MANITOBA CLEAN ENVIRONMENT COMMISSION

MANITOBA-MINNESOTA TRANSMISSION PROJECT

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* *

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CLEAN ENVIRONMENT COMMISSION
Serge Scrafield - Chairman
Laurie Streich - Commissioner
Reg Nepinak - Commissioner
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Glen Penner
Shane Mailey
Jennifer Moroz

PARTICIPANTS

CONSUMERS ASSOCIATION OF CANADA (Manitoba chapter)
Gloria DeSorcy - Executive Director
Joelle Pastora Sala - Counsel
Max Griffin-Rill

SOUTHERN CHIEFS' ORGANIZATION
James Beddome - Counsel
Grand Chief Daniels

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Wade Sutherland
Den Valdron - Counsel

MANITOBA METIS FEDERATION
Jason Madden - Counsel
Megan Strachan
Marci Riel

MANITOBA WILDLANDS
Gaile Whelan Enns

PARTICIPANTS

SOUTHEAST STAKEHOLDERS COALITION
Kevin Toyne - Counsel
Monique Bedard
Jim Teleglow

DAKOTA PLAINS WAHPETON OYATE
Warren Mills
John Stockwell
Craig Blacksmith

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NO UNDERTAKINGS

SATURDAY, MAY 27, 2017
UPON COMMENCING AT 9:30 A.M.

THE CHAIRMAN: Good morning, everybody, and welcome to the Clean Environment Commission hearings, or continuation of the hearings into the Manitoba-Minnesota Transmission Project.

I did say a few words to give a little background of what we are doing on Thursday. I will try and shorten it up a little bit today and talk a little bit for those who weren't here Thursday.

So, back in December of 2015, the Minister appointed the Clean Environment Commission, which is an independent body set up by the Minister through Order-in-Council. It is an organization that's been around for -- in this form, since the late '80s, early '90s, so -- 25 years or more.

The Minister asked us to review this project, review Hydro's environmental impact statement connected with the project, and to make recommendations back to the Minister. There was a slight upgrade or revision to those terms of

reference in January of this year, and so we'll now -- so we have now begun reviewing the Hydro environmental impact statement, and we've also had three weeks of hearings, and this, Thursday and today, are the continuation of those hearings.

It was also very important for us to be sure we heard from the people who live in this part of the project area. The project, as you know, does circle about halfway around Winnipeg, and then heads east and then southeast towards Minnesota. So we had given an opportunity for people in the Winnipeg area to speak, and we thought it important to come here and hear from people in this area as well.

And we did hear some interesting and thoughtful things on Thursday night, and we are hoping to hear the same today. If you've registered to speak, that's great; if you would like to speak, you could just leave your name with Cheyenne Halcrow at the back table.

Before we start, I will ask our Commissioners to introduce themselves, for those of you who weren't here Thursday. My name is Serge Scrafield, and I'm the Chair of the Clean Environment Commission.

MR. NEPINAK: I'm Reg Nepinak.

MR. GILLIES: Ian Gillies.

MS. STREICH: Laurie Streich.

THE CHAIRMAN: We also have Cathy Johnson, who is secretary, and Mike Green, who gives us legal advice; Bob Armstrong, who will help us write the report, and then we also have a person in charge of the sound system, and of course, most important of all, someone who is recording and produces a daily transcription of all the proceedings.

So just by way of information, everything that is said today is -- becomes part of the record, and that day-to-day record is available on our website, and you can view it there, along with many of the documents that have been submitted. All of them are not up yet, and it will take time to get some of them; we have many, many documents. But eventually they will all be up there for anyone to look at, including what we receive today.

The other thing I should mention, for those of you today who don't want to make an oral statement, you can submit a written statement to us. And that is given equal weight, so it will be

reviewed -- read and reviewed by all four of us and will be considered in reaching the recommendations that we have to make to the Minister. So we would encourage you to do that.

Even if you make an oral presentation, it is still helpful if you submit something in writing. If you prefer to do it in writing, that's fine. If you know of other people who aren't here but would like their views to be known and heard, by all means encourage them to do so, in writing, to us, and that can be submitted -- well, by the old-fashioned way, by letter, if you prefer, or it will also be submitted through our website and by email.

All right. I don't think that I will spend much more time on the background. We have a list of three or four presenters so far today. I think we'll start with Ms. Bedard, because she is all ready to go; is that right?

Why don't we start with you. We have a person with a long background in electromagnetic fields, and Hydro -- it is my understanding that Hydro may offer to have that person say a few words to -- on that topic. So the next speaker, we will decide that after we hear from Ms. Bedard,

who is all set up.

Do we have the video working?

I should have mentioned, but everyone will have to affirm at the start, so Cathy will do that.

(Albert Bedard and Monique Bedard sworn)

THE CHAIRMAN: All right. It is all yours.

MR. BEDARD: Dear members of the Clean Environment Commission, let me introduce myself. My name is Albert Bedard, and I'm speaking on behalf of myself and my wife Monique.

We reside in the RM of Ste. Anne, one mile north of the town of La Broquerie. We will be making two parts in our presentation: First the technical part, and then the story of us, of our little paradise.

As affected landowners, we are concerned with the close proximity of the MMTP to our residence. As you already know, this Hydro line that is proposed and preferred by Manitoba Hydro is scheduled to pass on rural residences, farms, and properties in and around the town of La Broquerie.

Allow me to tell you a bit of our

story. We have built a one-storey home in 2012 on an 80-acre parcel that we plan on living in until our retirement age. Our home will be within 500 feet of the MMTP preferred route.

When we attended the open houses held in La Broquerie by Manitoba Hydro in February of 2015, we had really hoped that Manitoba Hydro would have selected the route more to the east, avoiding the towns of La Broquerie and Marchand.

Upon viewing the maps and satellite imagines at the open houses in Round 2, my wife and I noticed something peculiar in regard to the proposed route that was planned to go across our property: Our home was not included in these maps, and on satellite images. Even now, with Round 3 over, and the final route preferred by Manitoba Hydro, our home is still not on their maps.

We had examined this on the Manitoba Hydro website, and this is the picture that is on the screen at the present time.

I truly believe that the satellite images are terribly outdated, probably dating back to 2010. And this is unacceptable. The images should be up to date. This misleads people into

thinking that there is nothing there but trees.

