

BRITISH COLUMBIA UTILITIES COMMISSION
IN THE MATTER OF THE UTILITIES COMMISSION ACT
R.S.B.C. 1996, CHAPTER 473

And
An inquiry into the Regulation of
Electric Vehicle Charging Service

VICTORIA, B.C.
April 9th , 2018

Community Input Session

BEFORE:

| | |
|-----------------------|---------------------------|
| D. Morton, | Chair/ Panel Chair |
| A. Fung, Q.C., | Commissioner |
| H. Harowitz, | Commissioner |

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VICTORIA, B.C.

April 9th, 2018

Afternoon Session

(PROCEEDINGS RESUMED AT 12:58 P.M.)

THE CHAIRPERSON: Good afternoon everyone. Thank you for coming. It's good to see you, and we're really pleased to see your interest.

My name is Dave Morton, and I am the Panel Chair for the Electric Vehicle Charging Service Inquiry. I'm also the Chair of the Utilities Commission. With me today is Commissioner Anna Fung, and Commissioner Howard Harowitz on my left. The three of us form the panel that will be looking at the evidence that we gather in this inquiry.

For those of you just arrived late, if you do -- if you would like to talk, if you could just go over and register over here.

I'm going to stop talking in just a moment and hand it over to our staff, and they're going to give you a presentation on Utilities Commission generally, and a little bit about what the inquiry is about and how to participate in the inquiry. And then they will segue into the portion, the main portion of the afternoon where we listen to your views and your opinions, and they'll explain how that will go after that.

1 and cost of the vehicles. If you look at the
2 projections, Bloomberg, for example suspects that by
3 2025 EVs will be at price parity with gasoline cars
4 and then you are going to see very fast adoption. We
5 saw that in Victoria where once the used Leafs started
6 coming up from the States at about, you know, \$15,000,
7 suddenly there was an explosion in adoption. And, you
8 know, I'm a Leaf driver but let's, you know, be
9 honest, it's a very limited car. So once you get into
10 the more capable cars at lower prices, it's going to
11 be 50 percent of drivers not 2 percent of drivers.

12 So just as far a regulatory issues, I would
13 just encourage you to think really big. It's not a
14 niche issue. On the regulation side, I think there's
15 a huge opportunity for BC Hydro to lead and to really
16 be in a very unique position, especially in light of
17 the Site C decision, to go deep and really provide --
18 you know, kind of expand their mandate. And I don't
19 know if there's any opportunity for BCUC to encourage
20 them to expand their mandate to go to, you know,
21 providing fundamentally the transportation fuel in
22 B.C., right? And providing the transportation
23 infrastructure.

24 If that's not going to happen, I would say
25 keeping the regulatory framework quite light, and
26 because it's in early stages, not over-regulating so

1 U-W-E is how you spell it. Last name is Bartley,
2 B-A-R-T-L-E-Y. I'm a facilities superintendent for
3 University of Victoria properties investment. I look
4 after what the University owns off the ring road.

5 So this has been an issue for us for many
6 years, the electric vehicle, because as being charged
7 with making a profit, these things can get very
8 expensive to put into a commercial building. We've
9 had -- we've actually just installed one where the
10 tenant wanted it, so they actually ended up paying for
11 it, and it was \$2300. And it luckily was within maybe
12 ten feet of the parking area. If you start getting
13 out like hundreds of feet, it starts getting extremely
14 expensive to get an electric vehicle charging station
15 out there.

16 We agree with it, because you know, we've
17 been involved in the Canada Green Building Council for
18 almost 20 years. So we are heading in the right
19 direction. For us, though, is how do we install it
20 and get value for the people that own the building.
21 We can't have dozens of people showing up and charging
22 and not paying for the hydro. That's the first
23 question I get asked: How do we charge for the hydro
24 that's being used.

25 The other thing is, we've been asked to
26 install some of the stage 3 charging stations because

1 people at home have trickle chargers and apparently
2 some of the cars require a quicker boost every few
3 months to keep the batteries in better shape. That's
4 what's recommended in some of the auto things. So
5 again, people come to us and say, "When are you going
6 to install one?"

7 So that's kind of what we are finding.
8 It's the expense. How do we -- and also parking is a
9 revenue for us. How do we move people out of the
10 parking spots that they don't park there at 6 a.m. and
11 they are still there at 3 p.m. So those are the kind
12 of things that we're trying to deal with.

13 So some help, some regulation definitely
14 makes sense on our end.

15 The one building that's really under
16 pressure, we have 1200 people there. Lots of electric
17 vehicles are starting to come in from all different
18 makes. So we are looking at which way to turn to
19 start putting some charging stations out there. But
20 again, how do we recover the cost?

21 THE CHAIRPERSON: Sir, that example that you did cite,
22 was that rental property on the university grounds?

23 MR. BARTLEY: The University owns a bunch of property
24 downtown and a few other areas in the city. They own
25 commercial vehicles that we donated them or they've
26 bought.

1 THE CHAIRPERSON: They're revenue producing.

2 MR. BARTLEY: Yeah, revenue producing. Our job is to
3 make revenue and return it back to the University
4 which is then put into the education system.

5 THE CHAIRPERSON: So there's this situation where a
6 tenant wanted a -- was it a level 2 charger?

7 MR. BARTLEY: He wanted a level 1. Just the one that
8 we just installed a couple of weeks ago was a Leaf.
9 He actually drives from the University out to the
10 airport once or twice a day and he needs the charge
11 because he says he's got a heavy foot, so he can't
12 make it back and forth. So they actually paid for it.

13 We own the Vancouver Island Technology Park
14 that has almost 1200 people working in it and they
15 have some of these high end Teslas, and they have the
16 BMW, which are really nice looking cars but -- and
17 they are saying they need the quicker boost, like the
18 quick charge. And that again, you know, we looked at
19 one, it's almost \$30,000 and how do you -- you know.

20 THE CHAIRPERSON: But you haven't had to make an outlay
21 of that amount yet.

22 MR. BARTLEY: At this point, I haven't.

23 THE CHAIRPERSON: And if you did, you would want a way
24 to recover that revenue, presumably.

25 MR. BARTLEY: That's what I'm thinking, yeah. Because I
26 have to go through the accountant and say, "Here's

1 what I want to do." You know. So just before I left
2 I said, "What do you want me to look for?" And she
3 said, "Well, we get revenue for the parking, we need
4 to upcharge over that parking." So if we get \$5.50 a
5 day for that parking spot, what do we charge when
6 there's an electric charger sitting there? Or can we
7 even charge? Because I know we're not allowed to
8 resell hydro.

9 The other thing with the quick charging
10 stations we found is the power factor gets affected.
11 So somebody plugs that car in, we are running in some
12 of our buildings 94 and 95 percent. You plug the car
13 in, and the power factor goes, now we are paying it
14 for the rest of the month. And our bills are in the,
15 you know, tens of thousands of dollars a month.

16 THE CHAIRPERSON: So you are finding that you are in
17 that situation now?

18 MR. BARTLEY: Yes. So that's the other issue.

19 THE CHAIRPERSON: And you have to explain that to the
20 accountant too.

21 MR. BARTLEY: Yeah, so we need to set -- so again, now
22 you are adding more cost because now we have to set a
23 separate hydro meter just for the charging station.

24 THE CHAIRPERSON: And have you done that yet?

25 MR. BARTLEY: No, those are all on the table. Yeah.

26 THE CHAIRPERSON: Okay, great, thank you, sir.

1 COMMISSIONER FUNG: Before you sit down, Mr. Bartley, I
2 just want to understand what the situation is
3 currently at the university. You say you have parking
4 spots. Do you have EV charging at certain spots? Or
5 how many do you have, approximately?

6 MR. BARTLEY: Yeah, I don't work at the University. I
7 work for the University on private properties.

8 COMMISSIONER FUNG: Oh, I see, okay.

9 MR. BARTLEY: But at this moment, we personally have not
10 installed -- none.

11 COMMISSIONER FUNG: None.

12 MR. BARTLEY: One of our tenants installed one a couple
13 of weeks ago, because of the pressures getting there,
14 so we are at the point now where we are going to have
15 to start looking physically at putting, you know, four
16 or five stations in here and there.

17 COMMISSIONER FUNG: And when you talk about four or
18 five stations, are you contemplating the level twos?

19 MR. BARTLEY: Yeah, because we want to keep things -- I
20 don't want to see -- because if we put four stations
21 in, there's four cars, we have 1200 people, chances
22 are we could end up with 50, 60, 70 electric cars.
23 How do we give them the service, you know, in the
24 future that's going to be needed to get them rotating
25 around?

26 COMMISSIONER FUNG: And right now your thinking is that

1 inquiry to lend my voice to really two questions,
2 fairly limited ones. To hopefully make it easier for
3 electric vehicle owners in stratas to get electricity
4 into their vehicles. At the time that I registered as
5 an intervener, there were no other strata
6 organizations in that position. And I also would
7 like to see a longer term view of electricity sales
8 beyond just electric vehicles.

9 So those are my two main points. And of
10 course, like many people here, I hope that the
11 requirement -- a feeling or an idea I see in many of
12 the documents that have now accumulated for this
13 inquiry seem to push to the idea that you won't need
14 to be a utility under the BCUC definition just to sell
15 some electricity.

16 Now, one of the things that has happened --
17 actually the day that I sent in my document, I did put
18 in a three-page document called "Electric Vehicle
19 Charging in Stratas", and the day that I submitted it
20 the new Strata Act Regulations came out. No, actually
21 it was the day I submitted my request to an
22 intervener, there was a change that came out to the
23 Strata Act Regulations which clarified that stratas
24 could charge their residents and owners on a per use
25 basis, on a resource use and consumption basis.

26 Have you folks heard of that? Do you know?

1 Are you familiar with all of that?

2 THE CHAIRPERSON: I had heard that there are new
3 regulations around that, but I'm not really personally
4 familiar with that, yeah.

5 MR. MACKENZIE: Yeah, I'll go -- I'll take a minute for
6 that then.

7 THE CHAIRPERSON: Please, yeah.

8 MR. MACKENZIE: There really were two severe limitations
9 to a strata property being able to charge for the
10 electricity going into a vehicle. And the first of
11 those was the *Strata Property Act* in general was being
12 -- it seems like there's a -- for it to charge for a
13 service, it has to be based on a fixed fee up until
14 now, and the lawyer that I worked with in a bylaw
15 revision in my strata said that any charge that's
16 going to be imposed on any resident must be a fixed
17 monthly fee, and that's the end of it.

18 So, of course, for electric vehicles, that
19 would be very inappropriate. That would be like
20 having to pay a monthly fee at the gas station for
21 your car.

22 THE CHAIRPERSON: Whether you use the service or not.

23 MR. MACKENZIE: No, it would be for an electric
24 vehicle. You apply for a connection, and in the case
25 of my building, just plug into the 110. But it would
26 -- what the lawyer said is just to plug that in, there

1 would have to be a fixed monthly fee.

2 THE CHAIRPERSON: Just to plug it in once, for example.

3 MR. MACKENZIE: Well, to plug it per month, whatever
4 you use it. The only way that they could apply a fee
5 would be per month.

6 THE CHAIRPERSON: Right.

7 MR. MACKENZIE: So now what happened in early March
8 was the B.C. Government strata -- or the agency of
9 B.C. Government that regulates stratas issued a
10 clarification saying that a strata can charge based on
11 resource use. So what that does, in effect, as far as
12 I can tell, is remove one of the barriers to a strata
13 charging for the electricity that then goes into an
14 electric vehicle. And I haven't seen any case law or
15 anything like that, but it seems clear that that's the
16 intent, from the announcement that that's what they
17 intend to do.

18 THE CHAIRPERSON: Was that specifically for electric
19 vehicles or is it also for, you know, water and snow
20 clearing and all the rest of it?

21 MR. MACKENZIE: Well, snow clearing wouldn't really
22 count. But, yeah, water. Yes, it does say -- there's
23 one line in the press release that says it's for any
24 resource, and then the second line says it's for
25 electric vehicles.

26 THE CHAIRPERSON: Okay.

1 **Proceeding Time 1:25 p.m. T5**

2 MR. MACKENZIE: So that's barrier one.

3 The second barrier, of course, is the one
4 that you're hearing about a lot in this room, which is
5 that strata cannot charge by the kilowatt hour for the
6 electricity going into a vehicle. And from my
7 experience in stratas, fairness is very important to
8 some stratas. Nobody wants to see an owner get an
9 advantage that they aren't paying for that's uneven
10 with other residents. And so my presumption is that
11 to get a wider adoption of electric vehicle charging
12 into stratas there is going to have to be some way
13 that it can be charged for what's actually used. And
14 so that's a very -- I think an important point.

15 I think it's important that the strata
16 corporations function best when regulatory and legal
17 regimes are clear and transparent, and *Strata*
18 *Properties Act* over many years has evolved to reflect
19 that in many other aspects of condominium life, and I
20 think it's important that we push them along to do
21 this with electric vehicles as well.

22 And group decisions in condos are very
23 susceptible to FUD – fear, uncertainty and doubt. So
24 a big decision can be derailed by one person with one
25 concern at an annual general meeting that will tend to
26 push them off the whole for the next year. And

1 because a change to a strata, the actual
2 infrastructure of a strata building requires a three-
3 quarter vote of the owners at a general meeting, the
4 case has to be presented very well, and any of that
5 fear and uncertainty and doubt could change it. So
6 that's why I'm hoping for a clear structure or regime
7 that stratas can use.

8 When I talk about a broader application,
9 several cities within B.C. and around the world have
10 adopted a 100 percent renewable energy goal by 2050.
11 Victoria, the City of Victoria has adopted that goal.
12 Saanich has adopted that goal. Other municipalities
13 in the district -- or in the capital regional district
14 are considering that goal. That's a -- I'm not sure
15 they really understand what that means yet. But what
16 that ultimately states is that all fossil fuel use
17 within a city will be replaced with electricity or sun
18 or solar thermal or something else.

19 So what I think that means is that not just
20 electric vehicles, not just cars, but it could be lift
21 trucks, excavators, who knows what, will want to be
22 powered by electricity. At this point the technology
23 doesn't seem to be there, but this will evolve, we
24 hope.

25 And so I think it's important that the
26 Commission, which it looks at the ability to sell

1 electricity into a vehicle, include not just electric
2 vehicles but other things. And the example I have in
3 my paper that I submitted was somebody walks into a
4 gas station somewhere in the Chilcotin with a propane
5 tank. They just hook it up, they put on the scale,
6 they pay 27 pounds of propane and nobody's really
7 trying to regulate what the cost of that to be. They
8 don't have to be a utility to sell it. So I think
9 that should be -- I hope the Commission will be
10 thinking future, where any old thing will come into a
11 place and fill it up with electricity without having
12 to be a registered utility.

13 I agree with many of the statements that
14 overnight is probably going to be quite practical for
15 many drivers and so a 110 volt outlet, I think, is a
16 great way for people to start, and for stratas to
17 start. So there's really no infrastructure cost, so
18 long as they can charge for the electricity.

19 It's easy to use a \$20 power meter, a
20 kilowatt meter is what I use, and just plug it into
21 the wall, plug the car into that and for 110 volt it
22 will record very accurately how much electricity is
23 used. So again, if the strata have the regulatory
24 permission to record that and charge by the kilowatt
25 hour, I think that would open up a lot of options
26 without the cost that you mentioned for the level 2

1 chargers. As a way to get started.

2 So I've probably taken enough time here to
3 -- oh, there's one other thing that stratas -- a
4 challenge with stratas. And that is where are you
5 going to put the meter. So in some strata buildings,
6 the strata owns all of the parking and can allocate
7 spaces as needed just with motions of council. But in
8 some stratas, like the one I live in, the actual
9 parking lot number is registered on title at land
10 titles. And my understanding is that to change that,
11 or say for two units to swap their parking spots
12 requires one -- because it changes -- the building
13 requires 100 percent agreement of all the owners. And
14 so that's a huge barrier. I can't imagine, you know,
15 the challenge of doing that.

16 So if there was some way -- and this isn't
17 really your purview perhaps, but I think in the longer
18 term, having some way of changing that, making it
19 easier to just swap spaces so that you could put an
20 electric vehicle owner closer to the electrical room
21 rather than running a conduit all the way across to
22 wherever your space is, would be something that would
23 be use. And I've mentioned that in my notes.

