure. It's important when you think about electric vehicles to realize there's kind of two types of driving that you do. There's your daily use driving, your commute to work, picking up groceries, that sort of thing, and then there's these road trips that you might do less often. For daily use driving the ideal thing is to just charge at home, and this is--

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- Plug it in overnight the way you do any other device.

- Plug it in overnight, like you plug in your phone, yeah. And it's great, the biggest pleasant surprise to me about electric vehicles, which I hadn't thought about until I got one, was every morning I wake up and I've got a full tank, this is nice. And we still have a gas car that we use occasionally and if I get in that and the needles getting a little bit low I start to have range anxiety. My gas car, oh, what do I do now? How come it's not full in the morning?

- So you actually have range anxiety with your gas powered vehicle, not your electric one.

- Exactly, yeah. Now for road trips it is a different situation. So, you're not at home so you can't be charging at home. The situation you mentioned with Teslas, one I've experienced myself, although in a more positive way generally, than what you described. In California in particular they're very heavily used, the Tesla super charges, as they're called, but we've done several trips to California and Las Vegas and other places, actually all across the U.S. and Canada with our car, and generally there's a charger available and the charging is quite quick. So, a typical driving scenario for us, to go from here down to norther California is you drive for a couple hours, you want a break anyway, you stop for your cup of coffee and by the time you've done everything and you've got your coffee in hand the car's pretty much ready to go. The car's generally ready to go before we are So that's fine. The congestion at the chargers that you mentioned is going to happen more and more as more of these vehicles come on the road and right now, here in the lower mainland, we've got quite a number of, hundreds of public chargers that are available for people, that works well. If you want to make a road trip to the interior or BC and so on we're getting there, we've got close to 60 what are called DC fast chargers. So they can give you like an 80% charge in maybe 20 minutes or so, so that's not bad. And then there's many, many more of less powerful chargers that take longer to charge, but maybe you're gonna stay somewhere for awhile, that are a good option for you as well.

- Third and final break, we'll be right back.

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- One of the other infrastructure things that we have to take into consideration is if you have all these electric vehicle owners coming home between five and seven o'clock at night and plugging in there car, in addition to turning on the lights and the TV and everything else, the stress on the system to deliver that electricity goes way up. Is there going to be a need to tell the charging station for your car, don't turn until 10:30 tonight when the overall load on the grid goes down.

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- There's probably gonna be some management like that. BC Hydro is doing some experimentation right now where they, and it's just one model, but where they have a little bit of control as to when your car starts charging so they can manage that across a neighborhood or maybe a larger area. In other jurisdictions they have differential pricing for electricity. So they encourage you to use electricity at night instead of at the peak time of five p.m. And so you save a lot of money that, obviously, incentivizes people to shift their charging. And these cars, you can plug it in but say, don't start charging until midnight or whatever. And so it just takes care of itself, that's what I do. Electric utilities are actually quite enthusiastic about electric cars, as opposed to being concerned about this huge load on the grid. Enthusiastic because the nature of charging a car is, specially at home, you park the car, you plug it in, you got a long window of charging time that's available but you only need a fairly short charging time within that window. So this gives utilities all sorts of opportunities to kind of balance the load on the grid and they have to worry about peak charging times and what do they do with excess electricity at night, in fact. Do they sell it on some market where they don't really get any money for it? They'd be very happy to put it into electric cars.

- Why did you start the Vancouver Electric Vehicles Association? Doesn't BCAA cover everything?

- BCAA has some helpful things going on, but, and I didn't start the association, it's been around since 1988, if you can imagine.

- [Stuart] 1988?

- This is our 30th year, so 30 years ago some very visionary people realized that electric transportation was really the way of the future and they wanted to do their bit to promote it. In those days, of course, the only way you could get an electric car was to build one yourself or take an existing car and convert it into electric. So there was a lot of people who would do that and it was a mutual support group for that, but it was also one where a group that would educate the public on the possibilities of electric transportation. And that's always been an important component of the group. When I bought my electric car, this is almost five years ago now, I really didn't know anything about electric cars. I wanted a clean car, Tesla was getting all these great reviews, I looked into it, honestly I came for the technology as much as for the environment but I stayed for the environment. I joke to people that the hazard of owning an electric car is once you get one you can't shut up about it and you become the most boring person at all parties.

- It's like the person who talks about their diet all the time, the person talks about their electric car.

- Pretty much, yeah.

- I've noticed it there, you see people driving electric cars and it's written all over the car, I'm electric.

- We're not shy. So I became one of those people and I thought, I might as well channel my enthusiasm into an organization that's actually designed to meet the public and raise awareness about these cars.

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- And so, I'm sure as people are moving more and more towards electric cars they've got hundreds of questions, don't know where to turn to, and you can be there as a valuable resource.

- We are, and we get lots of questions. Just on our website we have a contact form, ask us anything. We get a steady stream of questions coming in there and the amount of expertise that's in our group to answer those questions is amazing. Lots of questions come in that I have no idea almost even what the question means, I just pass it on to the group and somebody just knows all about that specific topic in there, so we're happy to do that. We attend lots of events ourselves, public events. We'll show up with the cars and we're happy to talk to the public then. And then we run our own event every year called ElectraFest which is where we bring together a whole bunch of cars for test drives. We have displays for people, we have presentations on everything to do with electric cars and to educate people about those.

- It would be very interesting to see what this transformation looks like, how fast it happens, and what it will mean for us in the future. Thank you very much for coming in and sharing your insights with us.

- It was great to talk to you.