We have printed some Google Earth images for you, showing the actual yard site that was completed in 2012. There is three pictures.

MS. BEDARD: I just wanted to zoom out to show you that it was really our place. If I had taken it like this, you might not have known that it was our house.

MR. BEDARD: The line is proposed to pass us on that westerly edge that you see. It is a small tree line; that's where it is scheduled to pass.

MS. BEDARD: Right here.

MR. BEDARD: Our major main concern is the close proximity of the Hydro line to our house.

That would be on Image 5.

160 metres, according to the image that we took off of the Manitoba Hydro website. Of course, you can't actually see our home, because the inaccuracy of the images, but we have put an arrow where the house actually is now.

MS. BEDARD: Right here.

MR. BEDARD: We feel this is much too close, and would pose risks to our health.

In Image 6, this shows the distance of the line to our garden, which is 99 metres. We are not experts, but we think that the risk of EMF exposure in our fruit and vegetables is highly probable at this distance.

Upon further examination of the Manitoba Hydro website, we discovered other properties with houses or barns in our area that are not shown on the images. This is giving false information to the viewer, being again unacceptable.

Another one of our main concerns about this power line placement is its close proximity to our community, being near homes, schools, farms, and businesses in and around La Broquerie.

Even though claims of EMFs not being harmful or having potential health hazards, we believe there is still the fear of the unknown long-term effects of living too close to these lines. Are we to find out in years to come that because of exposure, people will have side effects and health issues?

We do realize that every day -- that every living organism doesn't have the same reaction to its environment. But are we willing

to take that chance? We rather would not. Many people are afraid; they fear the unknown. Fear creates stress, and stress leads to health issues. We don't want or need the stress.

And now the personal side of our story. We have a large garden where we grow our own vegetable -- sorry. Excuse me.

Our little paradise. In order to understand the intensity of the love we have for our home and land, you must know our story. My parents first bought the property in 1949. They lived there for five years, and then moved to town because my oldest sister was to start school, and there was no bus transportation at the time.

But they still kept the farmland to raise cattle and seed crops. From when I was a little boy of about nine years old to the age of 18, I worked on the property I now call home. It is something I'll never forget. I'll always be a farmer at heart. My father and I used to bale hay and take care of the animals together on the 80-acre parcel we now own.

Many good memories come to mind when I look out in the field, and many things remind me of my youth. The land becomes part of your soul.

I had always wanted to buy this land from my parents and raise our family, but my father was never ready to sell.

So we patiently waited. We would take our family out to the farm for picnics, in the meantime, and waited for the day when we could own the property. We waited over 30 years before my father was ready to sell it to us.

We bought it in 2009. My wife and I were ecstatic. We could finally build our home and live on what we called our little paradise. We sold the house we were living in at the time, carefully chose what we were going to build, and created our own house plans.

Since our intention was to live here well into our golden years, we would build a one-storey home, with wrap-around porch to accommodate a wheelchair if ever needed.

I started building our home with my best friend in the spring of 2011. It took a whole year to build. I put a lot of time and effort into building the right home for my wife and I. It was a labour of love.

Now having -- living here for the past five years, we have come to appreciate and love

our little paradise that much more. We sit on our porch and hear the water flow in the creek just in front of our home. We see the wildlife all around us and find that we are very fortunate to live in such a beautiful place. It is something that is priceless; you just can't put a price on something like that.

We have a large garden where we grow our own vegetables and fruit, organically, and are very proud of the fact that we have always been organic. In this day and age, where living healthy is of utmost concern, we do our best to live in a healthy environment. That includes eating fresh fruits and vegetables that we grow ourselves, and being at peace in a beautiful setting.

Another thing we do to stay healthy is take walks down our mile road every day. If the line is to be built, we would be exposed to EMFs every time we walk under it. We will also be exposed every day as we drive in and out of our property. Over the course of many years, we believe this could be dangerous to our health.

MS. BEDARD: If you look at Slide 7 here, this is our driveway coming out. I don't

know why I couldn't print the whole line here; I tried to, and I couldn't.

It goes right through here. This is our mile road, where we take our walks. And this is our driveway. So we would be coming out here, and driving under it all the time, and walking under it.

MR. BEDARD: The love we have for our home and land is immeasurable, and we are saddened by the prospect of having towers and power lines staring us in the face every time we will be outside on our property. We just can't imagine how it will ruin our landscape.

One of our favorite things is to have bonfires in the back of our property and watch the sun set. How can we enjoy that if we would be staring at power lines and towers?

We would like to conclude by saying that life is full of wonderful things. We lead our busy lives, we work hard every day, only to want to come home at the end of the day to a safe and happy environment. To feel at home, to enjoy what is good in life, like sitting on our front porch and appreciating the view, this is what we strive for, live for, and we want to keep our

little paradise just as it is.

Thank you to the Clean Environment Commission for selecting La Broquerie for public sessions, and thank you for taking the time to listen to our personal stories and hearing our concerns.

THE CHAIRMAN: Did you have a video as well?

MS. BEDARD: Yes. Yes.

THE CHAIRMAN: Are you able to show it by --

MS. BEDARD: Yes. My husband can hold it. I'm not sure if we are going to hear sound, but we will try.

THE CHAIRMAN: I was going to suggest, if you can get it going at some point horizontally today, we can watch it later. Or you can send it to us as well, so that we can watch it after.

MS. BEDARD: I can give you the USB.

(Video playing.)

MS. BEDARD: I will start the other one.

That's the wrap-around porch that I was talking about.

This is our front view. We can't see

our neighbours at all.

That's the creek. You can't see the creek, but that's where it is.

This is our garden, where the line will pass, it would be along this stretch here. And if you look at the map, these trees will be gone.

So that's our shelterbelt from the west side.

Our garden is right here. And this is where they want to pass the line, where that tree line is there. All these trees will be gone if they pass the line.

And that's it.

THE CHAIRMAN: Thank you very much for that, and you've got a very steady hand holding that. I think if I held it, I would have trouble keeping it on the screen there, but that's -- all right.

Are there any questions for clarification from the panel? I should -- and I did mention this on Thursday: We don't ask private citizens who are making presentations to be subject to the same kind of cross-examining that we do for some of the other people who have

been testifying, but we do ask questions, just to clarify, to be sure we understood, if we have any.