24 THE CHAIRPERSON: Sorry, the scenario where electric
25 vehicles were ubiquitous, everyone would need a plug
26 in their parking spot in any event.

1 MR. MACKENZIE: That right. But I expect, you know,
2 we're looking at --

3 THE CHAIRPERSON: That's a little ways away.

4 MR. MACKENZIE: At this point we're trying to ease it
5 for the early adopters, I would hope. Yeah. So I'll
6 leave it there.

7 COMMISSIONER HOROWITZ: Mr. Mackenzie, I think that I
8 just want to clarify that some of your comments around
9 buildings is as it relates to existing physical stock
10 and the transition to build out charging in those as
11 opposed to new buildings and the regulation that would
12 be around those that may or may not include entirely
13 different physical configuration, installation of, you
14 know, charging spots at individual stalls or whatever.
15 I think you're talking about how do we transition for
16 the existing building stock, is that correct?

17 MR. MACKENZIE: That's primarily, but on the other
18 hand, even a new building which, I think in Vancouver
19 now there's a requirement that conduit be run to every
20 parking spot.

21 COMMISSIONER HOROWITZ: Right.

22 MR. MACKENZIE: There's still -- if they are going to
23 put in level 2, there's still a couple of thousand
24 dollar charge. So it's unlikely that every unit in
25 the building is going to need that, so -- yeah, I
26 guess I'm mainly talking about existing buildings,

1 THE CHAIRPERSON: Thank you, sir.

2 Good afternoon.

3 **PRESENTATION BY MR. GARY:**

4 MR. GARY: Good afternoon. My name is Glenn Gary, G-A-R-
5 Y. I'm here just representing myself today. Yeah,
6 thanks for coming out, thanks for getting down the
7 road on this item.

8 THE CHAIRPERSON: Thank you, sir.

9 MR. GARY: Does anybody in the Commission or their Staff
10 own an electric vehicle?

11 THE CHAIRPERSON: We do have -- there's no one here, but
12 we do have an electric vehicle owner, member of our
13 staff who's an electric vehicle owner, yes.

14 MR. GARY: Okay. Okay, good. You want to spend time
15 with people who actually operate them.

16 THE CHAIRPERSON: Yeah.

17 MR. GARY: Okay, because as Mr. Mackenzie was saying
18 there is a lot of fear, uncertainty and doubt. I'll
19 just tack on one of those and it's not uncertainty or
20 doubt. Getting and charging to individual stalls. As
21 Vancouver knows and anybody who builds a building
22 knows, if you're doing something up front in the
23 build, it's very cheap. Right? You put the conduits
24 in, you don't even have to specify which gauge, yet.
25 But as long as the routes are there and there's panels
26 set up to accept that down the road, then that part is

1 easy. Into existing stratas, that is more difficult
2 but not impossible.

3 I'm a home owner. I had to run my own in
4 my house. I chose to go to a Level 2, which is as
5 simple as providing an outlet for another water
6 heater. Somebody who owns a hot tub uses far more
7 energy every year than any electric car. Right? So
8 just in the -- I guess it's in fear reduction going
9 forward, these are not, you know, insurmountable
10 obstacles. These are fairly simple.

11 So going forward, I would like to say that
12 I like BC Hydro, I like what they do, I think they
13 should stay in the business of providing electricity.
14 I think it would be wonderful if I as a user, you
15 know, big power in my house, I walk up to a public
16 charger that's run by BC Hydro, you know, an RFID card
17 or my PIN number or whatever, I go up, I place that in
18 there, it charges me for the electricity and then
19 charges me another amount to pay for that level of
20 charging, and that is to run back the costs for the
21 charger. Level 2 is a whole lot simpler than a Level
22 3. Level 3s are somewhere between 50 and 100?
23 Something like that. 50 and 100 thousand dollars. So
24 you have to be able to make that money back.

25 But, again, if it's our public utility, we
26 don't need to make it back in a four-year term like a

1 business might. We might make it back in a ten-year
2 term. Right? So those costs then become more usable.

3 And I suggest this in our ramp-up years,
4 the next five years, next seven years. You do that
5 sort of thing, that allows the public the certainty
6 going forward into electric vehicles. It allows
7 people who want to get into the business a certain
8 amount of certainty there as well. Maybe BC Hydro
9 does not want to own the actual charger and get other
10 businesses to put those in, subcontracted to. But BC
11 Hydro is the one providing. And more importantly,
12 regulated by you guys. Okay?

13 Those are the really important parts I
14 think we need going forward. And we do need to
15 encourage it, big-time. And because B.C. is so huge
16 with our 95 percent I think we're at now for renewable
17 energy, you know, and 87 percent of that I think is
18 hydro, we can turn around and make really big inroads
19 and tell the rest of North America how to do this, and
20 how to do it right.

21 Okay, that's all I got.

22 **Proceeding Time 1:38 p.m. T7**

23 THE CHAIRPERSON: So just a quick question, sir. So I
24 appreciate your suggestion about cost recovery for the
25 charging infrastructure itself, and you know, it's
26 reasonable that that be included in some sort of

1 charge for the service.

2 MR. GARY: Yeah.

3 THE CHAIRPERSON: But I'm just wondering if you have any
4 thoughts about the rapidly changing technology and the
5 sort of -- the tension between recovering it over a
6 long period of time, when in ten years that technology
7 might, in fact, have been usurp by the next generation
8 of chargers and nobody wants a level 3 charger because
9 there's a level 4 charger by then.

10 MR. GARY: You do have to be concerned with that.

11 THE CHAIRPERSON: Yes.

12 MR. GARY: However, going forward, and the difference in
13 the chargers might be an impact if, let's say, solid
14 state batteries come in. However, those are still a
15 fair way off. We are almost back into the beta VHS
16 stage, right?

17 THE CHAIRPERSON: Yeah.

18 MR. GARY: The beta was the better product, the VHS was
19 the better marketed product.

20 THE CHAIRPERSON: Was the market winner, certainly, yes.

21 MR. GARY: It turned out to be the economic winner. So
22 going forward I think you'd probably be fairly safe in
23 the next five to seven years going with the current
24 sort of levels of charging, but you do have to keep an
25 eye on Europe. So us, you know, being really excited
26 about charging at a level 3 at 50 kilowatts, well,

1 Europe, they are moving towards 350 kilowatts.

2 THE CHAIRPERSON: Right.

3 MR. GARY: You know, and to make that easier on the
4 grip, they have on-site solar and they store a lot.
5 They trickle charge into large battery arrays. So
6 when people come up, it automatically goes out and
7 it's not a huge thing for the grid.

8 THE CHAIRPERSON: Yeah, very good. Yeah. Thank you.

9 COMMISSIONER FUNG: Mr. Gary, I am curious as to why
10 you think we need to regulate this entire field, given
11 that we don't currently and there is a myriad of
12 options out there.

13 MR. GARY: Well, any time you don't regulate something
14 for the public good, it generally ends up being to the
15 public disadvantage. And let's look at -- let's look
16 at oil, the oil industry. It does not work for the
17 public good, right? If we don't regulate this, people
18 will come in and they'll make it so that it does not
19 work for the public good, and it may, indeed, strangle
20 this major shift.

21 Regulation, I think, is key to what we do
22 going forward, and it has to be for the public good.
23 If you are not working for the public good, you're
24 working for somebody with deep pockets.

25 COMMISSIONER FUNG: Thank you.

26 THE CHAIRPERSON: Thank you, sir, appreciate it.

1 MR. GARY: Thank you all.

2 THE CHAIRPERSON: Thank you.

3 MR. SPALTEHOLZ: May I make another point?

4 THE CHAIRPERSON: Please. Yes, please do.

5 MR. SPATSEHOLZ: So it's Leo Spalteholz again. Just two
6 things that I thought of.

7 I think there's this assumption that if 100
8 percent of drivers are driving EVs, I think you
9 mentioned it, that we would then need charging
10 facilities at every parking spot. I don't think we
11 should be set on that assumption. I mean right now,
12 yes, perhaps with the vehicles we have, but if you
13 have a range of 600 kilometres and you can charge it
14 up in fifteen minutes – some of the new technology –
15 then suddenly this whole issue is much less important,
16 and a hundred percent of EV drivers might need only a
17 couple charging spots again in a condo. That's
18 rapidly evolving.

19 The other question is, Tesla is charging
20 for their super chargers now, for some of their
21 clients, depending on what vehicle they bought. And
22 they actually have multiple levels of charge based on
23 the rate that you're getting. So they will charge you
24 by the time because I think in a lot of jurisdictions
25 you are not allowed to charge for the energy you use,
26 but they will charge you for the time and they will

1 charge you a different rate for the time depending on
2 how much charge you are actually getting.

3 So is that actually a loophole in B.C. as
4 well, that you could fundamentally not charge for the
5 energy but charge for the time and that rate changes
6 by how much energy is actually being delivered?

7 THE CHAIRPERSON: Well, that's a legal question and it's
8 one that we haven't turned our minds to. It's
9 probably something we will look at in this inquiry.
10 But it's a very good question. I don't know if Mr.
11 Miller has any further comment on that or not.

12 MR. MILLER: Mr. Chair, I agree with your comment. That
13 is an issue the panel will have to address.

14 MR. SPALTEHOLZ: Okay, thanks.

15 THE CHAIRPERSON: Thank you.

16 MR. SCHENTAG: Hi there.

17 THE CHAIRPERSON: Hello, sir.

18 **PRESENTATION BY MR. SCHENTAG:**

19 MR. SCHENTAG: I'm Glen Schentag. It's S-C-H-E-N-T-A-G,
20 and I'm from Metchosin. I'm just a private citizen
21 that came in my little electric Smart Car.

22 THE CHAIRPERSON: Okay.

23 MR. SCHENTAG: Well, I guess first off, I appreciate that
24 you guys are doing this. It does need to get done.
25 And I also wanted to say thank you for the work that
26 this group did on the Site C. I think that was a bad

1 decision in the end, but anyway.

2 As far as a model goes, I guess what I
3 would like to see as a citizen is something that would
4 be kind of akin to a bank machine, where I could
5 approach an electric vehicle charging station and plug
6 in and know that I'm going to pay a fee. Maybe it's
7 five bucks. But the cost of the energy and the amount
8 of energy I use is reflected based on my vehicle.

9 **Proceeding Time 1:44 p.m. T8**

10 I can tell you that my little Smart Car doesn't use
11 anything like the energy that a Tesla would use, and
12 at the same time I'm prepared to pay the same five
13 bucks they would pay to have access to a port that
14 gives me what I need at the time.

15 So I'd like to see regulation that govern
16 what they were allowed to charge, because like
17 somebody else here said, given the opportunity,
18 private capital goes for more private capital. I'm
19 totally game with them being able to recoup their
20 costs. So in the case of DC fast charger, you know,
21 if I owned a Tesla, I guess then I'd be prepared to
22 pay more than somebody who owns a Smart Car to have
23 access to that port and then naturally pay more for
24 the amount of energy that I would consume.

25 So that was really my comment around the
26 regulatory piece, was I'd like to see it regulated,

1 and I think it's fair that these people get a return
2 on their investment so they can pay for the privilege
3 of using -- I'm happy to pay for the privilege of
4 using it.

5 And then I guess lastly, it's more of a
6 comment which was, you know, I understand over the
7 last few years we've transitioned to smart metering,
8 and I've noticed my meter's gotten dumber lately. I
9 used to be able to see my consumption by hour and now
10 I can only see it by day. And it's intermittent. I'd
11 really like to see BC Hydro go down the path of using
12 the smarts of those meters, because it is possible for
13 us -- it's certainly possible with my electric car,
14 and I think as far I know, all of them, for me to tell
15 my car to start charging at 2:00 a.m. and finish off
16 at 4 or 6 or something. And I too installed a level
17 2 charger. But there's no bonus or incentive for me
18 to set it up to go off hours, and I certainly know
19 other jurisdictions like California allow you to
20 purchase power at a different rate in the middle of
21 the night than during peak times.

22 THE CHAIRPERSON: So is that something that you are
23 saying that you would be in favour of that?

24 MR. SCHENTAG: You know, and this relates to my whole
25 opinion around Site C as well, is we can manage the
26 power we do have access differently than we do now.

1 And that would -- you know, BC Hydro has just spent a
2 lot of money putting in smart meters that could
3 facilitate that.

4 COMMISSIONER FUNG: Mr. Schentag, I'm curious. You
5 said you have a level 2 charger at home.

6 MR. SCHENTAG: Yes.

7 COMMISSIONER FUNG: So do you rely primarily on home
8 charging then for your charging needs, or are you
9 driven to using public charging services however and
10 wherever they are available?

11 MR. SCHENTAG: Yeah, you know, I think what's really
12 interesting about that question is the answer is
13 really going to be variable. I know a number of other
14 people with electric vehicles and I know some people
15 get a bit of a thrill from, you know, getting free
16 power from lots different locations and are kind of
17 excited by that journey. And for me that journey, you
18 know, was maybe a day or so and I realized that, no,
19 I'm going to plug this in at home and for the most
20 plan my life in a way that I don't jump from charger
21 to charger. I get into a fully charged vehicle in the
22 morning and I kind of know where I'll be by the time I
23 get home today.

24 So it's actually in the last three years of
25 owning this vehicle, I've only had one instance where I
26 really had to plan my trip based on getting juiced up

1 at another location, and that's a small range car.

2 It's only good for about 110 kilometres.

3 COMMISSIONER FUNG: Okay, thank you.

4 THE CHAIRPERSON: Thank you, sir.

5 MR. SCHENTAG: Thank you.

6 **PRESENTATION BY MR. DOMNEY:**

7 MR. DOMNEY: Good afternoon. My name is Brian Domney,
8 D-O-M-N-E-Y. I'm a member of the Metchosin
9 delegation. My wife and I bought a Leaf about a year
10 and a half ago. About six months after we put 4.3
11 kilowatts of solar panels on our roof. And for the
12 first year we owned the Leaf, we used public charging
13 stations. Metchosin has a population of about 4700
14 people and has two free charging stations in the
15 village core, one at the café and one at the community
16 house.

17 And for that year we used it a significant
18 amount of time. We would also use the trickle charger
19 at home. But over that year, more and more people in
20 Metchosin were buying EVs. I can think of eight or
21 nine friends now who drive electric cars in Metchosin.
22 And it became more and more challenging to find an
23 empty spot at the charger over that time. So in
24 November of last year, we put in a level two charger.
25 And that, after a month or two precipitated quite an
26 outburst from wife because she started to complain

1 issue.

2 When we bought the Leaf we decided to keep
3 our RAV4 for road trips. We have a daughter in Nelson
4 and if we were to use the Leaf to go to visit her in
5 Nelson it would be an epic journey of many days at
6 this point. Fortunately the car we have has Level 3
7 charging, the quick charge option, and I'm hoping that
8 if the Commission does step in, into this regulatory
9 regime, that it finds ways of encouraging quick
10 charging on the highways of the province so that
11 people can get around without having to spend
12 tremendous amounts of time charging their vehicles.
13 And that's all I have to say.

14 THE CHAIRPERSON: Thank you. Thank you, sir.

15 COMMISSIONER FUNG: Thank you.

16 MR. GARY: Yeah, Glen Gary, I'll pop up again in support
17 of, because this isn't your mandate specifically but
18 it is the BCUC writ large. Time of day of charging.
19 Okay. Or rather, yeah, time of charging of your bill.
20 All right. If we can go to that, as every other
21 country in Europe has done, we can make much better
22 use of our resources. You know, charge everybody 15
23 cents a kilowatt hour from 1600 to 2200, charge them 5
24 cents an hour between midnight and four, and then ramp
25 it back up during the day to eight or ten, whatever.
26 You do that, you're going to solve a lot of capacity

1 issues, right?

2 Like I said, electric cars aren't going to
3 be a hard -- a big problem if you can do that. In
4 fact they could be part of the solution. So time of
5 day, which you kind of got onto, we got onto and I
6 know you guys love. Everybody loves it, but I'm not
7 sure why, why the governments don't like it, but yeah,
8 we do that --

9 THE CHAIRPERSON: Just to be clear, you're only
10 suggesting it for a limited use which would be
11 electric vehicles. You're not necessarily --

12 MR. GARY: No, everything.

13 THE CHAIRPERSON: Everything, okay.

14 MR. GARY: Because every time you buy a new dishwasher or
15 a new clothes washer, dryer, every car out there, you
16 can tell it when to charge.