So... anyone got questions?

I just had one or two about the video. I don't think you've got to put it back on.

So when we are looking at the garden, the one where you are looking at the garden, you pointed to the trees at the end of it. Which direction are we looking at?

MS. BEDARD: West.

THE CHAIRMAN: And when you go to field beside the garden, that's looking in which direction?

MR. BEDARD: That's looking north.

THE CHAIRMAN: That's looking north; okay. So I have got it. So your driveway actually turns on the way out; right?

MR. BEDARD: Um-hum.

THE CHAIRMAN: I was turned around about 90 degrees there, but now I have got it. Okay.

So looking north, and the line at that point would be coming from north to south?

MS. BEDARD: Correct.

THE CHAIRMAN: Then I've got it. No

other questions. That was a very helpful presentation, very thoughtful, obviously, and the video really put a perspective on it.

So thank you very much for that, and we will take that and all of the other presentations that we hear into consideration. So thank you.

MS. BEDARD: Thank you.

THE CHAIRMAN: My fellow panelist, on the left here, was again straightening out my sense of direction, so I think I do have it now.

All right. Before we go to the next presentation, I would first of all like to ask Hydro whether -- do they have a preference when they would like to have Mr. Bailey talk about the electromagnetic fields? No preference?

Okay, then I think we will go ahead with our next presenter, if that's acceptable with everyone, and that would be Catharina Kanellis.

MS. KANELLIS: Can you hear me now?

THE CHAIRMAN: Now we can, yes. It is unfortunate, but you do have to speak fairly close to these mics. They are going to ask you to affirm before you start, so Cathy will do that.

(Catharina Kanellis sworn)

THE CHAIRMAN: It is all yours.

MS. KANELLIS: Thank you. That was a very good presentation my stakeholder partner presented. I didn't realize that we could do photographs and stuff like that, so -- fortunately, I have a few on my phone, if that's possible to show you. My presentation isn't very long.

My name is Catharina Kanellis; you can call me Kitty. I represent a family of seven. We live in the RM of Springfield, at 37070 Centre Line Road, on the northwest section of 17-10-7 East, approximately three miles southeast of the town of Anola.

From the Mission corridor, the proposed MMTP turns south, crossing municipal land first before crossing over our land, dividing it into two sections. In Round 1, it continued south, crossing over the Winnipeg Water District right-of-way and following the Eastdale Road. The trouble was, the line was almost on top of several homes along that route.

On the aerial map that Manitoba Hydro provided, our house was visible. However, the newer homes along Eastdale were not indicated.

One of those houses was built about 15 years previous.

At the time of those early meetings, the same question kept coming to mind: In this day and age of Google maps and GPS and the like, how come or why was Manitoba Hydro using outdated maps? What was their methodology? It made absolutely no sense. And from what I hear they are still doing the same thing. Why?

I know if -- I know if Manitoba Hydro were to -- let me see.

I know if Manitoba Hydro hired me to create a route, one of the first things I would do is get a current map. Makes sense.

In Round 2, Manitoba Hydro solved the problem by using two corner towers, with a tower in between, on less than a quarter-mile stretch of our land, going from west to east along the Winnipeg Water District right-of-way. This now has us surrounded on two sides, west and south.

At least they moved the lines further away from my neighbours on Eastdale Road. However, my house faces west. Each evening we enjoy phenomenal sunsets. In front of that sunset is a tamarack forest, a bog forest, and it is just

breathtaking. A couple of weeks ago, we had a sunrise rainbow so big I couldn't catch it on one shot of my camera. All this will be marred by the lines.

I'm sorry, but it begs the question on what criteria or methodology were the route decisions made? The idea of having such enormous towers, lines, and power running along two sides of our property boggles my mind.

The line that runs from the north to the south crosses through bogland. It is dressed in reeds and bulrushes, black spruce, and tamarack, willow, and popular. It is home to a wide variety of birds and animals, plants and herbs.

We live in the Cooks Creek Conservation District. At one time, Edie Creek ran through our land. Before our time, it was diverted, and runs east to west along Centre Line Road on the north side of our property, and that's where our driveway is.

About a mile and a half northeast of us, as the crow flies, it flows into a sizeable wetland and large pond that is a nesting ground for waterfowl, as well as a spring and fall

resting place for migrating birds.

The land is owned by Win-Toba Kennels. They are affiliated with Ducks Unlimited, and over the years together, they have created this area and continue to develop it.

I'm greatly concerned that the contractors Manitoba Hydro hires to keep the brush under control will use herbicide in sensitive areas. I know people who live along the Mission corridor; they are on a no-herbicide list. If they are not at home when these contractors show up, they do use herbicides instead of cutting the brush.

If I should be not at home one day when they show up, it seems to me that Manitoba Hydro has no control over the contractors they hire. Their guarantee to us that no herbicides will be used under the lines cannot be kept and cannot be trusted.

The herbicide is used -- if the herbicide is used on our land, the bog drains into the creek, and the creek flows into the protected wetlands managed by Win-Toba Kennels, and from there it continues on.

I'm deeply concerned about all of the

above issues.

We do not use allopathic medicine. We use the herbs that grow naturally wild in the field and/or in our garden. My husband is a Type 2 diabetic, and he only uses herbs to control his illness. Using herbicides on the proposed Hydro corridor could drift and compromise his health, as well as other members of our family. We grow organically. This too could be compromised.

I'm deeply concerned about all of the above issues, living things, for my family, my neighbours, my fellow stakeholders, and for myself. The sentiments expressed by Albert and Monique, I can relate to those.

Thank you for your time and for your patience.

THE CHAIRMAN: Thank you very much. We will see if there is any questions -- these are just questions for clarification. That was a very -- again, a very personal and very well put-together presentation, so thank you.

Any questions from the panel?

MR. GILLIES: I have one. Are you -- it is Ian Gillies here.

Is your residence on the southern loop portion of the Hydro transmission line, or is it on the portion that comes down from the southern loop?

MS. KANELLIS: We are the first property -- privately-owned property that the Hydro line comes across when it turns off of the mission corridor.

THE CHAIRMAN: Between us, we have a question, but it might involve using the map, which is a long ways away.

But are you close to the corner where -- if I understood right from the last question, you are close to the corner where the line turns south?