17 THE CHAIRPERSON: Right. Right.

18 MR. GARY: So you do that, you start making the silly
19 appetite for more capacity.

20 THE CHAIRPERSON: Yeah.

21 MR. GARY: That goes away. I think even BC Hydro itself
22 has said if 90 percent of light vehicles went to
23 electric cars tomorrow, it increases base load by 20
24 percent. So if you can sort out time of day charging,
25 help fill in that vast valley, then everything else
26 works.

1 THE CHAIRPERSON: Yeah, you're not getting -- yeah.

2 MR. GARY: Okay, thanks.

3 THE CHAIRPERSON: Thank you, sir.

4 **Proceeding Time 1:54 p.m. T10**

5 **PRESENTATION BY MR. KARLEN:**

6 MR. KARLEN: Good afternoon, everyone. I'm Eric Karlen,
7 K-A-R-L-E-N. I'm with Greenlots. I'm a provider of
8 EV charging software and services. We're a party to
9 this proceeding and I should say we are a supplier, a
10 partner with BC Hydro and a lot of the DC fast
11 chargers they currently have deployed.

12 So I'm here to offer some perspective.
13 Also here to listen to the people's comments. It's
14 been very illuminating. And just from our experience,
15 you know, I can speak to the challenges that the
16 market currently faces and why, you know, utilities we
17 feel should have a very strong role in continuing to
18 develop EV charging infrastructure.

19 I mean, I think a lot of people here
20 realize that in an era of ever declining load, which
21 continues to put upward pressure on rates -- you know,
22 electric vehicle load is arguable the single greatest
23 opportunity to kind of reverse that trend and increase
24 the utilization of the existing electric grid in a way
25 that can benefit all utility ratepayers, not only EV
26 drivers. But that's only the case if that load is

1 integrated intelligently.

2 A lot of people here have spoken to rates
3 that send a more accurate price signal to the drivers.
4 Time of use rates is a great example of that. In
5 other provinces -- or in states in the U.S. are even
6 doing more advanced pricing plans that use managed
7 charging, that utilize smart networked EV charges to
8 do that. There's a lot of possibility there.

9 But with respect to the market challenges
10 that we see right now, I mean, quite simply there is
11 not a -- there is no market for selling EV charging
12 services directly to EV drivers. And we see that to
13 be the case pretty much across the board, regardless
14 of the market segment, or even the technology. Of
15 course, there is certain technologies, DC fast
16 charging, also certain segments, like multi-unit
17 dwellings that we've heard about earlier, that have
18 particularly constrained and difficult economics to
19 get around. But there's a reason why there aren't
20 companies like ourselves out there that are building
21 infrastructure solely to sell it to drivers.

22 There's a market for selling EV chargers
23 directly to motivated site hosts, or motivated
24 businesses, and usually they are doing that as a
25 value-add to their employees, to their customers, to
26 bolster their environmental responsibilities, so on

1 and so forth, but there's rarely -- or there's no
2 cases that I'm personally aware of where they are
3 doing that with the intention to profitably make money
4 by selling those services to drivers directly outside
5 of the kind of tangential other benefits that come,
6 like I kind of spoke to.

7 THE CHAIRPERSON: So jut to -- what you are saying is
8 there is no analogy in the electric vehicle charging
9 world to a petroleum service station.

10 MR. KARLEN: Exactly right. At least at this point. At
11 some point down in the future, that might be the case,
12 but we don't see that on the horizon, yet.

13 THE CHAIRPERSON: Do you think part of the reason for
14 that is the amount of time it takes to recharge?
15 Let's just say it took three minutes or five minutes,
16 or seven minutes to recharge an electric vehicle. Do
17 you think then that electric vehicle charging would or
18 could follow the petroleum service station model?

19 MR. KARLEN: Yeah, but the challenge there is the faster
20 the infrastructure can charge, the most it costs,
21 right? There's a reason why DC fast chargers are the
22 most expensive things out there and why that has some
23 of the most constrained economics.

24 THE CHAIRPERSON: Right.

25 MR. KARLEN: I mean the main issue is there's low
26 utilization rates, currently, and at the same time

1 there's the classic chicken and the egg, Catch-22
2 issue that people always cite when they look at this
3 market. People don't want to buy EVs because where am
4 I going to charge it? That's one of the number one
5 cited reasons for potential purchasers of EVs not
6 doing it.

7 And then on the other side of the equation
8 there is companies like ourselves that there's no
9 market to be offering those in the gas station model
10 that you speak of.

11 So you know, with that said, with respect
12 to kind of key questions of this inquiry, I'll just
13 offer that -- I mean, we believe that regulation by
14 this Commission should be loosened to potentially
15 allow other market actors other than just utilities to
16 be able to provide those services, and that there
17 aren't any artificial limitations on the way that they
18 could potentially charge for them.

19 That being said, that in and of itself we
20 don't believe is going too all of a sudden make it
21 such that the private market can take over and start
22 providing services in a way that's necessary to
23 support EV drivers and potential EV drivers in their
24 purchasing decisions sufficiently. We kind of see it
25 as it's two things that need to happen. That needs to
26 happen on that side.

1 I mean, you can look at what California did
2 about eight years ago when their commission down there
3 said that utilities could not invest in EV charging
4 structure, period. And they waited around four years,
5 and guess what, the power market did not fill in the
6 gaps and they had to go and loosen that decision, and
7 now the utility they're proposing a whole suite of
8 programs under those new rules.

9 **Proceeding Time 2:00 p.m. T11**

10 But the market is simply not at a point at
11 which, for the biggest issue that drivers need, public
12 charging, there's just not a market for that.

13 But then secondly also, we do believe that
14 regulated utilities here should be contained and be
15 able to invest in rate base, their investments in
16 public charging infrastructure for all the reasons
17 that you guys are allowing them to do so thus far,
18 because it's a segment of the market where there's a
19 market failure. There's no private investments
20 happening there naturally. And while, as I think most
21 people who have commented, they suggested that this
22 isn't a segment of the market that is inherently a
23 natural monopoly service, which we'd agree with that
24 statement. There's definitely a lot of aspects that
25 currently are an actual monopoly service, right? So
26 there's nothing inherently that makes them one.

1 You know, in the future we can conceivably
2 see the power market taking over, but right now due to
3 these constraints that I spoke to, it's not very --
4 there's a whole host of other reasons why we think
5 utilities should have a continued strong role in this
6 market. One of the biggest ones is reliability. A
7 lot of people have spoken to that. You guys have
8 hinted at it. Right now for the infrastructure out
9 there, when it's not run by utilities, there are
10 reliability issues and there's a lot of, you know,
11 early adopters of electric vehicles that probably have
12 a higher tolerance for reliability issues. But I
13 mean, that's not something that the bottom market is
14 going to tolerate, you know. Pulling up to a gas
15 station and 20 percent of the time being down, that's
16 not a workable thing, right.

17 So utilities stand in a very powerful and
18 unique position to provide the same level of
19 reliability to the service that, you know, ratepayers
20 expect of all their other services, having high up
21 time, high degree of reliability due to their core
22 competencies in these areas. So that's important to
23 realize.

24 Yeah, so I mean, unless there are some
25 questions, comments, I'm here to answer any questions
26 that you guys might have. I'm just glad to be here

1 and hear everyone's thoughts and offer some of our
2 perspective as well.

3 THE CHAIRPERSON: Thank you. We appreciate your thoughts
4 too.

5 COMMISSIONER HAROWITZ: Thank you. I have a few
6 questions and some of these may be things that
7 Greenlots considers confidential and you don't
8 necessarily want to share.

9 MR. KARLEN: Sure.

10 COMMISSIONER HAROWITZ: But I'll ask anyway. First, and
11 we heard a little bit already about the notion of
12 longer versus shorter-term amortization of a piece of
13 capital equipment. Do you guys have any view on the
14 approximate useful life of the equipment that's
15 currently being deployed and/or do you have a sense of
16 it accelerating and that you're going to need to
17 recapture those costs more quickly, less quickly? Do
18 you have a point of view on that that you'd be willing
19 to share?

20 MR. KARLEN: I could probably speak more broadly and this
21 is in a sense related to some of the other questions
22 that were asked earlier, you know, as technology
23 evolves and gets better down the road, does that mean
24 perhaps we should be more -- take a second look at
25 investments that are being made today? I think it's
26 pretty clear to us that in order to accelerate the

1 market, investments need to be made now but they
2 should be made prudently. There's a whole host of
3 issues that I think, you know, BC Hydro has been
4 pretty cognizant of with respect to making sure that
5 the equipment -- you know, adopts open standards to,
6 you know, guard against issues such as what you're
7 speaking of and to prevent stranded assets that the
8 ratepayers would be left holding the bill for.

9 With respect to some of the more specific
10 questions that you answered and -- asked, I think, I
11 probably can't speak to those here right now. The
12 extent to which you do have more detailed questions I
13 would encourage in the process for written questions
14 and response, might be able to do, and I can circulate
15 those more internally and perhaps get you a more
16 specific answer to those questions.

17 COMMISSIONER HAROWITZ: Fair enough. A follow-on of a
18 similar nature. You've probably done some modelling,
19 and then again the question is probably on a
20 presumption that you have, what of it might you be
21 willing to share? The sense of, you know, how many
22 chargers do we need, or do you have a rule of thumb
23 about number per thousand vehicles or what -- how do
24 you do your projections around what you think a fully
25 built out system looks like? Are we looking at 50,000
26 units? Are we looking at -- or how do you --

1 MR. KARLEN: Yeah, that's a great question. So I mean
2 that's a question -- depends entirely on geography,
3 right? And I know there's a lot of good studies that
4 have happened in the States that we're familiar with,
5 different universities that have made modelling tools
6 that different regulatory commissions have used. LB&L
7 in California has done some work on that, different
8 models that you can plug in to kind of get an
9 approximate idea for that.

10 Of course it varies widely if it's a
11 metropolitan area as opposed to a rural area, so and
12 so and so and so forth. But I mean those are
13 definitely good considerations to be thinking of, and
14 there are quite a few resources out there from
15 academic sources and such that have kind of really
16 done a lot of consideration of those with the goal of
17 providing tools to the regulators and such.

18 **Proceeding Time 2:05 p.m. T12**

19 COMMISSIONER HAROWITZ: I'm trying to pin you down a
20 little bit more.

21 MR. KARLEN: Yeah.

22 COMMISSIONER HAROWITZ: In the sense that there's lots of
23 academics and/or other research organizations that are
24 doing modelling. I'm looking at it from the
25 perspective of saying someone in the private sector
26 who is now having to put more skin in the game, do you

1 have a view as to which of those models are more --
2 that you consider more representative or more in line
3 with how you see the world? Any insights that you
4 could give on that would be really helpful.

5 MR. KARLEN: Yeah, I think the extent to which I can
6 comment. There's the balance there, obviously. If
7 you have one charger deployed, it's going to probably
8 have higher utilization rates than if there's a bunch
9 in the area that would arguably better serve EV
10 drivers, right? And there's a balance there.

11 I can't speak more specifically to that
12 question at this time, but again if there's written
13 comments, we could probably get those back to you.

14 COMMISSIONER HAROWITZ: Okay, thank you.

15 MR. KARLEN: Yeah.

16 COMMISSIONER FUNG: Mr. Karlen, we have heard previously
17 from other participants at these sessions that there's
18 a concern with respect to not having several chargers
19 at one site. So what is your view of that? That
20 typically, you know, especially in remote areas, you
21 drive up and you see a sign that says there's an EV
22 charger, you pull up and it's not working. And the
23 question is, why can you not simply put, you know, at
24 the time of installation put more than one so that
25 there's no single point of failure when you get there?

26 MR. KARLEN: I mean, I would argue that probably that

1 should be happening, the extent to which there is an
2 investment happening. And one, the incremental cost
3 of having another would probably be a prudent thing to
4 do. I mean, how many gas stations do you go to where
5 there's only one fueling. That's not a thing. So I
6 would agree with those sentiments, yeah.

7 COMMISSIONER FUNG: Okay, thank you.

8 THE CHAIRPERSON: Thank you, sir.

9 MR. KARLEN: Absolutely. Yes.

10 THE CHAIRPERSON: Much appreciated.

11 COMMISSIONER FUNG: Don't be shy. Whoever comes up
12 here gets the extra cookie, and that's mine, so you
13 can have it.

14 THE CHAIRPERSON: All right. Well, that seemed to work.

15 COMMISSIONER FUNG: I knew that would.

16 **PRESENTATION BY MS. WILSON:**

17 MS. WILSON: Well, I'm Donalda Wilson, W-I-L-S-O-N. I
18 drive a gas guzzler. I pay for my gas with all those
19 various levels of taxes, and I kind of object to my
20 tax dollars feeding cars at the Cedar Hill Rec Centre
21 because they've got a meter. I wouldn't mind if they
22 were paying for it, but I'm paying for it. So I hope
23 that eventually the electric car people will pay for
24 their fuel, and we will be joining them in a year or
25 two, and then I would prefer to be paying for my own
26 way than somebody else paying for me to go from A to

1 B.

2 That's all.

3 THE CHAIRPERSON: Thank you, Ma'am. Any questions?

4 Thank you, Ma'am.

5 MS. WILSON: Cookie?

6 THE CHAIRPERSON: Yes, they're at the back. They're at
7 the back.

8 MS. WILSON: Okay. Okay.

9 MR. BARTLEY: I'm back, Uwe Bartley. There's been some
10 really good discussion and for me what I find since
11 we're right in the midst of deciding on these charging
12 stations, a building of 1200, how many charging
13 stations do I put in? You know, you say there's an
14 incremental charge, like when we're putting in four,
15 or five, six. Yes, there is -- you know, there is an
16 economy of scale but at a certain point it gets to a
17 tipping point where it's too expensive. It's just not
18 practical.

19 You know, like I've watched Camosun.
20 They've just put a couple in. They put the four
21 double stations in, and they seem to be -- some days
22 you see absolutely nobody there for days. Other days
23 you see the same car there on, you know, four days.
24 So, it's going to be a bit convincing -- like some
25 day, when I look at -- like I was saying we could have
26 50, 60 cars a day there. I don't know how to rotate

1 know, whatever.

2 I came here originally because our strata
3 is looking at the trials and tribulations of a strata
4 next door who are also struggling with having 12
5 units. One person wants to put in a Tesla and who
6 pays for what. And you know, eight of the twelve
7 don't see any reason because we're already 90 years
8 old and you know, we're never going to drive a car
9 again anyway, so. All of those things that go on.

10 I do have something of a background in
11 drive systems, drive systems for vehicles, trains, et
12 cetera, and as I say, I'm now retired. But it did
13 occur to me that we've heard this afternoon some
14 discussion about what's happening to the depreciation
15 rates, for example, for infrastructure when you put
16 that stuff in. We will find -- and I would hate to
17 see it leveled out as maybe somebody has suggested,
18 that you amortize this by using BC Hydro and amortize
19 it over 20 years. That's going to be a big problem
20 because, you know, things are changing.

21 We developed -- the company I worked for
22 developed a transit vehicle transmission. Nice people
23 next door. Which wasn't full electric. Have now
24 developed full electric, but at that time was hybrid
25 but used super capacitors instead of batteries. And
26 quite successful diesel super caps. Quite possibly in

1 the near future you'll run electric super caps because
2 that's a very good marriage, as you do.

3 But be clear, you know, as we want longer
4 range we're going to have to have better storage
5 capacity, and you cannot fast charge. There are
6 physical limits. I mean, you guys know that. You
7 can't run a 500 kV line into a house and charge in
8 five minutes. You'd generate so much heat you'd fry
9 the vehicle, fry the house and everything else. So I
10 do have a feeling that it is going to be private
11 industry that looks at providing infrastructure
12 outside the big cities.

13 It's very nice, the little town that I live
14 in provides two or three charging stations. They
15 don't charge for them. They hope tourists use them.
16 They have no cost. In fact, they're almost
17 permanently filled up with people who can walk to it,
18 you know, within a couple of hundred metres and charge
19 their cars. I mean, why wouldn't you? It's free.

20 But to do it out in some of the other
21 places -- again your question as to why don't you put
22 two or three in. If you are typically a small, let's
23 say a 7-Eleven which had two gas pumps and you want
24 now want to put in two units, or particularly fast
25 chargers, you've got to think about the power factor
26 that you're going to come up with. That's going to be

1 an issue because you start bending your overall power
2 factor. You start then having to put in capacitors
3 for power factor correction. That adds to the
4 infrastructure cost, et cetera. So you've got to be
5 able to recapture that. You don't get 5,000 cars an
6 hour running along some of the little roads out in the
7 middle of B.C. So necessarily the cost of the outlets
8 there is going to have to be higher to recapture that
9 cost.