MS. KANELLIS: Yes, the Mission corridor, the line turns south.

THE CHAIRMAN: Right.

MS. KANELLIS: Winnipeg Water District line, in order to avoid the houses along Eastdale, they had to turn it. It hits the District line, and then it follows along the District line.

THE CHAIRMAN: Okay. So --

MS. KANELLIS: So we have that approximately -- it is less than a quarter mile,

with two huge corner towers.

THE CHAIRMAN: Oh, so that's what you meant when you said --

MS. KANELLIS: Tower in the centre. And then it crosses the right-of-way, and it avoids the houses along Eastdale -- not by far, but by enough.

THE CHAIRMAN: And the line where it turns, there, is on a bit of a diagonal?

MS. KANELLIS: I think so, yes. Yes, because it follows -- yeah, it follows that corridor, and it runs at an angle.

THE CHAIRMAN: Okay. Good. I think now we have it positioned right. For some reason, originally, when you were talking about it, I thought you were further north, but now I see where it is, so -- okay.

MS. KANELLIS: And like the Bedards, we have windows facing west, and we have windows facing south. And they are ceiling-to-floor windows. And we would be sitting in our living room, in our dining room, and we would have that line all around us in our view.

THE CHAIRMAN: Okay. So you are on the -- sort of north and east, then, of that

corner, and therefore you will see them both looking west and south?

MS. KANELLIS: That's right, yes.

THE CHAIRMAN: Good. Now I think -- we wanted to be sure we knew where you were.

MS. KANELLIS: It would help if I was better prepared.

THE CHAIRMAN: This is very helpful, so thank you very much.

MS. KANELLIS: Thank you.

THE CHAIRMAN: Any other questions? Okay. Thanks.

Oh, sorry, we do have one more.

MS. STREICH: Laurie Streich here. I am a little late in getting the question out.

You had mentioned early in the presentation that the line, I guess in Round 1, was cutting -- bisecting your property --

MS. KANELLIS: Yes.

MS. STREICH: -- and then in Round 2 --

MS. KANELLIS: It still does.

MS. STREICH: Okay, so it does.

MS. KANELLIS: Yes. That line -- that dissection is still there. It is just that it

couldn't continue south because it was going over too many houses on Eastdale, so then they ran it along the south side of our property instead, to make that adjustment, having to use those two big corner towers and one in the middle.

MS. STREICH: Okay. So the first did not have the corner towers?

MS. KANELLIS: No. It just went straight across.

MS. STREICH: One other question, for clarification: The wetland that you mentioned, whereabouts is that in relation to your property?

MS. KANELLIS: So when the -- the Hydro corridor that runs north to south, it cuts to the front of that. So the pastureland is to the east, and the wetland is to the west.

MS. STREICH: Okay. So it cuts in between those two things?

MS. KANELLIS: Yes. Actually, it runs through the front of the bog, so it will take down a lot of the trees.

MS. STREICH: Okay. Thank you.

THE CHAIRMAN: Thanks once again for a helpful presentation and for putting up with our questions. I think now we understand where your

house is and where the bog is, so -- thank you.

Is there anyone else who would like to make a presentation this morning? We do have one or two for this afternoon, but is there anyone else? All right.

Would Manitoba Hydro like to do at this point the short presentation on the electromagnetic fields? Does that make sense? Okay.

(RECESS TAKEN)

THE CHAIRMAN: All right. If you can take your seats, we are ready to go. All right. Thank you. So Mr. Bailey is going to give us a presentation on the electromagnetic fields -- I think I'm getting that right now -- and so we will turn it over to you.

And it's my understanding that he will be available after his presentation in the room at the back, or wherever, for those who would like to follow up with questions. So you are more than welcome to do that, and take advantage of the fact we have someone who understands the field, if you will pardon that expression. So we will start with the presentation.

Go ahead.

MR. BAILEY: Thank you, sir. Thank you also for holding the meeting here, so I get to see a different part of the province and this beautiful town and surrounding area.

My name is William Bailey. I have been involved in the field of bioelectromagnetics for over 30 years. Basically that involves looking at interactions between electromagnetic fields at different frequencies, and their potential effects on the environment or people or animals.

I trained at Dartmouth College, the University of Chicago, and the City University of New York. Following that, I took two years of additional training in neurochemistry under a fellowship from the National Institute of Health in the U.S., continued on as an assistant professor of neurochemistry at the Rockefeller University, and then headed the laboratory of neuropharmacology and environmental toxicology for the New York State Institute for Basic Research.

Throughout my career, I have been involved in looking at these kinds of interactions for fields, and here, in this project, I'm serving as a technical resource to Hydro to provide

calculations of the electric and magnetic fields associated with the proposed project and the existing power lines on the right-of-way, and also to update everyone on the status of research on electrical and magnetic fields.

Next slide.

So here is the topics I'm going to cover. What are EMFs, magnetic field sources and levels, research on magnetic fields, what are the views of health and scientific agencies on this area of research. Some recent international developments. We talked -- mentioned, what are the guidelines for human exposure to fields. Research on livestock, wildlife, and crops. Electrical devices. And finally, what are the fields associated with the proposed MMTP project.

Next slide.

So, what are EMFs?

Next.

Well, EMFs are really one of the four fundamental forces of nature. We see here these forces, these nuclear strong and weak forces that are essentially what holds atoms together. And we have gravity, and then we have electromagnetic fields.

Next slide.

Now the distinguishing characteristic of electromagnetic fields is that they are all different, based upon the frequency of the fields. So we have the spectrum here, that starts out with DC, or direct current, which the field is constant in direction and doesn't change. So that's like the geomagnetic field of the earth that causes the compass to point north.

And then you start having fields that oscillate, where they change their intensity and direction 60 times a second, and that is everything that's connected to our electrical system.

And then you go to still higher frequencies. You have frequencies in which the field oscillates millions or billions of times per second, in the AM radio/cellular phones areas.

And if you still go up on higher frequency, you eventually get to the wavelengths and frequencies of visible light. We have evolved, as many other animals have, to develop sensory receptors that are uniquely able to detect electromagnetic fields in the range of visible light.

If you go to still higher frequencies up here, you get to fields where the frequencies are so high and the energies are so important, are so intense, that they have the capability of breaking chemical bonds. And these are X-rays and gamma rays that are used in cancer treatment.