10 That's just my opinion. So thank you very
11 much.

12 THE CHAIRPERSON: Thank you, sir. Thank you, sir.

13 **PRESENTATION BY MR. HACKNEY:**

14 MR. HACKNEY: Good afternoon, Commissioners. My name is
15 Tom Hackney, H-A-C-K-N-E-Y, and I'm representing the
16 B.C. Sustainable Energy Association and the Sierra
17 Club of B.C., and I'm not going to take a lot of time
18 because as you probably know, our group is intervening
19 already and we've made a written submission.

20 **Proceeding Time 2:16 p.m. T14**

21 I'd just like to commend the Commission for
22 holding this inquiry. My groups regard this as very
23 important part of the overall efforts of society to
24 move toward a more sustainable lifestyle. So we
25 encourage the Commission to address this and to think
26 in the long term as one of the people have said.

1 THE CHAIRPERSON: Right, thank you.

2 MR. HACKNEY: On a personal note, I think my own
3 intersection with electric vehicle charging is that
4 I'm living in a condominium and I'm still stuck in a
5 vehicle that burins gasoline and I have a bumper
6 sticker that says, "My next vehicle will be an
7 electric vehicle." And I'm trying to figure out how
8 that's going to work with all the issues that other
9 speakers have spoken of.

10 And so I'm certainly hoping that there will
11 be -- I know you have your scope of issues that you're
12 dealing with from the regulatory perspective. I'm
13 hoping that the government will be more involved in
14 expressing the direction, the policy direction that
15 will be taken. And in any case I hope the Commission
16 will be looking at all those aspects that are beyond
17 its own immediate purview. So we've heard a lot about
18 condominium situation, and there are many details
19 there. And who knows, some form of class regulation
20 may help to -- the condominiums and the owners of
21 those condominiums to find their way through that maze
22 of who pays what, and once a charger is installed how
23 much can be charged for that. Conceivably the
24 Commission could have a role in that. And if they
25 don't, if it would be better handled at the level of
26 the Strata Act, it's possible that the Commission

1 might have some good advice to government for the
2 issues and how to address them.

3 Thank you.

4 THE CHAIRPERSON: Thank you, sir.

5 MR. BROWN: I'm after the cookie.

6 COMMISSIONER FUNG: I gave mine away, so you're going to
7 have to hit somebody else up.

8 COMMISSIONER HAROWITZ: Limited time offer.

9 **PRESENTATION BY MR. BROWN:**

10 MR. BROWN: Okay. Okay, I've got nothing to say. No.

11 My name is William Brown, brown is like the
12 colour. I would like to first of all thank the
13 Commission. I think this is a wonderful thing to have
14 happening. I very much agree with the ideas of the
15 Commission because of what happened with rural
16 electrification in the United States. If you read
17 about the chaos that they went through, it's
18 horrendous. And with something like the Commission we
19 should probably have a relatively thoughtful process
20 going into this electrification. So that's the first
21 thing.

22 The second thing is I believe that there
23 should be a mix of supported and free enterprise
24 locations for electricity that people should be able
25 to make a profit off of so that -- and yet when I talk
26 about -- my wife about getting an electrical car, she

1 So that's all I have to say, thank you.

2 THE CHAIRPERSON: Thank you, sir.

3 MR. BROWN: Is there any questions?

4 THE CHAIRPERSON: No, thank you, sir.

5 COMMISSIONER FUNG: No, thank you very much. That was
6 very thoughtful. And if I had the cookie, you could
7 have it. I do have chocolates though.

8 THE CHAIRPERSON: There may be some at the back.

9 There's two left at the back. Okay, thank you, sir.

10 MR. BROWN: Okay, thank you.

11 **PRESENTATION BY MR. WILSON:**

12 MR. WILSON: Good afternoon, Commissioners. Robert
13 Wilson, W-I-L-S-O-N, and I've had my cookie, so I
14 thought I should contribute.

15 I wanted to add my voice of support to the
16 concept of time of day charging for everything. I am
17 currently a gas guzzler driver, but I'm headed for an
18 EV and that will happen pretty soon. And I think that
19 as more people begin to do that, we will have an issue
20 with capacity, unless time of day charging is brought
21 in. I will drive to work in my electric vehicle. I
22 might plug it in, but I will probably have enough
23 range to get home.

24 I will come home, I will plug it into my
25 level 2 charger. I will go in the house where the
26 Smart thermostat is busy turning up the heat or the

1 air conditioning and I will go and cook dinner, and
2 all of those things together are going to give us an
3 accentuation of the current situation of peaks at
4 certain times of day and will do nothing to solve the
5 valleys and level out the capacity unless time of day
6 charging is put in. And that's really all I wanted
7 to say. Thank you.

8 THE CHAIRPERSON: Thank you, sir. Okay, so I think
9 we've probably heard from everybody now. Oh, sorry.

10 MR. SCOTT: A late arrival. I've got a couple of things
11 to pass on to you, perhaps. I'll try and guide myself
12 through so. Do you mind?

13 THE CHAIRPERSON: And if you could just state your name
14 and spell your last --

15 MR. SCOTT: (off microphone)

16 **PRESENTATION BY MR. SCOTT:**

17 MR. SCOTT: Good afternoon, folks. My name is Don
18 Scott and I appreciate the opportunity to come before
19 you and to give you a few words of -- I don't know if
20 it's advice. Opinions more than anything, I suppose.

21 But I'm relatively new to electric
22 vehicles, and the use of them, and I think I can share
23 a little bit of my experience with you on the
24 vehicle's usage. And one of the things that I would
25 like to mention as far as for charging is that a lot
26 of people are concerned about needing level 2 chargers

1 and more frequent access to them. I certainly think
2 that's a big requirement for doing any kind of travel
3 of the city. Most electric vehicles on the road today
4 are basically city cars, and there is a few of the
5 very expensive ones that will take you longer
6 distances, like the Teslas, but as you know, the vast
7 majority have a range of 140 to 200 kilometres, and
8 you can easily do that, or part of it at least within
9 a day.

10 But as far as the charging goes, I just use
11 my 110-120 socket at home and I've consulted with
12 electrical engineers as to what is healthiest for the
13 batteries to the car, for a lithium ion batteries.
14 There's many myths out there. And they said one of
15 the best things you can do, actually, is charge them
16 with the 110, because there's very little heat
17 generated and heat is the enemy of the batteries.
18 Whereas if you go to the very high charging stations,
19 the quick chargers that have like 50 amps, 60 amps,
20 you get a lot more heat generated into the battery and
21 you can get battery degradation.

22 Even at that, I know of people who have
23 used quick chargers regularly and in our temperature
24 it doesn't seem to be much of a bother for them or
25 difficulty. When you are into warmer climates, places
26 like Arizona where your daytime temperatures can be in

1 the high 30s and the low 40s and even higher last
2 year, it becomes a major problem. Because the
3 batteries do over heat and there's no way of cooling
4 them down unless you have an onboard -- some of them
5 have onboard air conditioners that cool the batteries.
6 Tesla has that, for example.

7 **Proceeding Time 2:26 a.m. T16**

8 But when you're trying to go anywhere, and
9 I've only made one out of town trip so far, I've only
10 had it since November. And I wanted to get up to
11 Nanaimo, so I headed off and I started off with a full
12 charge, which gives me about 140 kilometres.

13 THE CHAIRPERSON: What kind of as vehicle is this,
14 sorry?

15 MR. SCOTT: It's a Leaf.

16 THE CHAIRPERSON: A Leaf.

17 MR. SCOTT: Yeah, it's a 2014 Leaf. And so, the
18 highest charge I've had on it so far with full 12 bars
19 is about 140, 144, something like that. So, I head up
20 the Malalhat and all of a sudden, I'm dropping off
21 from 140, to 120, 110, 90 and I've only gone 25
22 kilometers. So -- or not 140 but -- yeah, 140. By
23 the time I got to the base of the Malahat it was about
24 120 I think, and then by the time I got to the top of
25 the Malalhat it had dropped down to about 75. So, but
26 then when I got down to the other side of the Malahat

1 I was back up to about 90. So, it recharged enough as
2 you go down the other side of the hill.

3 But I ended up stopping for about three
4 quarters of an hour in Duncan, just to be safe because
5 I wasn't sure what the charging station availability
6 was north of there. Checking online beforehand, it's
7 difficult to -- or if you go on to some of the online
8 services you can find where these things are. But
9 they're not that obvious, they don't advertise
10 necessarily. Some places have them but other places
11 don't. And there's not very many. Like in Ladysmith
12 there's one charging station with two chargers, and
13 one of them is broken, I found out on the way back.
14 So that becomes a difficulty, but in Duncan there were
15 several of them, so I got it charged back up there.

16 And then I made it easily to Nanaimo, did
17 my stuff there and then coming back I thought I better
18 stop at Ladysmith, and that's a great opportunity to
19 have supper. So, I found a great little restaurant in
20 Ladysmith, plugged into the one that was working. By
21 that time I was down to about 35 or 40 kilometer
22 range, that's what it was indicating. So I charged it
23 for two hours and I was back up to about 125, I think,
24 declared range at least on the dash. And, so I
25 started off, and once again now I'm climbing up the
26 Malalhat again and it dropping, dropping, dropping,

1 and when I got to the top of the Malalhat I think it
2 was 39. And then, by the time I got home, after
3 charging it going down the Malalhat, I was still at
4 about, somewhere's around 30.

5 So, when you're traveling with an electric
6 car, especially the smaller ones, you need to have
7 some level of confidence that there are charging
8 stations along the way that have access points. And
9 we just don't have near enough of those in most of the
10 Island. I try to go to Tofino, I don't think it's
11 possible, for example. There's a couple of charging
12 stations in Port Alberni, but you would have to
13 basically stop somewhere's around Nanaimo, again in
14 Port Alberni and have a full charge and hope and pray
15 you can get to the intersection up near -- not to
16 Tofino but to the town before that, to Ucluelet, and I
17 think there's a couple of charges there. But they're
18 on private property. So, unless you're staying at
19 those hotels you may not have access to them.

20 So, the main thing I wanted to raise is
21 just the need for more reliable access points along
22 the way within our road systems throughout B.C. In
23 one of the little tables I've given you, this one
24 here, if you look at it, that's basically -- last
25 night I took a look at my CO₂ emissions on all my
26 vehicles for the last decade. So, you can see which

1 vehicles I had and how much emissions were contributed
2 by each of those vehicles, and this is because I have
3 a bit of an anal thing with energy consumption. I
4 track my vehicles every time I fill them up, how much
5 -- how far I've gone and how much fuel I've used and I
6 calculate the emissions on that as well. So you can
7 see it's dropping off dramatic, 2018 of course it's
8 only a third of a year but you can see that there's a
9 little tiny dark line on top of the orange on 2018 and
10 that's the Leaf, and that's three months of driving
11 the Leaf. You can hardly see the line, it just looks
12 like the amount of actual kilowatt hours. I'm not
13 sure if I have that here --

14 THE CHAIRPERSON: So, what are the emissions from the
15 Leaf, then?

16 MR. SCOTT: Basically, using electricity, our
17 electricity is around 95, 96 percent generated by
18 Hydro. So, in hydro generation estimates on it are
19 something like 24 grams per kilowatt hour.

20 THE CHAIRPERSON: Okay.

21 MR. SCOTT: So, in my -- my vehicle uses 6 kilowatts --
22 or 6 kilometres per kilowatt hour.

23 THE CHAIRPERSON: Okay, thank you.

24 MR. SCOTT: So, you can work it out from that, but it's
25 tiny.

26 **Proceeding Time 2:32 p.m. T17**

1 I think altogether that represented -- I
2 don't think -- I didn't bring that with me, sorry.
3 All together -- I don't have it, I'm sorry. But it
4 was -- like, it's just a few kilos. Like 15 kilos or
5 something.

6 THE CHAIRPERSON: Sure.

7 MR. SCOTT: And that's a vehicle -- the only vehicle I
8 basically drive now. Our other vehicle that we still
9 have is a Prius, and my wife uses that most of the
10 time. And before, we tried to use that more often
11 than the other to keep our emissions down.

12 But this is just to show how key electric
13 cars are going to be to our future. And we should --
14 we have a wonderful opportunity in B.C., having a
15 provincial utility like BC Hydro that provides
16 electricity. And for us to ignore the capacity of
17 that, to be able to revolutionize, if you wish, or
18 change the opportunity for how we drive our vehicles,
19 is really, I think a -- we're lucky to have that kind
20 of an opportunity. And we should take advantage of
21 it.

22 When you look at -- when the world already
23 has exceeded now 400 parts per million in CO₂ in the
24 atmosphere, historically it was around 200, 225.
25 That's a doubling of it basically in the last 60
26 years. And when you go back in geologic times, the

1 last time we had that kind of emissions, you go back
2 millions and millions of years. Incidentally, before
3 humans were around. And in the early evolution of
4 many of the mammals.

5 So, it hasn't -- the numbers are there, but
6 the change -- the heating of the earth hasn't happened
7 yet. And it's happening very, very gradual. And it
8 takes an awful long time. It takes something like
9 over 1,000 years for that CO₂ to get reabsorbed back
10 into the oceans and into the plants on terrestrial
11 earth.

12 So, this is something we're going to -- our
13 grandchildren, great-grandchildren, and 15 generations
14 down the road are going to be dealing with far more so
15 than us. We're the lucky ones. We've created the
16 problem but we're not going to live to see the
17 consequences of the problem that we've created.

18 So, having BC Hydro -- I did some
19 calculations in a presentation that you can see on
20 Site C, of the potential to power vehicles -- our cars
21 that we drive, our cars and light trucks and SUVs that
22 we drive in B.C., that we could with the amount of
23 electricity that Site C is going to generate, we could
24 power almost the complete fleet of vehicles in B.C.

25 Now, when I was doing my Site C
26 presentation, I said it wasn't necessary, because if

1 we converted homes in B.C. that use baseboard heaters
2 and electric furnaces to heat their homes, over to
3 high-efficiency heat pumps, we would save more energy
4 than Site C will generate. So, about 3700 gigawatts.
5 And that would supply 85, 90 percent of the vehicles
6 on the road today.

7 Now, one of the things -- there's another
8 little table I've given you there, and I think I've
9 given you all of my -- there's some black and white
10 ones, but the colour ones you should look at. And
11 this is a history of vehicle sales in Canada.

12 It's a whole bunch of little charts. And
13 if you look on those, this is StatsCan data, and it
14 looks at car sales since 1990, versus truck sales.
15 Trucks, under StatsCan's definition, basically is
16 everything that's not a car. So it includes SUVs,
17 large and small. Most of those are half-ton trucks,
18 and it includes vans as well.

19 So you can see we as consumers, someone
20 mentioned earlier, are about -- people are starting to
21 wake up about the impacts of climate change and our
22 patterns of use. We're not going in the right
23 direction. As you can see, we haven't -- I think
24 since 2007, 2008, when the recession hit -- or the
25 financial crisis hit, it was the only year in the last
26 15 years or so where we've sold more cars than trucks.

1 So, the consumer in every province of this
2 country is moving overwhelmingly towards what are
3 classified as trucks.

4 Now it doesn't matter -- a small SUV, say a
5 RAV4, uses about 30 percent more fuel than the car
6 that it's based on, which is the Corolla. So even
7 those of us who buy small, more fuel-efficient SUVs,
8 the cars that they're based on are much more fuel-
9 efficient. And when we move towards electrifying the
10 fleet, presently there are very few trucks -- there
11 are no trucks yet on the market that are SUVs -- or
12 that are electric -- but they're coming. Of the small
13 SUVs at least. And of course Tesla has announced its
14 plans to make a half-ton truck if they can ever get
15 the other cars produced. We'll wait a bit on that
16 one.

17 **Proceeding Time 2:37 p.m. T18**

18 But the point I'm trying to make is that
19 for us to make that transition is going to be a huge
20 societal change, because most of us are very much
21 enamored with driving big things, even though most
22 trucks hardly ever see a dirt road or gravel road, we
23 have them -- you look at all the dealerships here,
24 look at the one across the street, you'll have to look
25 for a car amongst all the trucks that are on display.
26 And it's the same in all the dealerships. That is

1 what they're selling, that is what they're making most
2 money, that is what they promote. You look in any
3 newspaper advertisements, you won't see any
4 advertisements for electric cars, and you'll see very
5 few advertisements for cars itself alone as compared
6 to high consuming vehicles.