Next slide.

We have two types of fields that are associated with our electrical system, and there are electric fields and there are magnetic fields. Now, when you talk about fields at higher frequencies, like invisible light, electric and magnetic fields are coupled together. So if you measure the electric field, you can also know what the magnetic field is, and vice versa. But at these very low frequencies, like the static fields of the earth or our power system, we treat them as two separate forces.

So electric fields arise from electric charges. So everything in our environment has electric charges, and so if I hold something up and look at it, if there is an equal number of positive and negative charges, there is no electric field coming from that. On the other hand, if there is more positive charges than

negative charges, we will have a positive electric field coming from it. We measure these fields in units of volts per metre, or in thousands of volts per metre or kilovolts per metre. The characteristic of these fields, if you are at the source, the fields are highest; and as you move away from the source, the field diminishes quickly in intensity.

And the interesting characteristic of electric fields is that they are easily blocked or shielded by common objects, such as trees, shrubs, fences, or buildings.

Next slide.

Now, magnetic fields are also associated with electricity. And here, the electric fields are -- just the presence of charges creates an electric field. But for a magnetic field to be created, those charges have to move. So the electricity flowing through a wire will create a magnetic field, or in the case of a permanent magnet, it is the spinning of the atoms that cause this current flow and creates a magnetic field from a permanent magnet.

We measure these fields and very weak fields in units of milligauss, and like the

electric field, the strength diminishes as you move away from the source. But magnetic fields, in contrast to electric fields, are not easily shielded by common objects such as trees, shrubs, or walls.

So if I have a compass, and I put it -- measure here, the compass needle will point in a certain direction. I put it inside a block of wood, I put it inside a surrounding block of concrete, the magnetic field of the compass will be unaffected, unless there is some kind of ferromagnetic materials in those materials. So the fields from the earth and fields from power systems are not blocked by ordinary materials.

Next slide.

Let's talk about the sources and levels of fields. I mentioned before, the DC magnetic field or static magnetic field of the earth, and it is caused by circulating currents of basically iron ore, and also iron -- ferromagnetic materials in the earth's crust. And it creates a static magnetic field that's strongest here at the equator -- I'm sorry, weakest at the equator -- about 300 milligauss here, and as you see, more of these magnetic field lines are coming in at each

end of the north and south poles, and so the intensity goes higher, up to about 700 milligauss.

Next slide.

Another place where you run into magnetic fields are in lots of medical diagnostic devices and treatment devices. This is from a magnetic resonance imaging device, and this machine employs a static magnetic field in the range of 15 to 40 million milligauss. It has a gradient magnetic field that at 60 hertz is equivalent to about 479,000 milligauss. And finally, if there is an oscillating radio frequency field, that produces exposures up to 4 watts per kilogram.

Next slide.

Another source that's most common in our environment are the magnetic fields from our power system. And here you can see just a simple diagram where electricity is generated, transmitted over transmission lines, stepped down at substations to lower voltages, and then distributed out over distribution lines, and eventually to our houses. And it is this power coming into our houses that we use to power all of our appliances and our lights in our houses.

Next slide.

I'm often asked, what are the typical levels of magnetic fields associated with our environment? And this slide is sort of complicated, but if you look along here on the bottom, this is the intensity of the field in milligauss, and it goes from a 10th of a milligauss to 10,000 milligauss.

This range of values here are -- in the solid lines -- are common levels, and if you go below and above that, these are less common levels.

So let's start up at the top here. We talk about the fields within homes, and here are some examples. If you are away from appliances, you have fields that might go up to 10 or 20 milligauss. Next to appliances, you can see that the intensity of the fields jumps way up when you are close to them; and then here are the fields from electric blankets.

Then you go to the distribution lines, which run outside of our -- down our streets. And here, at the -- if there is an edge of a right-of-way or roadway, it's typical levels, and within the right-of-way, higher levels here, up to

perhaps 100 milligauss, or maybe less than that.

And then high-voltage transmission lines, again, you have within the right-of-way, closest to the conductors, you have higher range of fields here, from a few dozen to hundreds of milligauss, and lower values at the edge of the right-of-way.

And then in some occupational environments, you can have a higher range of fields.

Now, what is interesting to look at here is you can see that there is a considerable overlap between the field levels here, that we encounter from high-voltage transmission lines, distribution lines, and our electric appliances.

So we have these exposures wherever we go in our environment, in our homes, workplace, and schools, and they occur whether or not we have a high-voltage transmission line in the vicinity.

Next slide.

Just to further illustrate the range of field levels associated with common devices in our homes, here is again distance in feet, here, and this is the strength of the field going in this direction.

So it is immediately apparent that when you are very close to any of these appliances here -- drills, hair dryers -- the field is much higher, and then quickly, as you move away, even a few feet away, the field reduces in intensity much more quickly.

Next slide.

Now, researches on electromagnetic fields has been going on for hundreds of years. The ancient Greeks started looking at electric fields from electric fish as a way of treating patients with various types of diseases. And in the 1800s, there are scientists who were doing experiments to see if electricity might have some therapeutic effects.

But the modern age of research has focused, particularly from the late '60s and the early '70s, on the idea that -- well, you know, are there some effects of our power system that we haven't explored?

Now, to answer questions like this, we look at how science contributes to public health. One way is by conducting research. And so, literally, there have been thousands of research studies looking at potential effects of electric

and magnetic fields on animals and people's health.

Another part of our investigation is to analyze these existing studies. It is very hard to draw conclusions based upon just a few studies, so we look at all of the research, and we evaluate and interpret this data, based upon the weight of the evidence. We judge the quality of these studies, and then we consider, how do they all fit together?

It is kind of like putting a puzzle together and making sure that those puzzle pieces fit in a way that we can understand what the results mean.

And this allows us to characterize potential risk. Now, the one thing that science cannot do is that it cannot guarantee safety, and we cannot prove that something does not exist. What we can do is, through continued experimentation, we can test hypotheses and look at the evidence either supporting or not supporting those hypotheses.

Next slide.

So here are the components of the weight-of-the-evidence reviews that agencies carry

out. And you can see here that it is a systematic evaluation and the entire body of evidence. And the kind of data that we consider are first of all epidemiology studies of people.