7 The other mixed up little table I've given
8 you here is a summary of my electric use, electrical
9 use in my home, and the blue -- or the purple lines,
10 those are days that I've plugged in at home to charge
11 the vehicle. The small nexus and the small lines are
12 where I've charged into commercial facilities and
13 charged, so they don't show up necessarily on my home
14 billing, but they are on there because it's the number
15 of hours that I've charged the vehicle with.

16 So, the green line jumping up and down is
17 my kilowatt hour consumption. The red line is the
18 temperature. And so you can see where I've plugged
19 the car in for a long number of hours, like 12 hours,
20 14 hours. The electric consumption generally goes up,
21 but it doesn't necessarily go up as usually those
22 swings are more attributed to the drop in temperature
23 then they are me plugging my car in.

24 THE CHAIRPERSON: You have electric heat in your house?

25 MR. SCOTT: I have a high efficiency heat pump in my
26 house. So we have electric heat, correct.

1 So, the energy consumption -- our house, by
2 the way, it consumes less than a thousand kilowatt
3 hours a year, total energy demand in our house, and it
4 was about 2500 about 10 years ago, before we made the
5 changes. And we used to have an oil furnace, believe
6 it or not, but we are using less electricity when we
7 moved from oil to a high efficiency heat pump than we
8 did -- then we used when we were heating with oil.
9 And I think part of that is that our heat pump is more
10 efficient than the old oil furnace was, just the
11 burner on the oil furnace. And some other factors
12 that have contributed to that as well, but that's --
13 it's not the easiest thing to explain, but generally
14 it is just a very, very efficient unit.

15 So, getting to your particular questions
16 that you're asking on this is, do your EV charging
17 stations operate in competitive environment in B.C. or
18 are they a natural monopoly service? I don't think
19 they are a natural monopoly, but I think BC Hydro is
20 absolutely foolish not to enter the market. And they,
21 you know, they have the infrastructure. They have got
22 substations all through the province. Most of those
23 substations, a good number of them are locations along
24 highways that could be very easily and cheaply, in
25 comparison, have charging stations set up alongside of
26 those.

1 I don't think it's necessary to be a
2 monopoly. They should be able to -- Hydro should be
3 able to sell electricity to third parties who then
4 resell to the consumer, and that will increase
5 significantly the number of opportunities that are out
6 there.

7 I think most people are still going to
8 charge at home, and you're charging -- I know using
9 the public stations are going to be mostly used, I
10 would think, by most people, by when they are
11 travelling extensive distances, or outside of the city
12 itself. Because there's very little need to use them
13 when you're charging at home, even if you're just
14 using a 110 circuit. I know there is assistance for
15 people to put in 220 circuits at home, but if I'm
16 going to be charging my car over night, I don't need
17 to do it in three hours. So it doesn't make a
18 difference for me whether it takes 10 hours, because
19 I'm sleeping anyway, or watching TV or whatever else,
20 or doing presentations, preparing tables, tracking my
21 energy use.

22 Should you regulate the services? I think,
23 I don't know that that is going to be that critical.
24 I don't think it is your biggest issue that you have
25 to deal with, but it may be beneficial. And I say
26 that because of the lack of regulations around the oil

1 So it's a requirement, you know, that
2 people have the much more expensive services. I
3 happen to have a very inexpensive cell phone service
4 at 28 bucks a month and I'm not willing to go to 60
5 bucks a month so I can have the internet access and
6 use as I go. It doesn't make sense. For me at least.

7 But it would be nice to have some way,
8 either with a card -- like there are little cards that
9 I have for Flow and for Charge It, that I tap onto the
10 window of the charger and it automatically knows who I
11 am, sets the thing up, and I plug in. And then when I
12 get home it will tell me how long I've been plugged in
13 and what my kilowatt hours use was and if there's a
14 charge, what it is. And it goes automatically into my
15 credit card. And that's the sort of system it makes
16 sense to set up in these things anywheres you go.

17 The rates on these ones I understand are
18 something like 30 cents per kilowatt hour, which to me
19 is excessive. Now, I know that they are also very
20 expensive to install, the fast chargers. We don't
21 have very many of them here. If you go down to
22 Portland, go along the coastal highway in Oregon and
23 Washington State, there is a few places. In Seaside
24 Tesla has a super charger station and they've got like
25 six superchargers there.

26 But those are incredibly expensive to

1 install and it's going to have to be a higher rate to
2 using them. I fully accept that, but at 30 cents a
3 kilowatt hour I think the financial advantage of
4 having an electric car kinda disappears, and that if
5 it was at a rate of two-thirds of that, or half of
6 that, it would make a lot more sense.

7 For the rates, if you are thinking of a
8 differential rate for apartments or various other
9 places, I think probably looking at putting in a two-
10 tier rate -- or a tier 2 rate, which is now at 13
11 cents a kilowatt hour, is probably a wise way to go as
12 opposed to trying to equal it to the tier 1 rate that
13 BC Hydro charges. So I don't think that would be an
14 impediment.

15 And right now for the electric car owners
16 and for people coming on board, one of the biggest
17 anxieties that people have is range anxiety, as they
18 call it, and they don't -- the best way to ameliorate
19 that, in the interim until we have larger range
20 vehicles coming on and larger into the market, is to
21 have a greater access to charging stations so people
22 have more places along the way to charge.

23 So that's what I basically wanted to share
24 with you. Some of the stuff is just to show you how
25 dramatic our carbon reductions can be with electric
26 vehicles. In B.C. 40 percent of CO₂ emissions are

1 transportation related. I'm not sure what portion of
2 that is cars and trucks but I imagine the bulk of it
3 likely is. Probably 75 percent of it would be. I'm
4 not talking about the big transport trucks, but
5 they're coming to. But if we want to do anything for
6 reducing the emissions as a province, you can't ignore
7 the transportation sector and when you have a utility
8 with the capacity of BC Hydro, as well as introducing
9 more energy conservation measures so that you use the
10 electricity that we have now far more wisely than we
11 do -- and I think my home experience is definitely to
12 that. My proposal for Hydro to have a program for --
13 and the province to get people to convert baseboard
14 heater homes -- homes heated with baseboard heaters
15 which are very very inefficient, to move them over to
16 high efficiency heat pumps with the utility or the
17 province financing that, and the person paying it back
18 by essentially keeping to the pay old bill until the
19 differential would go to paying down the Hydro bill.

20 So if you are spending -- if your old bill
21 is \$300 a month, you keep paying 300 bucks a month but
22 you are using a hundred bucks a month, that \$200 goes
23 to paying the loan for the upgrade to the house for a
24 more efficient system. And that would free up, as I
25 say, enough electricity to supply all the electric
26 vehicles or convert all of our vehicles to electric.

1 Which isn't going to happen overnight, but my guess --
2 China's looking at producing something like 6 million
3 a year. It's a lot of electric cars. So they're
4 going to -- our industry here that doesn't move with
5 it is just going to die.

6 **Proceeding Time 2:48 p.m. T20**

7 We won't have -- we have hardly any auto
8 industry left in Canada as it is and almost all the
9 stuff we produce in Canada, except for Toyota and
10 Honda, are gas guzzlers. And I think their days are
11 really, really numbered. And to me the smart move is
12 to facilitate the move to move electric vehicles,
13 charging stations are a key part of that transition.

14 Thank you very much for your time. Do you
15 have any questions at all or --

16 THE CHAIRPERSON: Thank you very much, sir.

17 MR. SCOTT: Okay. You're welcome.

18 THE CHAIRPERSON: Okay, there's a newcomer. Did you wish
19 to say anything?

20 So I think we've all have a very good
21 opportunity to hear what your views are and we really
22 appreciate everyone coming out and sharing that
23 information with us. I wish you all a safe drive
24 home, electric or otherwise and once again, thank you
25 very much.

26 **(PROCEEDINGS ADJOURNED AT 2:49 P.M.)**

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VICTORIA, B.C.
April 9th, 2018
Evening Session

(PROCEEDINGS RESUMED AT 5:58 P.M.)

THE CHAIRPERSON: Good evening, ladies and gentlemen. My name is Dave Morton and I'm the Chair of this Panel that's conducting the Electric Vehicle Charging Service inquiry. I'm also the Chair of the Commission. And with me is Anna Fung and Howard Harowitz. They are -- between the three of us we form this panel and we'll be reviewing the evidence in this inquiry and issuing the report.

I would like to thank everyone for coming tonight and we look forward to hearing your views.

We're just going to take few minutes, though, before we get started or before you get started and we have some staff here that are going to -- first of all Patrick's going to go through a little bit of general information about the Utilities Commission and then secondly about how you can get involved in this inquiry. And then Josh I think is going to give his presentation, a little bit of background of this inquiry itself.

So Patrick, please go ahead.

(PRESENTATION GIVEN BY PATRICK WRUCK)

(PRESENTATION GIVEN BY JOSHUA O'NEAL)

1 **(PRESENTATION GIVEN BY PATRICK WRUCK)**

2 **Proceeding Time 6:10 p.m. T22**

3 THE CHAIRPERSON: Thank you. Thank you, Patrick. As
4 Patrick said, and this is where we turn it over to
5 you, and we ask if you have a comment, please come
6 forward to the podium, state your name and spell your
7 last name so that the transcribers can get it right,
8 and please go ahead, anyone that has -- thank you,
9 sir.

10 Good evening.

11 **PRESENTATION BY MR. SUNSHINE:**

12 MR. SUNSHINE: My name is Rafe, and that's R-A-F-E, and
13 the last name is Sunshine, just like it has been out
14 today.

15 THE CHAIRPERSON: Yeah.

16 MR. SUNSHINE: Believe it or not, I'm part of the B.C.
17 Sustainable Energy Association.

18 THE CHAIRPERSON: Okay.

19 MR. SUNSHINE: So, I know that probably Tom Hackney has
20 made some presentation.

21 THE CHAIRPERSON: He did, yes.

22 MR. SUNSHINE: I am part of the steering committee and,
23 as such, we have been approached by Mayor Lisa Helps
24 to try and give some positive actions that the city,
25 the municipality, can do to arrive at 100 percent
26 renewable energy by 2050.

1 Now, as -- believing in sustainable
2 alternative energy technologies, I am very much aware
3 that the power for change is at the municipal level.
4 The government, both federal and provincial, look to
5 the municipalities to carry forth the kind of actions
6 that can bring about 100 percent renewable energy.

7 Now, I have been considering this for quite
8 some time. And we need downtown charging stations --
9 or parkades. There is more and more need for parkades
10 in the city of Victoria, and probably throughout many
11 other cities. If the parkades were to be, you know,
12 having rechargers for electric vehicles, I'm certain
13 that more people would make it part of their lifestyle
14 change to actually become part of the renewable energy
15 movement.

16 Also, I believe that changes in the city,
17 so that there can be electric-vehicle-only lanes, or
18 streets, on secondary streets, so that, okay, we've
19 got ICE, internal combustion engines, but we want to
20 phase them out. And the best way to phase them out is
21 to get -- give preferential treatment to the electric
22 vehicles for access from one point to another.

23 I believe also that there are e-bikes, and
24 this would be -- and other electric vehicles. And
25 having parking where -- a parking meter that actually
26 provides a charge for that electric vehicle, whether

1 it be an e-bike, whether it be an electric vehicle car
2 or a truck, it would be really essential to the change
3 in the lifestyle that people are looking towards, to
4 be responsible for our emissions here in B.C.

5 And finally, I believe that there is also a
6 change in the way we will be travelling. I've just
7 come down from Courtenay to various -- you know,
8 through various communities. And I'm using an
9 internal combustion engine, bad on me. But, I look
10 forward much more to the idea that there would be
11 hotels and motels that would provide the electric
12 charging system, so that people that are going up and
13 down the island, or across the province, they would
14 actually be able to stay the night and have reasonable
15 charging fees for their electric vehicle.

16 **Proceeding Time 6:15 p.m. T23**

17 So those are just some of the ideas that
18 I've run across in my travels as a member of the B.C.
19 Sustainable Energy Association. Thank you for
20 listening.

21 THE CHAIRPERSON: Thank you. Thank you, sir.

22 **PRESENTATION BY MR. MYRANS:**

23 MR. MYRANS: Good afternoon. My name is Iain Myrans,
24 that's M-Y-R-A-N-S. I'm here on behalf of Tesla
25 Motors.

26 Thanks to the Commission for allowing me to

1 come tonight and provide some remarks today. I lead
2 Tesla's policy, regulatory and public affairs work for
3 the company here in Canada. As many of the folks here
4 in the room will be aware, our missions is to
5 accelerate the transition to sustainable energy. To
6 this end Tesla research, design, manufacture and sell
7 electric vehicles, as well as solar and energy storage
8 products.

9 We operate one of the world's largest DC
10 fast charging networks with over 1,000 supercharger
11 stations and 9,000 supercharger connectors world-wide.
12 Additionally we manufacture and deploy level 2
13 charging stations and connectors working with
14 Sitehouse in both the public and private sectors.

15 Throughout my presentation I'll refer to
16 stations and connectors. At Tesla when we talk about
17 stations, we're referring to a location that may have
18 multiple connectors. That's typically the way that we
19 develop these sites.

20 In addition to our three retail stores here
21 in British Columbia, and our vehicle servicing
22 operations, we operate ten supercharger locations or
23 stations here in the province with over 78 DC fast
24 charging connectors. We also help to deploy over 190
25 public access level two connectors across B.C. at
26 about 100 locations.

1 We have extensive experience across North
2 America and around the world and are more than happy
3 to share this expertise with the Commission.

4 It's Tesla's view that EV charging really
5 represents an end-use service and that such services
6 don't equate to transmission distribution or retailing
7 of the commodity electricity. I'll speak to this more
8 in a moment. It's also our view that the existing
9 market for EV charging services here in British
10 Columbia is competitive in nature. There are several
11 business models already operating in the province and
12 consumers do, indeed, have choice. And it's important
13 to note that for many, not all consumers, they also
14 have the choice to charge at home.

15 Any attempt to regulate a specific business
16 model or to define private charging developers as
17 utilities could slow investment and would almost
18 certainly slow the development process if another
19 level of approvals is required before stations can be
20 constructed.

21 Tesla is not opposed to utilities
22 participating in the charging marketplace. Indeed,
23 the more charging that can be built and the faster it
24 can be developed, the better. More EV charging
25 services will support more EV adoption here in British
26 Columbia.

1 In less competitive segments of the market,
2 such as inside multi-unit residential buildings,
3 existing buildings that the province is doing a lot of
4 work on, new buildings -- or certainly at the
5 municipal level they are. And in northern and more
6 remote areas of the province, utilities can play a key
7 role if they are permitted to enable much needed make-
8 ready infrastructure. So this could take the form of
9 electrical servicing power capacity upgrades for
10 multi-unit buildings and preparing sites highway side
11 for DC fast charging.

12 It's worth noting that the current rate
13 structure in B.C. does not particularly encourage the
14 development of DC fast charging, particularly in
15 smaller and more remote communities where the demand
16 charges associated with charging activities, where
17 there may only be a few site visits in a given month,
18 can result in hundreds of dollars in operating costs
19 per vehicle over the course of a month for very few
20 kilowatt hours delivered.

21 This has been addressed in the U.S. in some
22 places through demand charge holidays, or by creating
23 special EV charging rate classes for charging service
24 providers and this could be done broadly or within
25 targetted areas.

26 Tesla also encourages the Commission to

1 rate in that province. We certainly encourage the
2 Commission to consider following that path, and
3 working to avoid creating a patchwork or different
4 regulatory policy when it comes to EV charging in
5 Canada.

6 We welcome and encourage broad
7 participation in the EV charging market place. And
8 certainly, you know, would be happy if there are
9 further questions with regard to roles of different
10 parties, I can answer those. We also think that the
11 Commission will have ample opportunity going forward.
12 These are relatively early days for EVs, so at this
13 point, you know, there is ample opportunity to
14 continue to monitor and step in when and if needed
15 going forward.

16 In the meantime, the Commission can
17 certainly support EV adoption right away by enabling
18 utilities to install make-ready infrastructure for EV
19 charging, and by exploring alternative rate structures
20 for high power stations.

21 Any steps, however, that would have a
22 direct or unintended consequence of restricting
23 participation in the charging market, or which would
24 delay the development process for EV charging
25 stations, would likely hinder EV adoption here in
26 British Columbia, and would work against climate

1 change and clean air objectives.

2 So that really wraps it up, but thank you
3 very much for hearing the comments.

4 THE CHAIRPERSON: Thank you sir. I have a question. You
5 stated that you think that it is a competitive market
6 and should be allowed to develop and operate as a
7 competitive market. I'm paraphrasing, but that -- and
8 it is alright for established utilities to participate
9 in that market.

10 I wonder if you have any comments around
11 how a utility should, or could be allowed to
12 participate in that market? One of the issues about a
13 regulated utility participating in a competitive
14 market is the issue of cross-subsidization, and the
15 fact that all of the utilities ratepayers could
16 possibly be financing the capital costs of EV
17 infrastructure. And that may be unfair to a private
18 competitor in the market. Do you have any comments on
19 that? Or do you see that as positive because it would
20 -- it could increase infrastructure build-out and
21 adoption?

22 MR. MYRANS: So I think first of all, from a make-ready
23 standpoint, the back-end infrastructure that is
24 necessary to support charging? That has broad
25 benefits for a broad range of ratepayers over a long
26 period of time. So, I don't think that we see any

1 issue there.

2 Yeah, as we said, the more participants in
3 the market right now the better, including utilities.
4 Whether or not utilities should be investing in the
5 front-end charging services, you know, on the rate
6 base, or whether that should be done through their
7 non-regulated business, in our comments that we filed
8 last month, we suggested that perhaps the best
9 solution there is to have them do that through their
10 non-regulated business, but ultimately that is
11 obviously something that the Commission will need to
12 consider.

13 THE CHAIRPERSON: Understood. Thank you.

14 COMMISSIONER HAROWITZ: Thank you for that. A couple of
15 questions, not particularly related to each other. Do
16 you have, or would you be willing to share with us
17 what kind of ratios you use for number of charging
18 stations per 1,000 vehicles? Or however you benchmark
19 that from a perspective of saying, so, if we were
20 thinking, you know, into the future that there are x-
21 million EVs out there in B.C., do you have a model, or
22 a way that you guys work to translate that into what
23 you think, not just Tesla stations necessarily, but
24 what that infrastructure looks like?

25 MR. MYRANS: Yeah, it's a great questions. So when our
26 charging teams look at developing supercharger

1 projects, we typically, you know, there are obviously
2 certain constraints, available power, and so on. But
3 we typically try to plan for the peak --

4 **Proceeding Time 6:25 p.m. T25**

5 We have experienced elsewhere in Canada
6 where we've done -- built too few stations, they
7 become congested, and we have -- including one project
8 here in B.C., we've had to add additional connectors.
9 So we do try to plan for the peak.

10 Of course when we develop sites we do have
11 a good sense of how far our cars can travel because
12 they are Tesla vehicles, so we do plan to make sure
13 that our customers, our drivers can get from point A
14 to point B along these corridors in all weather
15 conditions. But we don't have -- as far as I know we
16 don't have a specific metric. I'd be happy to look
17 into that and get back to you.

18 COMMISSIONER HAROWITZ: Okay. And related to that, do
19 you have a sense -- we've heard this afternoon and at
20 other times questions around amortization timelines
21 for infrastructure. Do you have a sense of the rate
22 at which the technology, yours and/or in general, are
23 changing such that, you know, is it five years for a
24 station? It's is three? Is it -- you know, what's
25 the timeline in which one might consider -- or what's
26 the boundaries around that before it's leapfrogged

1 with another technology?

2 MR. MYRANS: Yeah, that's a great question. I'd be happy
3 to check with our charging teams and get back to you.
4 I don't know the answer on the amortization period.

5 COMMISSIONER HAROWITZ: And third and last, we also heard
6 from folks about that right now -- they talked about
7 it in terms of payment and participation at various
8 charging stations. I want to turn that question
9 slightly a bit first, that, you know, you otherwise
10 have to have your membership card in this one, that
11 one in the other one, and some people are advocating
12 creating a payment system that is universal and simple
13 to access, so that however it is that you pay it's
14 much the same as a gas station, your credit card or
15 your dollar is good regardless of which station you go
16 to.

17 I'm wondering if you have -- you know, how
18 you feel about the role of regulation or otherwise in
19 creating the notion that any station can charge any
20 vehicle. Now, I know you have some proprietary
21 technology, but it seems to me that that in some ways
22 comes up against the notion of the more the better,
23 but I'd be interested in just your comments on that.

24 MR. MYRANS: Sure. I may ask you to clarify a few points
25 there. I will say that with -- you mentioned a
26 proprietary connector. We are more than happy to

1 speak with other automakers who may want to use the
2 connector. We have the connector we do because when
3 we started producing long-range electric cars there
4 were no other viable options, CCS and CHAdeMO just
5 couldn't provide the amount of power that would
6 conveniently charge the car fast enough. I know that
7 at the beginning of the presentation today we had a
8 breakdown of level 1, 2, and 3, you know, and how long
9 it takes to charge. It's very depend on the battery
10 capacity in the vehicle and sometimes those metrics
11 can be better expressed in range per half hour, range
12 per hour provided.

13 Could you perhaps restate or clarify a
14 couple of your other questions?

15 COMMISSIONER HAROWITZ: Well, I think you perhaps gave
16 part of an answer to that, which is that Tesla would
17 be prepared to work with other manufacturers or others
18 to find ways to -- that your charging stations, for
19 example, could be accessed by not -- the supercharging
20 stations by not just a Tesla vehicle, is that what I
21 heard you say?

22 MR. MYRANS: We're certainly open to conversations with
23 them using our connector, the actual connector for
24 their own vehicles and so forth. At this point the
25 supercharger network is just available to Tesla
26 drivers.

1 COMMISSIONER HAROWITZ: Thank you.

2 MR. MYRANS: Yeah. I'm not aware of any plan at this
3 point to change that.

4 COMMISSIONER FUNG: Mr. Myrans, I'm wondering, could you
5 educate me a bit. Could a Tesla driver use Level 1
6 charging at home as well as Level 2 charging? It just
7 needs a different prong, as I understand it.

8 MR. MYRANS: Yeah, the cars come with a kit that allow
9 you to use either Level 1 or Level 2 using essentially
10 a NEMA 14-50 stove plug or a regular 110 outlet.

11 COMMISSIONER FUNG: Okay. And in planning your Level 3
12 chargers, so the fast chargers, your super chargers,
13 to what extent do you take into account geographical
14 location in terms of your planning and your buildout?

15 MR. MYRANS: I mean we take that into consideration very
16 deeply. We want to make sure that our drivers have
17 access to amenities in the locations where we do site
18 charging stations. So when we do super charger
19 projects we always want to make sure to the best of
20 our ability that they're near amenities that our
21 drivers would like.

22 We're also in the process right now of
23 developing charging across the entirety of the
24 Trans-Canada from Victoria, we're planning to have a
25 supercharger site up and running here before the end
26 of the year that will provide connectivity all the way

1 to Halifax.

2 **Proceeding Time 6:30 p.m. T26**

3 COMMISSIONER FUNG: Okay. And to what extent do
4 economics enter into that? Because obviously certain
5 stations, you're not going to get the amount of money
6 back in terms of user fees that you would in a highly
7 populated area.

8 MR. MYRANS: Yeah, Tesla has -- we have a public
9 statement on our website. We do not intend to operate
10 charging as a for-profit business.

11 COMMISSIONER FUNG: So currently would you say it's a
12 breakeven proposition for you? Or are you actually
13 losing money?

14 MR. MYRANS: Yeah, I'd have to get back to you on that.

15 COMMISSIONER FUNG: Okay, thank you.

16 THE CHAIRPERSON: Thank you very much, sir.

17 MR. MYRANS: Thank you.

18 **PRESENTATION BY MS. LOCKE:**

19 MS. LOCKE: Good evening. My name is Lisa Locke, L-O-C-
20 K-E. And I represent the Victoria Electric Vehicle
21 Association.

22 Good evening, my name is Lisa Locke. I
23 have a doctorate in electrical engineering, and I am
24 one of the board members for the Victoria Electric
25 Vehicle Associate, which operates as the Victoria
26 Electric Vehicle Club. And we represent more than 600

1 members world-wide, centred mostly in Victoria.

2 I am here today representing the club as
3 our current president, James Locke, is in the process
4 of completing a 14,000 kilometer 100 percent electric
5 vehicle trip from Victoria to Hay River, Northwest
6 Territories, to Ottawa, to attend an EV conference;
7 then to Virginia, USA, and back home to Victoria. The
8 trip that James is taking is another first of many
9 others that have involved our membership, including
10 the first EV chargers to be installed at a commercial
11 location in Western Canada, at the Royal Bay Bakery in
12 Colwood. The first EV driven north of the 60th
13 parallel in Canada by my family. The first EV to
14 cross Canada from sea to sea towing a 1,000-kilogram
15 trailer, by Tesla across Canada. And some of the
16 first families in Canada to have all their vehicles
17 100 percent electric.

18 I have personally experienced the changes
19 in the public perceptions and attitudes about EVs from
20 the numerous public events and car shows that the Club
21 has held, and the thousands of people that we have
22 talked to. Initially there was early rejection of the
23 technology, followed by curiosity and early concerns,
24 followed by acceptance and now outright enthusiasm
25 about EVs. And this is where we are running up
26 against the next substantial barrier to EV adoption,

1 and that is EV charging capability.

2 Access to EV charging is particularly
3 difficult in multiple unit dwellings and for inter-
4 city travel. Range anxiety is quickly being replaced
5 by, as you say, charging anxiety.

6 And that brings me to the central issue
7 that I wish to bring to the Commission's attention,
8 and that we believe are within the Commission's
9 authority to address. Measures need to be taken to
10 resolve the ability to resell electricity for EV
11 charging at multiple unit residential, commercial, and
12 institutional properties; to encourage private-sector
13 involvement, but not at the expense of ensuring that
14 there are fast charging facilities linking all British
15 Columbia cities at a fair price. To invest some of
16 the increase in BC Hydro revenues from EVs into
17 additional EV infrastructure, and to ensure that there
18 are not opportunities for excess profits from the re-
19 selling of electricity in the interests of fairness to
20 all Hydro ratepayers.

21 High speed DCFC, direct current fast
22 chargers, will be particularly challenging. Our
23 business case models have indicated that these units
24 alone cannot produce a positive return on investment
25 at this time, without ancillary facilities or
26 incentives. There is a risk that EV adoption rates

1 will be affected if the long-distance travel barrier
2 is not aggressively addressed throughout British
3 Columbia. To communicate our findings, the
4 Association has produced a comprehensive research
5 submission about these issues, including specific
6 recommendations for consideration on the subject of
7 regulation and rate structures.

8 Thank you for the opportunity to speak
9 before the Commission, and our Association stands
10 ready and able to provide any further evidence or
11 clarification that would be of assistance to the
12 Commission in their deliberations as the process goes
13 forward.

14 THE CHAIRPERSON: Thank you, ma'am.

15 MS. LOCKE: Thank you.

16 THE CHAIRPERSON: I have a question, please.

17 MS. LOCKE: Okay.

18 THE CHAIRPERSON: I realize that you've -- you have filed
19 more information and evidence. But if I could just
20 ask you about the statement that I think I heard you
21 make just now, which is that B.C. fast charging
22 stations -- I think you were saying in B.C., perhaps
23 Canada, I'm not sure -- can't provide a positive rate
24 of return at this time without incentives, or words to
25 that effect. Is that what you said?

26 MS. LOCKE: Yes, that was in this letter. I can't speak

1 to that directly. The author of the submission, Jim
2 Henson, isn't here today, but I could definitely --

3 **Proceeding Time 6:35 p.m. T27**

4 THE CHAIRPERSON: That's okay. If you filed -- I just
5 wondered for the people in this room if you had
6 anything.

7 MS. LOCKE: No.

8 THE CHAIRPERSON: No, okay. I wondered what period of
9 amortization you are looking at and what costs and so
10 on. But if you don't have that information, that's
11 fine.

12 MS. LOCKE: No, I don't.

13 THE CHAIRPERSON: That's fine.

14 COMMISSIONER FUNG: It would be helpful, perhaps, when
15 the author gets back for you to pose that question and
16 to the extent there is an answer, we would appreciate
17 it if you would send us a letter

18 MS. LOCKE: I certainly will.

19 COMMISSIONER FUNG: Thank you.

20 MS. LOCKE: Okay, thank you.

21 THE CHAIRPERSON: Thank you very much, Ma'am.

22 **PRESENTATION BY MR. WIEBE:**

23 MR. WIEBE: Hi. My name is Jim, last name is Wiebe,
24 W-I-E-B-E. I just -- I don't have the background or
25 involvement, but I am an EV purchaser. I've never
26 bought a new vehicle before. There is days where I

1 quite regret the decision. And I'll just tell you a
2 very short recent story.

3 Trying to head up Island to visit family
4 and I have to spend an hour and a half in Nanaimo to
5 recharge. My vehicle capacity in the colder weather
6 is obviously diminished. So there is only one DC
7 charger in the Nanaimo north area on this Island. So
8 that's -- fortunately it was available. That's a
9 twenty-minute hold over.

10 And in order to get my destination, I then
11 have to go to a level 2 charger. That's an hour and
12 fifteen minutes on the best of days, and that's if
13 it's open. So my stop-over is adding another hour and
14 a half to two hours when I'm travelling.

15 I have got north of Courtenay and there is
16 nothing to be found. You rely on extension cords and
17 the goodwill of other people. So even a simple little
18 trip like this on an island -- and other people may
19 know secret chargers, better spots, but I'm just using
20 commonly plug share apps and things like that to find
21 the charging stations.

22 That network is actually very important. A
23 lot of cars come with the technology, whether it is
24 proprietary or not, where is the next charging
25 station. But that needs to be really addressed as far
26 as these long-term travels.

1 I really like those terms, the anxiety, and
2 I have got to the one charger that I needed to get to
3 in my trip and then find that it doesn't work. So,
4 and you're looking on the app ahead of time and it
5 says that its up and running. We need really
6 consistent and reliable information to plan those
7 trips and plan detours out of those trips. They need
8 to be up-to-date real time. And I know this is
9 nothing in the immediate future, but looking forward
10 at a proper network. Electrical cars have to be
11 competitive. You know, Hybrid, you have a choice, but
12 once you're in the EV, if you're gone, you're going to
13 need a tow truck. I mean that's pretty extreme for
14 chargers.

15 Secondly, I want to point out that in that
16 20 minute charge of the DC 3 charging station, I was
17 charged for that 18 minutes the equivalent of two
18 weeks' worth of my home charging. I find that to be
19 unreasonable. So, and, of course, I'm one of the many
20 people that has to have three or four different
21 memberships and cards. So I like that idea of
22 something that's more standardized.

23 I don't see charging stations -- as an end-
24 user, I think this is a service. I think we are
25 talking about BC Hydro, which is a utility, and I
26 think that that product needs to have some regulation

1 as far as reasonableness. I mean, that was a word I
2 heard. And reasonableness, people should be able to
3 make profit, but it has to be within scope, that if
4 you charge me as much for electricity as triple the
5 gas, I might as well just continue with the old
6 technology.

7 As far as just a brief thought, I mean, if
8 you're trying to build an infrastructure we need to
9 offer incentives so that a person or a company will
10 put that in place.

11 **Proceeding Time 2:21 p.m. T28**

12 And it's not subsidizing by paying them,
13 but you're giving them an incentive of some type to
14 make it worth their while for a period of time that's
15 reasonable, and then when they have seen their return,
16 you know, that that can diminish over time.
17 Corporations don't need to be greedy. We need to plan
18 technology cooperatively.

19 So that's just a few of my thoughts as an
20 EV owner with a limited range vehicle. And I don't
21 have a high-end, high-range vehicle, so everything has
22 to be very much calculated when I travel. Thank you.

23 COMMISSIONER FUNG: Excuse me, sir. Before you leave,
24 do you have a level 1 charger at home?

25 MR. WIEBE: I have a level 1 charger. I cannot afford
26 the level 2.

1 COMMISSIONER FUNG: Okay, thank you.

2 MR. WIEBE: Thank you.

3 **PRESENTATION BY MR. BAXTER:**

4 MR. BAXTER: Michael Baxter. It's B-A-X-T-E-R. I'm not
5 part of any organization to do with this. Although I
6 did in a previous job install nine different chargers
7 in the municipality and I have sat on a committee
8 advising, Fraser Basin Council. We were giving advice
9 to BC Hydro on locations of chargers.