So you may have read that the research that's been going on to look to see if there is a relationship between the lower incidence of heart disease in populations living around the Mediterranean -- let's say Italy -- and whether that might be related to their diet. Is it drinking of wine? Is it eating more vegetables, getting more exercise, more sunlight during the year? Lots of different things have been looked at.

So that is what we call an association, statistical association. The question is, what are those components in that environment that are responsible for this lower incidence of heart disease? And these are sort of epidemiology study observations on people in large groups, and trying to draw inferences about their exposures.

Then we have laboratory studies. And these are studies in which animals are brought into experimental conditions, and you can isolate

what the effects of a particular exposure are. And these studies are ideally suited to determining cause-and-effect relationships, and it is these studies that are the basis for determining the safety of almost all of our drugs and medicines.

And then finally, if we have some hypotheses about how a chemical or a physical exposure might interact with the body, then we can look at cells and tissues to try and see if there is a mechanism that might explain how some kind of biological response might occur.

Next slide.

The take-home messages about epidemiology -- and it applies also to the experimental studies -- is that one study is not enough. And I will give you an example, as we go through the presentation later, as to why we don't want to look at just one study. All studies are not created equal; they all have different strengths and weaknesses, and so you want to look at all the evidence.

And a statistical association is not the same thing as causation. Just because there is an association between living in a

Mediterranean country and low heart disease doesn't tell us what that cause is.

Next.

The reviews that have been done on EMF, performed by national and international organizations, consist of large panels of scientists with a balanced composition in terms of -- often different countries, or different backgrounds; they are experts in multiple disciplines. Sometimes there can be anywhere from 10 to 30 different people on these panels. They follow a defined methodology, and their conclusions represent a consensus of the members.

Next.

Here are some of the reviews of EMF and health research that I've indicated here, going from 1998 to 2007. And the U.S. government, the Congress mandated that the National Institute of Environmental Health Sciences conduct an investigation to determine if power lines were -- and appliances were potentially hazardous.

The International Agency for Research in Cancer, I was a member of a scientific review panel assembled by this agency.

We have some others here. In Canada,

we have this organizational I will say a little bit more about, and finally in 2007, the World Health Organization.

Next.

The Federal-Provincial-Territorial Committee in Canada performed a review of epidemiology and laboratory research, and here are their conclusions.

They said adverse effects have not been established. And since there is no conclusive evidence that exposure to EMFs at levels normally found in Canadian living and working environments is harmful, their committee is of the opinion that moderate measures and participation in the process of acquiring new knowledge is sufficient.

Next.

The World Health Organization has conducted one of the most comprehensive reviews and assessment of the research.

And if you could move the slide over just a little bit; for some reason, it is not fully showing up on this -- well, basically, for -- I will sort of -- since we can't read off -- ah, there we go. Thank you.

So what they point out here is that -- they are describing in this part here that there is a statistical association, from the epidemiology studies, between estimated exposure of populations to higher magnetic field levels and childhood leukemia. But because the evidence is limited, and therefore exposure limits based upon epidemiological evidence are not recommended, but some precautionary measures are warranted, and I will talk about that later.

Next slide.

And here what they are saying is implementing very low-cost precautionary measures to reduce exposures is reasonable and warranted.

I mean, the rationale that the WHO is presenting here is not that we have found that there is a problem with our exposures to electric and magnetic fields, but because essentially everyone who uses electricity will have these exposures, and so we want to make absolutely certain that even the smallest possibility of a health risk has not been overlooked.

And they suggested that changes to engineering practice could be considered, provided they yield additional benefits, such as greater

safety, or involve little or no cost; and government/industry should promote research programs to reduce the uncertainty of the scientific evidence on health effects of ELF field exposure.

Next slide.

After the WHO review, there are -- other reviews have been involved. Here are the major ones: The International Commission on Non-Ionizing Radiation Protection, which is affiliated with the World Health Organization, has done their review. The Swedish Radiation Safety Authority has continually published updates over the years. And most recently, the Scientific Committee of the European Commission in 2015 issued their review.

Next slide.

So here is the SCENIRH review, and they covered exposures across the electromagnetic spectrum. Terahertz, radio frequency, intermediate frequency, extremely low frequency fields -- that refers to the 60 hertz fields for a power system -- static magnetic fields, combined effects, and co-exposures to EMF and other exposures. Chemical stressors.

Next slide.

Here are their conclusions. And they talk about the epidemiological studies. They go on and point out that no mechanisms have been identified for this association, there is no support from experimental studies, and that the limitations of the epidemiological studies prevent a causal interpretation of a relationship between higher magnetic fields and childhood leukemia, and that there is not a basis, from existing studies, for relationship between magnetic field exposure and more general symptoms, like headaches and so on. Nor do they provide convincing evidence of increased risk of neurodegenerative diseases, or an effect on reproduction function.

Next.

So these reviews, in some cases, are hundreds of pages long; I think the World Health Organization review is almost 400 pages. So there is a lot to read there, so I've sort of condensed what their conclusions are in these few bullets.

They agree there is little evidence suggesting that EMF is associated with adverse health effects. They believe that there is some epidemiological evidence for a statistical

association of magnetic fields at high average levels with childhood leukemia; we are talking about levels here that might be encountered by only maybe 3 per cent of the population. And they agree that laboratory data do not support a link between EMF and any adverse health effect, including leukemia, or concluded that it is known to cause any disease.

Next.

Briefly, I would like to go over some recent studies in two of the areas that have been the focus of interest in recent years: Epidemiology studies of childhood leukemia, and also neurodegenerative diseases. So, beginning a few years ago, there was a flurry of new epidemiology studies, shown here, from different countries, and we will go through those.

Next slide.

The first is a study called the GEOCAP study, a study done in France.

Let me explain a little bit about the design of the studies that I'm going to talk about. Basically, in what is called a case control study, the investigator will assemble a population of children or adults with some disease

of interest -- in this case it was childhood leukemia -- and they will assemble from the same area a group of children or adults who are from -- same age, same sex, and they want to compare their exposures. And the way they compare the exposures is, what are the odds that a child -- let's say with leukemia -- is exposed compared to the odds of a child without leukemia is exposed.

If their exposures are the same, there is no association. If the children with leukemia tend to have higher exposures, then there is an association, or if they have lower exposures, there is an association.