10 I thought I should say my piece now because
11 it's a little bit of a contrast to the previous
12 gentleman. I have driven my car via the inside
13 passage ferry to Terrace B.C. and it's a five-year old
14 Leaf. I've been driving it for five years. And it is
15 possible to get to Campbell River -- to Port Hardy in
16 a Leaf, but it is very very difficult and I was very
17 lucky that day that every charger I needed was
18 working.

19 And I did get a ticket from the Port Hardy
20 police about driving too slow on the road to preserve
21 range. Not a ticket, but I got a letter. For that
22 type of trip, there's not as lot of cars making it,
23 but I think that if electric cars are going to be
24 throughout the market, then you've got to be able to
25 make that trip in a standard electric car.

26 Now, mine is five years old and that trip

1 is difficult. But I know that if I bought a new model
2 exactly the same today, that trip becomes a lot
3 easier. But you still need one more fast charger
4 somewhere.

5 But what's really disgraceful is the
6 situation in Vancouver, where I think that in the
7 entire greater Vancouver there's four fast chargers,
8 and I can't remember how many people live there, but
9 it's something like a couple of million.

10 Now, the fast chargers -- in fact, I think
11 all public chargers should be primarily, but
12 especially the fast chargers, for people who are
13 travelling. People who are going from A to B, and the
14 reason is that the level 3 chargers are expensive to
15 put in. That's always going to be a problem, and a
16 lot of the expense is getting the electricity to where
17 you want to put the chargers. The box may get
18 cheaper; running the electricity is going to get more
19 expensive, not cheaper.

20 And because there's a limit to how many you
21 want to put in, you don't want people using them who
22 could be charging at home. So we want the traveller
23 to get what he needs when he needs on the road, and
24 that's a fast charger.

25 The way to deter me from using the fast
26 charger near my home is price. Okay? There was a

1 situation locally in Colwood, in Duncan where a local
2 courier was using the chargers, getting all electric
3 service, and Duncan's was free, and Colwood was
4 charging for their charger. And the courier said, I'm
5 absolutely happy to pay the price, about \$3 a charge.

6 **Proceeding Time 6:44 p.m. T29**

7 But I'm really happy in Duncan, because I don't have
8 to pay the price, and why is the City of Duncan paying
9 to subsidize that courier? Why aren't they
10 subsidizing the guy who could go home and park his
11 car? If you're going into town shopping, you're not
12 going to run out of electricity. You don't need to
13 charge. If you do, it's there, and you pay your
14 money.

15 So, I'm actually in favour of charging more
16 for chargers. All public chargers should have a
17 charge, if that's financially feasible, because I was
18 part of Colwood Municipality, I know that the money
19 that we charged per kilowatt hour, which was three
20 times the going rate of electricity, just covered the
21 cost of the service to collect the money. Everything
22 else, the electricity was paid for by BC Hydro, and
23 the installation was paid by BC Hydro, and a very
24 small piece of the maintenance was paid by the city.

25 And I've lost what point I was making right
26 there, but I hope you've got it.

1 So, we need to charge for charging. And
2 the other thing is your load curve, the BC Hydro load
3 curve. You don't want people using fast chargers at
4 peak times of electricity. And again, the way to
5 drive them home to charge is the price of the
6 electricity. Now, I think it would be beneficial at
7 home to give time of day pricing on electricity. And
8 I know there has been a promise not to do that, but I
9 think we all know that's ridiculous, it is coming one
10 day, and it is the solution to the car problem.

11 I currently have my car charge timer set to
12 only charge between 10 o'clock at night and 6 in the
13 morning when I'm parked at home. I do that because I
14 want to help. But for a lot of people they want to
15 make sure the car is charged as fast as possible, so
16 they go home at 5 o'clock, turn on all the electrics,
17 plug in the car. Again, price is the deterrent to
18 that.

19 Now, I think that the level 3 chargers and
20 the level 2 chargers are going to be in different
21 places, as well as together. There are shopping malls
22 with parking lots that have more than a dozen level 2
23 chargers, because they want you to stay there for a
24 while, okay? So it gives somebody where to charge.
25 And you make him come to your mall, instead of a
26 different mall, and he might spend a little more time

1 said, "Can I plug in?"

2 The problem is those millions of chargers
3 aren't large enough. We need bigger ones, we need
4 them more often. And I echo the previous gentleman's
5 comment. I actually was driving to my daughter's
6 place in Comox and the charger in Nanaimo went down
7 while I was traveling and increased the length of my
8 journey by four hours. Not a pleasant experience.

9 THE CHAIRPERSON: Thank you. Thank you, sir.

10 **PRESENTATION BY MR. SHORTREED:**

11 MR. SHORTREED: Hi, my name is Bill Shortreed. Last name
12 is spelled S-H-O-R-T-R-E-E-D. I've here as an
13 individual EV owner.

14 In January 2016 I bought an all-electric
15 vehicle. At that time there were four DC fast
16 chargers on Vancouver Island. More than two years
17 later there are still just four EV fast chargers on
18 the island. What that means, for me to drive from
19 here to Telegraph Cove on the north end of the island,
20 which I plan to do this summer, it would take 17
21 hours, of which five and a half hours of driving and
22 11 and a half hours in charging. And it would be much
23 longer if I had to wait for any of the Level 2
24 chargers north of Nanaimo.

25 So with respect to an electric vehicle
26 charging network I have five suggestions. And I don't

1 know if any of them are -- will fall under your
2 purview.

3 They should be located off highways, so
4 that I can get off the highway, get charged, get back
5 on the highway. Just like Tesla has done with its
6 supercharger network. As an example, the Nanaimo DC
7 fast charger is less desirable because I have to drive
8 through the city to get to it and that adds 20 minutes
9 of drive time, plus I have to pay for parking which
10 doesn't make me happy. Imagine if you went to your
11 gas station, I had to pay 75 cents just for the
12 privilege of parking there to fill up with gas.

13 Charging stations should be near 24-hour
14 facilities, because I'm past the age of 60 and I need
15 to have facilities when I stop. Imagine if gas
16 stations didn't have restrooms. Charging stations
17 should be available 24 hours a day, seven days a week,
18 365 days a year. The Duncan fast charger was out of
19 service for several months last year during the
20 summer, peak travel time, while they repaved their
21 parking lot. Also, it was out of order for several
22 weeks just last month. So that, again, adds to my
23 travel time when I'm going north.

24 There should be at least two DC fast
25 chargers at each location, because when I arrive in
26 Duncan there's somebody already there, then I have to

1 sit and wait. If I'm already looking at a 20-minute
2 fill up, now I'm looking at a 40-minute fill up.

3 And that's all I have to say about that.

4 Thank you for the opportunity.

5 THE CHAIRPERSON: Thank you, sir. Okay, thank you.

6 MR. SHORTREED: Thank you.

7 **PRESENTATION BY MR. BARWIN:**

8 MR. BARWIN: My name is Victor Barwin, B-A-R-W-I-N. I'm
9 a chartered professional accountant who is retired and
10 I bought my first EV last November. It was probably
11 one of the best things I've ever done in my life. One
12 of the reasons being is that most of my traveling,
13 being retired, is in the Victoria area. And if I do
14 need to go outside of Victoria we do have friends,
15 relatives, there's charging stations, so for my case
16 I'm not that worried. I also have a gas-powered car
17 that was given to me so I can use that until some
18 point in time another vehicle can become available
19 that is not generation one, but generation two or
20 three. So I'm a little different situation.

21 For me there's three choices for charging.
22 At home, Level 1. My brother-in-law up in Mill Bay,
23 because I can't get home from there, Level 1. I could
24 put a Level 2 in my house, it's not cost effective at
25 this stage. Or I can go to the public sites and then
26 patronize the businesses there. So the dollar that it

1 costs the station -- well, or wherever it happens to
2 be, \$2.50 for coffee, another \$2.50 for my wife.

3 **Proceeding Time 6:54 p.m. T31**

4 They're making money off of me by going to that mall
5 as opposed to another mall. So there's a positive
6 thing. I'm glad to see that these people are
7 supporting me in my desire to reduce greenhouse gasses
8 and to be more green in the environment.

9 I've never used a DC, a level 3. I haven't
10 had to use one yet. But again, as we've heard several
11 times today, there is a need in the province.

12 But if we look at other users, we've got to
13 talk about inter-city travel, and one thing we haven't
14 heard today is visitors to the province of British
15 Columbia. Tourism is one of the biggest industries in
16 British Columbia and if we're not providing enough
17 level 3, we're putting these people at a disservice.
18 It's discouraging people from coming to B.C. if they
19 have, you know, cars that need charging.

20 Gas stations are going to disappear.
21 There's no question about that. We've seen that take
22 place in my lifetime. Home Gas is gone. Gulf is
23 gone. BA is gone. Texaco is gone. Shell is taking
24 their stations down. In Victoria we see no Pay-less
25 Gas. They're gone. SuperSave Gas, they're gone. So
26 it's just a question of time.

1 Gas stations make their money from several
2 sources: selling gas, which I understand is not
3 really that profitable, and ancillary services. And
4 we've heard today from several people that they want a
5 destination site and other services, whether it be
6 lottery tickets, washrooms, chips, whatever it happens
7 to be. And we've heard cases where large stations
8 have restaurants. So if I have to charge for 20
9 minutes or two hours, I'll go in and have something to
10 eat. I know people have gone to Duncan. Two and a
11 half hours to charge. They've explored Duncan. I've
12 never -- you know, "Did you know Duncan has this?" So
13 it's a destination. Same thing with our tourists,
14 that they want -- they're coming here for a
15 destination.

16 We have to look at who the users are. I'm
17 a private EV user and the vast majority of people are
18 going to be private EV users. But we already have
19 public EV users. Saanich has an EV fleet. You know,
20 every municipality is heading into that direction.
21 And then what about the corporate owners, the fleets,
22 the rental cars? Right now there's Hertz and then we
23 see Moto and Evo coming in. You know, there was an
24 article in a magazine recently saying that, "Well, why
25 aren't car share cars electric?" "Well, we can't get
26 the range." And so from my perspective, if we can

1 get to generation 2, generation 3 which have the
2 range, there would be a place for them to charge the
3 car there, and the people would take the car and be
4 billed, not only the mileage, but a small charge for
5 electricity. I would think that would be a good thing
6 for the people who use the cars. Because right now
7 when you rent a car, you have to fill it up before you
8 take it back, and that's just an extra cost on it.

9 I'd like to see the private piggyback on
10 the public sector. We already have an example of that
11 in Sydney. There is a charging station at the
12 municipal hall and it says, "For City Use". But
13 around the corner it says, "For public use when it's
14 not being used by the city." So I think that there's
15 an opportunity for the private sector to piggyback on
16 the public sectors, because a lot of the stations,
17 they would probably charge at night. But if I'm
18 travelling, I would probably charge during the course
19 of the day.

20 So what I'm driving at, there's a new model
21 that's going to be coming out. Or let me rephrase
22 that one, new models, as we sort of figure this thing
23 out, because we are only in the very -- you know, one
24 or two percent adoption rate in B.C.

25 I believe that EV charging stations are
26 destination charging stations and, you know, if you're

1 driving up to Campbell River/Comox, you're going to
2 have to stop in Duncan or Mill Bay or Nanaimo to
3 charge and then use Plug Share or something else to
4 find these things. It would be nice to be able to
5 have some time to do something else while it's
6 charging. There's just not enough to do that right
7 now.

8 I also would like to see the charging
9 stations being put in B.C. parks. I'm very familiar
10 with Manning Park. I can't get, in my generation 1,
11 from Princeton to Hope, or Hope to Princeton, not
12 possible. But if I could stop in Manning Park, I'll
13 go to the restaurant, I'll hike on the trail, I'll
14 rent a canoe. Or I could ski in the winter, whatever
15 it happens to be.

16 **Proceeding Time 6:59 p.m. T32**

17 There's another advantage to the Manning
18 Park Lodge or B.C. Parks there. Right now if they
19 need gasoline, they have to drive to Hope or
20 Princeton. And that's 40, 50, 60 kilometres each way.
21 So their staff member is having to spend an hour there
22 and an hour back again. That's a cost to them. If
23 they could have a charger, or chargers there, then
24 that would reduce their costs. And if I could
25 piggyback onto their service, it's a win/win for me
26 and it's a win/win for B.C. parks, or for Manning Park

1 Lodge in this particular case.

2 The world is changing. I've seen people
3 steal electricity from B.C. Parks. The lady had her
4 electric handicapped car up -- you know, a car --
5 stealing electricity, because she was there camping
6 for a couple of days, and the only place she could
7 charge it was at the park. And the only place she
8 could do it was on the outside of the washroom
9 facility. So if they had a charging station there,
10 then I could use it, she could use it, and I'd be
11 willing to pay for it. I'm sure she'd be willing to
12 pay for it. We could then use the same facility to
13 charge her batteries, so I don't have to have a
14 generator, reduce the noise level.

15 So my point is that, let's find a way to
16 use not just, you know, a Level 1, Level 2, Level 3
17 for cars, but for other purposes. For charging
18 handicapped vehicles, for charging bicycles, for
19 charging batteries, that sort of thing. Let's find
20 multiple use, again a new business model, that's out
21 there.

22 One of the other things is that we could
23 put them -- we've heard people say, "Let's put them in
24 accessible areas throughout B.C." We have tourist
25 information sites, a destination site for people
26 traveling. In which case you can only get -- you're

1 going to be there for about 20 minutes, half hour, so
2 charge up there. Put up a Level 2 or even a Level 1
3 or, you know, DC fast charging. Just to help people
4 out.

5 And again, the same thing in rest areas
6 throughout the province. We have thousands -- or
7 hundreds of rest areas. We could put that in there,
8 and I'm thinking of the Coquilhalla, for example. And
9 in summertime, we need to go through the Coquilhalla,
10 at the rest area, there's five or six food trucks. So
11 you're going to stop there for various reasons, and if
12 there's a charging station there, then it's going to
13 provide multiple services.

14 We talked about the grid. I bought an EV,
15 and my electricity has actually gone down. Now, why
16 is that? Because I insulated my roof from R26 to R50.
17 So I've reduced my electricity consumption by 11
18 percent by doing that. So if BC Hydro, through their
19 PowerSmart program, will be able to -- you know, in a
20 lot of cases if you can retrofit your house, which is
21 relatively inexpensive, my payback period is three
22 years on that. And so therefore I can afford to put
23 an EV on my system because I'm actually using less
24 electricity.

25 And so if we can do those sort of things,
26 piggyback not only the introduction of the EV charging

1 stations, but with other things such as PowerSmart and
2 other things, the retrofits that I've done on my
3 house, 33 percent less electricity this year than two
4 years ago, because of LEDs, et cetera. And again,
5 what I've heard from another fellow, if we can charge
6 the cars at night, then we can smooth out this power
7 grid, which is a big problem to BC Hydro and FortisBC.

8 So my final conclusion is that we've got to
9 come up with new business models, looking what they
10 are. And throughout history, that's what's happened.
11 And we've, you know, the adoptions are putting
12 business models that meet the needs to people in. My
13 perspective is a little different from some other
14 people's. I like to see the same price to the
15 consumer whether they use Level 1, Level 2 or Level 3.
16 But I wouldn't mind a small increase like you have
17 with -- if you go to a gas station way out in, you
18 know, Nimpo Lake or something like that, you're going
19 to pay a little bit more. And I don't mind paying a
20 small percentage. But three and a half times?
21 Because that's just -- that's not fair to people who
22 don't have access to charging at home at a reasonable
23 rate.

24 So I'd like to see, you know, basically the
25 same rate at home, same rate at Level 2, and same rate
26 at Level 3, with a small premium to cover off the

1 amortization for the cost of installing and
2 maintaining the unit.

3 My final comment -- we haven't talked about
4 it much here. Health issues. By eliminating fossil
5 fuels, we're going to eliminate carbon dioxide in the
6 atmosphere, nitrous oxide, we're going to eliminate a
7 significant portion of health issues that are caused
8 by pollution and climate change. And to me, that's a
9 very significant issue. Introducing electrical
10 vehicles to replace fossil fuels to be able to improve
11 the health of British Columbians.