So what they did is they assembled these thousands of cases of children with leukemia. They selected 30,000 controls. And they went to a database of residences and put in their address. And they looked to see what is the proximity of their birth address to the nearest transmission line with these voltages.

Overall, they did not find that there was a relationship between how far a child lived from a transmission line and whether or not they had childhood leukemia.

Next slide.

Here is a study that was done in Denmark. Same type of design, comparing cases of leukemia to controls. They did a better job of getting these addresses more accurately. Here they are looking at 220, 132 to 400 kV transmission line. Again, they found that children with leukemia were not more likely to live closer to these transmission lines.

Next.

One of the most interesting studies is the study of the -- in the United Kingdom by Bunch and Colleagues. And I'm going to go back a little bit, because in 2005, Richard Draper and his colleagues at the Oxford University did a study in which they looked at the birth addresses of children, with or without leukemia, and distances to overhead transmission lines. What they reported was that there was an association, that children with leukemia appeared to be about twice as likely to live within a few hundred metres of overhead transmission lines than did control children.

They went back and continued their studies for an additional 13 years. They looked at more lines at lower voltages, and they added

data from all of Scotland. So now we have a large number of cases, 53,000 cases, over this period from 1962 to 2008. 66,000 controls. And again, like the previous studies I talked about, they compared the address at birth and distance to overhead transmission lines.

Next.

What they found is that when they looked in the 1960s -- this is the Draper study -- they see this association of children living within 199 metres, children with leukemia are more likely to live within these distances than the control children at greater distances.

And you can see here, the association is -- this is the association for children at 200 to 599 metres, and this is about 1, so this shows that there is no association; and as you go up here, this shows a stronger association.

But when they -- in this recent work, they went back and looked over this whole period, and not just here, they found that the association got weaker, weaker, weaker, weaker, and now the association from the mid-1980s is totally gone.

And the question is, what might account for this? Well, it is not because power

lines or appliances or anything have gotten less common; if anything, they are more common today than they were in the 1960s.

So something else has accounted for this. And what they believe is that there is some sociological or demographic change that might account for this. Other people suggested that it may have been that during this period of time, that there was ionizing radiation coming from nuclear fallout that may have been involved, or that there is a virus that might be circulating in communities that is a cause of cancer in adults and cats and cattle; something like that.

But they report in 2014, and they have had two later studies, to show that this association is not present. And they are even more convinced today that it is not magnetic fields.

Next slide.

Finally, here is a study that was done more recently, in 2016. It was done in California. And these investigators wanted to see if the original 2005 Draper findings could be replicated in California. And they looked at address to birth, address to birth to distance to

overhead transmission lines in this range, from 100 to 500 kilovolts, and they also reported no association between distance of transmission lines and whether or not the child has leukemia.

Next.

Now, we've been talking about these studies that have looked at statistical associations of human populations. I just want to interject here that there has been a lot of research done on experimental studies, and the ones that scientists paid most attention to with regard to cancer is, what happens if animals were exposed over their entire lifetimes?

And here are some studies that have addressed that question. Professor Yasui and his colleagues in Japan exposed rats to 50-hertz fields up to 5 millitesla, which is 50,000 milligauss. Dr. Mannedville and her colleagues in Quebec exposed rats to 60-hertz fields over their lifetime to 20,000 milligauss, that's two millitesla. And in the U.S., Bormann and McCormick looked at rats and mice exposed up to 10,000 milligauss.

Overall, these investigators found no increase in any type of cancer of the animals,

when autopsied at the end of their lifetime.

Next.

Another topic which has come up involves research on Alzheimer's disease. And although there have been some studies of workers and occupations looking at -- say, whether electrical workers might be at greater risk of Alzheimer's disease.

This study here, by Huss and colleagues in 2008, really got some interest. Like the previous studies, they are looking at the addresses of persons with Alzheimer's disease relative to transmission lines.

And it is hard to see -- this is the distance to the nearest 220 to 380 kV power line down here. And if they spent any duration living near a power line, there seemed to be a weak association here. These error bars include one, so they are not significant. But with looking at the population who live five years, ten years, and 15 years, it appeared that in fact there was a statistically significant association with persons living within 50 metres, but not living at greater -- at greater distances.

So this sparked a lot of interest.

Next slide.

So scientists in Denmark used the very good Danish Registry to identify new cases over this period of time, and to very accurately record their address history. And also, instead of dealing with mortality data, Alzheimer's disease -- as you may know if any family member has ever been affected -- it is very hard to diagnose while a person is alive. It is very hard to do studies if you don't have an accurate diagnosis.

So basically, in these previous studies, they had looked at death records. Here, they actually went and used the medical history of individuals and looked at their diagnosis beforehand, and so they were able to get much more accurate data and rule out other types of diseases that may have been compounded with Alzheimer's. And they reported no consistent association between Alzheimer's disease, or any other neurological diseases, and distance to power lines.

Next.

And here are the results broken down. So here is distance to the power line. Here is

the number of cases that they looked at. The number of in each of these distance categories. And then they compared these in ratio form, and you can see here, the proportion of people with Alzheimer's disease at -- living 200 to 600 metres, that ratio is 1; and you can see the ratio of people living a closer distance is also about 1.

And then over here, this is the statistical confidence interval about those, and you can see that that confidence interval extends below 1 to slightly above 1. So that's the uncertainty about these point estimates here.

And then here is looking at cumulative time living within 50 metres of an overhead power line by years. Less than five years, five to nine, ten years. Again, you can see here people always living at these greater distances have an odds ratio of 1, and it is similar, approximately 1, not statistically different for people living there for a longer period of time.

Next slide.

So overall, the agencies and the research have not come to the conclusion that EMF causes the disease. We don't have a consistent

statistical association between magnetic fields and any disease, except in those earlier studies that I've talked about. There is no association or a weaker association in the more recent studies. Short and long-term animal studies, as a whole, do not show adverse effects, and laboratory studies of cells and tissues have not confirmed a mechanism for harm.

Next.

And here are the overall conclusions of these agencies. And most recently the WHO, on their website, you can read this opinion that they offered. Based upon recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences to exposure to low-level electromagnetic fields.

Next.