12 Thank you.

13 **Proceeding Time 7:04 p.m. T33**

14 THE CHAIRPERSON: Sir, so, with regard to that last issue
15 I wonder if you could just draw that out to a
16 conclusion then, because electric vehicles could
17 improve health, and therefore what, there should be a
18 subsidization for charging infrastructure? I'm just
19 not sure where you're going with that.

20 MR. BARWIN: It's hard to quantify, because in the
21 Province of British Columbia, the health budget is in
22 the Ministry of Health, and all we see in the last
23 couple years, is significant three or four percent
24 increases in the health budget every year. And if we
25 can find a way to reduce that, that's going to reduce
26 taxes to British Columbians. But more importantly,

1 from my perspective, it is going to reduce the
2 possible health issues. My mother died from lung
3 cancer, so I am predisposed to that. Theoretically my
4 children are predisposed to that, so anything I can do
5 to reduce their risk of dying from lung cancer, I will
6 do. And that's why I'm here today.

7 THE CHAIRPERSON: Thank you.

8 COMMISSIONER FUNG: Mr. Barwin, I just want to follow-up
9 on your point about new business models are needed,
10 and we should be doing what we can to encourage them.
11 So, with that in mind, what is your view as to whether
12 or not the whole field of electrical vehicle charging,
13 should it be regulated? Should we allow utilities to
14 get into this business? Or do you see a different
15 type of marketplace?

16 THE CHAIRPERSON: I sort of see a utility is that it
17 right now, when I use the electricity at home, I am
18 taking their 110 volts AC, but if I put my charger on,
19 I'm taking the 110 volt AC and converting it to DC
20 power, to charge my car. So, they're not really --
21 the level 2s and level 3s are out there, not really
22 reselling electricity, they are providing a service
23 that is converting AC to power that I can use to
24 charge my car.

25 As far as the regulation's concerned, the
26 concern that I have is that we've heard earlier on

1 today, that somebody is paying three and a half times
2 more by using DCFC. My point of view is that I'd
3 rather see level 1, level 2, level 3 basically being
4 about the same with a small premium for level 2 and
5 level 3 to cover the costs of the infrastructure and
6 the maintenance that are required on those particular
7 units.

8 What I haven't said earlier on is my belief
9 is that 90 percent of charging will be done at home,
10 and that home is either my particular home, or in a
11 case of a business or business establishment. So, in
12 theory we only need to provide 10 percent with level 2
13 and level 3 out there, and they could be, the utility
14 is going to make 90 percent of their income from at
15 home. So in some respects, I don't want to use the
16 words subsidation [sic] for 2 and 3, but they may be
17 able to do that. We are seeing that right now with
18 the gas stations. Small gas stations in a remote
19 community isn't paying for itself, it's being
20 subsidized by huge demand in Vancouver and Victoria
21 and that sort of thing.

22 COMMISSIONER FUNG: Okay, thank you.

23 COMMISSIONER HAROWITZ: Thank you. I'm just wondering,
24 you said you'd be willing to tolerate a small
25 difference for a level 3 service compared to a level
26 1. How do you reconcile that with, you know, if it is

1 give or take \$100,000 for the install, give or take a
2 five year useful life for that asset, it seems to me
3 that that's more than what I think you mean when you
4 say a small premium for the level 3. So, who would
5 you advocate picks up that additional loss if it is
6 only a small premium that you pay when you pull up to
7 the level 3? Who is -- where do you see that
8 uncaptured amount of the depreciation being paid for?
9 Who should be covering that?

10 MR. BARWIN: I think the situation in British Columbia,
11 we're unique because most of our electricity is coming
12 from basically one supplier, BC Hydro, you know,
13 FortisBC. And so therefore, they're going to be
14 generating a revenue on EV sales. And so therefore if
15 90 percent of their revenues are coming from home use,
16 in some respects, if somebody were to do the analysis
17 it might be possible that the additional revenue from
18 the home charging would offset the costs for the level
19 2.

20 The information I've heard is that the
21 level 3, I've heard numbers from \$100,000 a unit, to
22 \$50,000 a unit, to \$20,000. I've also heard we'll
23 wait for the next generation to come out. So, we're
24 talking about 2018 today, there is only about two or
25 three percent of the cars in B.C. that are EVs today,
26 I don't know when the next change is going to take

1 place.

2 **Proceeding Time 7:08 p.m. T14**

3 I don't know when the next technology is going to take
4 place, but it's going to happen. Because we're not
5 the only jurisdiction that's working on this right
6 now. Every other jurisdiction in the world is working
7 on it, to try to make the business model work. And as
8 I say, we're unique, because we have some of the
9 lowest electricity rates on the planet. And you know,
10 I've heard some other places, like there's 30 cents a
11 kilowatt hour, 40 cents a kilowatt hour. So we're in
12 a very unique situation.

13 I do not know if FortisBC's profit
14 statements or financial analysis, the same with the BC
15 Hydro, but if you -- one of the numbers I worked out
16 is that if every car in the province were to convert
17 to electricity, it would be about \$1.6 billion
18 additional revenue to BC Hydro above what they are
19 getting today. That's my number. I don't know what
20 their number is. And that's basically general, you
21 know, driving right now.

22 THE CHAIRPERSON: Thank you.

23 MR. BARWIN: Okay, thank you.

24 THE CHAIRPERSON: Is there anyone else that has a
25 comment?

26 **PRESENTATION BY MR. MACKENZIE:**

1 MR. MACKENZIE: Hi. Bruce Mackenzie, again. I spoke
2 this afternoon. I just had a couple more points to
3 throw in.

4 One was the kilowatt meter which I
5 mentioned, one of the engineers here said that he
6 hadn't seen one, didn't know about it. So this is
7 what it is. I can pass it around. It's \$35.

8 THE CHAIRPERSON: You can explain it to people a little
9 first, but yeah.

10 MR. MACKENZIE: Pardon me?

11 COMMISSIONER HAROWITZ: There's some people who weren't
12 here this afternoon so --

13 MR. MACKENZIE: Oh, okay. Sure. My name is Bruce
14 Mackenzie, again, and I'm here mainly with interest in
15 strata, condominium -- electric vehicle charging in
16 stratas and condominiums.

17 One of the things that I mentioned is that
18 in a very easy way for -- to get a strata started with
19 electric vehicle charging is by just plugging into
20 110. As a couple people here have mentioned already,
21 One of the questions is how the strata can charge for
22 that electricity. And so this little thing here
23 that's \$40, I can give you -- I'll give you the e-mail
24 -- or the URL to order one. You just plug it in and
25 it measures several factors, like voltage, hertz and
26 even power factor of the power coming through it.

1 So it's a very easy way for a strata to
2 record how much electricity is going into an electric
3 vehicle if they choose to do it in an informal kind of
4 way.

5 THE CHAIRPERSON: Is the purpose built for electric
6 vehicle market, or did it pre-exist?

7 MR. MACKENZIE: No, it's been around for years. It just
8 measures whatever is going through at 110 volt.

9 COMMISSIONER HAROWITZ: Now, may I ask --

10 MR. MACKENZIE: Yeah.

11 COMMISSIONER HAROWITZ: Measurement Canada says there's
12 a problem, that they don't have the certification yet
13 on anything that would be a recharging station. Does
14 that have any certification on it of any kind that
15 speaks to its reliability or accuracy?

16 MR. MACKENZIE: It's a US Underwriters Lab Approved for
17 Safety. But they claim that it's within .2 percent
18 accurate. But --

19 COMMISSIONER HAROWITZ: But it's a manufacturer's claim?

20 MR. MACKENZIE: Yes.

21 COMMISSIONER HAROWITZ: Okay, thank you.

22 MR. MACKENZIE: Yeah. But I don't think anyone would
23 really care if it was 1 percent off.

24 COMMISSIONER HAROWITZ: No, no. I'm just --

25 MR. MACKENZIE: But fair enough, that's a good question.
26 The other thing that was just mentioned is

1 the drop-in -- is the idea of at your home you've
2 managed to reduce your electricity use by reinsulating
3 the ceiling. That's happening in strata buildings as
4 well. Both of the strata's I've been involved with
5 have converted exterior lights to LED, converting
6 interior lights to LED. So when I was talking this
7 afternoon about existing strata buildings, I think
8 it's important to think that the efficiency measures
9 that are being brought in are going to reduce the
10 ongoing, the standard load in the building which
11 should free up some extra for the chargers.

12 The building I'm in now, we've reduced
13 about somewhere around 6 kilowatts of constant demand
14 just by replacing all of our compact fluorescent bulbs
15 with LED bulbs. There's also -- we've been making big
16 changes with other heating and such too. So it's not
17 that difficult to do.

18 I think another question is the idea of if
19 a strata starts with 110 volt, what will it do as they
20 get more need -- more users.

21 **Proceeding Time 7:13 p.m. T35**

22 So the easy way of course -- and thinking
23 in terms again about reducing the capital cost in a
24 strata so that you don't have to be -- just makes it
25 easier to keep going, is just add more 110 volt
26 outlets and then maybe put one or two Level 2 charging

1 stations in with some kind of a swipe key so that the
2 users who occasionally need a refill can use that --
3 those one or two stations if they're going to go on a
4 long trip or something on a particular day.

5 The one last thing I want to add is I am a
6 member at Modo and I've been using the Modo Kia Soul
7 to go to Duncan and back. I make that trip always
8 every week. And the Moto instructions for that
9 vehicle say do not use for out of town trips, but I
10 find it works fine. It's got 130 kilometres of range
11 when I get in in the morning. And driving to Duncan
12 and back stretches it a bit on the Malahat, but if I
13 plug it in for a few hours in Duncan just on 110, it
14 works great.

15 So that -- I'll leave it at that. Thank
16 you.

17 THE CHAIRPERSON: Thank you, sir.

18 Is there anyone else that would like to
19 speak?

20 MR. KARLEN: Eric Karlen with Greetlots. For the benefit
21 of the room I was here earlier today also and just
22 wanted to add a few more comments based on what I've
23 heard here at the rest of the session earlier today
24 and the comments from everyone thus far.

25 This is today's newspaper, *Province*, and
26 right here in the middle is an article, "Utilities,

1 SUVS set to shock the market. Five coming soon models
2 are getting the buying public charged up." A lot of
3 the commentaries we heard from earlier today were
4 making the point that a lot of the EVs out there,
5 Leafs and such, they're very light duty vehicles. And
6 one of the needs for B.C. in particular is vehicles
7 with greater capabilities along these lines. They're
8 coming. These are all 2019 model year ones that
9 should be available to consumers very, very shortly.

10 So the extent to which that already are
11 constraints on the infrastructure that's deployed out
12 there, all the factors that compound to bad
13 reliability, the issues that we've heard some pretty
14 compelling anecdotes about today, that's just going to
15 exacerbate for the next few years. It's going to get
16 more and more challenged. I mean the extent to which
17 I think we could characterize a lot of these, a lot of
18 people, some of the anecdotes you're heard in this
19 room, they would probably call them early adopters.
20 These issues are not issues that the mass market, the
21 broader market is going to tolerate. Going to a gas
22 station and not having the pump work is not something
23 that a normal person would normally be okay with,
24 especially if you're trying to get them to purchase
25 vehicles that already cost more.

26 So I think those are some important things

1 to consider with what this Commission decides to do.
2 I'd also just add that you've asked a lot of people
3 about rates and cross-subsidization, and subsidization
4 and how you guys should consider that. I think it's
5 very important to consider that whatever rates that
6 you decide to impose, that they consider broader
7 public policy goals in addition to just dollars and
8 cents, and whether or not it's being paid for. That's
9 obviously, you know, the mandate of this Commission,
10 to make sure costs are just and reasonable and such,
11 but the extent to which they are important provincial
12 goals, federal goals with climate change emissions,
13 these are very important things for the rates to take
14 into effect and the extent to which, you know,
15 transportational edification as one of the biggest
16 pieces in, you know, the carbon wedge to get to those
17 goals supporting drivers and their, you know,
18 purchasing decisions is important to do that. It's
19 also, you know -- in line with that I would add that
20 making sure rates are comparable or at parity with
21 gasoline fueling, that that is, for example, something
22 that would be in line with public policy goals.

23 I'll leave it at that, in addition to my
24 comments from earlier. And, yeah, any questions yet?

25 THE CHAIRPERSON: Yeah, I do have, please. Your
26 organization provides EV charging -- manufactures EV

1 charging infrastructure, is that correct?

2 MR. KARLEN: We do not manufacture it, no. We provide EV
3 charging software and services, so we provide a
4 turnkey solution and that, you know, one of the things
5 we currently provide for BC Hydro, yeah.

6 THE CHAIRPERSON: Okay. Right, and that was my next
7 question, so you generally provide that to utilities
8 or at least in British Columbia you provide it to BC
9 Hydro, is that correct?

10 MR. KARLEN: Yeah.

11 **Proceeding Time 7:18 p.m. T16**

12 THE CHAIRPERSON: So earlier tonight we heard at least
13 one speaker urge that EV charging infrastructure
14 should be developed in a place where there's other
15 services and compared that to gas stations. So I'm
16 wondering, is there any interest -- have you found any
17 interest in gas stations, like in companies that
18 operate gas stations, in providing EV infrastructure
19 at their gas station? Like it would seem to me that
20 that may be a natural place to put EV charging
21 stations.

22 MR. KARLEN: Absolutely, and I'd agree with, you know,
23 the gentleman from Tesla mentioned this as well. It's
24 very important to co-locate chargers with things that
25 people need and care about. So individuals can use
26 the bathroom. I mean, these are important things. If

1 you are going to sit and charge the car or vehicle for
2 30 minutes and there's nowhere to use the bathroom,
3 that's obviously an issue.

4 And that's just for DC fast charging. If
5 it's longer charging it should also be co-located.
6 And all the constraint that I spoke about earlier was
7 actually economics and -- for this gas station model.
8 That extends also to level 2 charging in
9 municipalities. When you want to put an L2 charger
10 next to -- in parking spots, the economics there are
11 similarly constrained, and I think the -- you've heard
12 about how the private market is largely failing to
13 deliver on current EV drivers' needs, let alone future
14 EV drivers that are coming.

15 It's a pretty compelling case for why
16 utilities need to have a strong role in developing
17 this infrastructure, and also just to make sure that
18 the infrastructure that is deployed is reliable to a
19 level at which can satisfy driver's needs which
20 currently it's not.

21 THE CHAIRPERSON: So is it fair to say that -- I have
22 not heard that there are any gas stations in British
23 Columbia that have any charging available, other than
24 maybe the ability to plug into an outdoor -- you know,
25 a regular 120 volt outlet. But there's certainly no
26 fast charging available at any gas stations in British

1 Columbia. Is that true to the best of your knowledge?

2 MR. KARLEN: I can't speak to that right off the top of
3 my head, but the extent to which those are not co-
4 located, it seems that if I was a gas station owner, I
5 would be wanting to have more reasons for people to
6 come and use my facilities, and the extent to which
7 margins are thin on gas itself, that we heard about.

8 THE CHAIRPERSON: Do you work with any gas stations
9 then, to provide charging infrastructure, or is that
10 something that --

11 MR. KARLEN: Have we ever had a site host that is a gas
12 station? I can't answer that at the top of my head.
13 I would like to yes, there is probably is, but --

14 THE CHAIRPERSON: But it sounds like it may be rare
15 though, if that was the case.

16 MR. KARLEN: I think it's a fair statement.

17 THE CHAIRPERSON: Okay, thank you.

18 MR. KARLEN: Yeah, thank you.

19 THE CHAIRPERSON: Thank you, sir.

20 If there is no one else that has any
21 comments?

22 So I would like to thank everyone for
23 coming and we certainly appreciate your interest in
24 this topic and your interest in our inquiry and we
25 appreciate you coming out tonight and sharing your
26 thoughts. The panel will consider everything we've

1 heard tonight and at all the other sessions that we've
2 been to and we will be considering all of that
3 information when we publish a report a little later
4 this year.

5 So I wish you all a good evening and have a
6 safe drive home, whether it's an electric vehicle
7 drive or not. Thank you.

8 **(PROCEEDINGS ADJOURNED AT 7:09 P.M.)**

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I HEREBY CERTIFY THAT THE FORGOING
is a true and accurate transcript
of the proceedings herein, to the
best of my skill and ability.



A.B. Lanigan, Court Reporter

April 10th, 2018