Scientists have also been interested about whether fields might have an effect on livestock or plants or wildlife. Obviously, some of these might spend considerable amount of time underneath the power lines. So we have certain kinds -- here is the kinds of studies that have been done. We have studies of farm -- of cattle

living near high-voltage transmission lines. We have experimental studies in which groups of animals have been placed directly underneath a power line and then compared to a group of animals selected from the same herd that have been placed 2,000 metres away. Those studies have been done for cattle, sheep, and swine.

In Quebec, we have a very extensive series of studies in which cattle were exposed to magnetic fields characteristic of 735 kV transmission lines. There have been studies looking at corn and soybeans in fields near transmission lines. Experimental studies of more than 70 plant species that have been grown in a laboratory and exposed to electromagnetic fields.

And overall, there is no effect of these high-voltage transmission lines, or of similar EMF exposures in the laboratory.

Next.

Often I'm asked, because of the growing prevalence of pacemakers in the population as we get older, more and more people have these implanted devices in order to have that pacemaker take over stimulation of the heart, or for some reason due to disease, their heart doesn't

normally initiate the beat.

And we had more concern about this in the past, because we didn't have shielding, good shielding of the cases by titanium and other metals. The pacemakers today have built-in filters and switches, and the sensitivity can be adjusted.

And so we have looked at this literature in some depth. We also consulted databases in Canada, United Kingdom, and the U.S. And while there are numerous reports in these databases of other sources of electromagnetic fields causing interference to pacemakers, such as the magnets from stereo speakers have been reported to actually turn people's pacemakers off. The surveillance electromagnetic fields that are used in airports and stores, the ignitions of automobiles interfering with pacemakers.

But there are no medically confirmed and documented interference events of interference to pacemakers from power lines.

Next. Next slide.

This is the scope of the work that we did to evaluate the EMF levels. We looked at the transmission line here, and it is routed on

existing right-of-way, except in Sections E1 and E2, and we looked at some of the equipment at these stations as well.

Next.

Here, you are familiar with this; this is the preferred route. And here we identified each one of these different sections as having different characteristics, in terms of the type of towers that were adjacent to the line, or the loading levels, and so on. And so we did evaluations of all of these different sections of the line.

Next.

We looked at electric fields, and we also looked at the effect of electric field on inducing currents and voltages on large objects parked underneath the conductors, such as a farm combine.

We looked at magnetic fields, audible noise, and radio noise. Radio noise I'm sure you are familiar with, if you are driving underneath a transmission line, you have your AM radio on, and if you drive under the line, you will hear some static. It doesn't occur with FM radio, but we evaluated that as well.

Here I give an example of one of the route sections. This is Section G. It has one of the highest EMF levels at the edge of the right-of-way. Here you can see the existing line here, and here is the proposed line. And you will notice that it is slightly higher -- the conductor is slightly higher off the ground than this line.

Next.

We calculated the electric fields along this route. And you can see, if you just take the existing gold line, and you can see that underneath this line here, the electric field is highest; and as you go away from the line, it gets weaker and weaker. And when this line is added, below here, the blue line shows what is the field of both lines together.

And you can see that what happens is directly underneath the new line, the fields also increase, not to the same extent as the existing line, and also diminish with distance as you go towards the edge of the right-of-way.

We subsequently discovered that the heights of the conductors that have been given to us in the preliminary phase of design are different than what is in the final design, and

that the conductor heights in this area, and in this area a little bit, are a little bit higher, and much higher here in this area, so that these fields -- well, because the higher conductor height, the fields underneath the line are going to be lower.

Next slide.

Here is the magnetic field, and you can see the same sort of thing. The gold line represents the strength of the magnetic field. When you add the new line here, it doesn't really change the fields on this side of the right-of-way. Underneath this -- the new line, the field is going to increase, and then again it diminishes with distance as you go towards the edge of the right-of-way.

Next.

Looking at audible noise. Again, the levels of audible noise are very low. This is, let's say, about 25dBA; that's what you would expect in a very quiet room, and it gets weaker and weaker with distance. The quiet rural background levels are higher, so under these circumstances, it is doubtful under most circumstances, unless you were right on the

right-of-way, listening for it, you wouldn't be able to hear the line.

Next.

Houses. Electric and magnetic fields, like everything else in our environment, obey the same kind of laws of toxicology; that is, basically, more is potentially worse.

So in the case of things in our environment -- you know, I stub my toe against the wall, it is a little bit painful, but obviously it is much worse if I hit it with greater force or somebody takes a hammer to it. So the idea is that the higher the exposure, the greater the effect should be.

So people have looked at electric and magnetic fields, and these two organizations have come up with guidelines, recommended levels, that would protect against adverse effects.

Next.

So here are the guidelines. These are the guidelines here for controlled environments, basically for workers. And you can see these values are all higher than for the general public. And these values for magnetic fields range from 2,000 to 9,040 milligauss. And these are levels

that can be -- people can be exposed to for unlimited periods of time.

Here are the values for electric fields.

And in both of these guidelines, if you do more detailed calculations, you can have higher permitted exposures. So, actually, this organization, on transmission line right-of-way, allows up to 10 kV per metre, as does the Canadian standards.

Next.

When we were looking at the existing lines, and the data that we were given by Manitoba Hydro, we noted because of the higher electric fields there, and suggested to them that we look at the effect of those electric fields on the largest vehicle or -- that could be found underneath a line. So we did calculations of the effect of the electric field on a large combine, the idea being that if you park a large combine directly underneath the line, and a person walks up and touches it, is that they could get sort of a tingle shock from the vehicle if that vehicle is not well grounded.

And so we did these calculations, and

so long as the short-circuit level is less than 5 milliamps, there isn't a harmful shock.

And so we looked at all of the sections, and they are all very low in this range, less than 3.3 milligauss. But we found in Sections F and G of the route, due to the existing line, that you could have a -- for those clearances we were given, a current of about 5.6 milliamps, just slightly above this.

Again, in the final design, the clearances of the line is much higher, and so all of the calculated values are now below this short-circuit limit.

Next.

And this basically reiterates -- this induced voltage depends upon the size of the vehicle, the electric field level, what kind of insulation do you have; obviously it is different if you are in bare feet than if you are wearing shoes.

And we did these calculations, and overall, based upon the new clearances, the new line and the existing line will meet the limits on induced currents on vehicles.

Next.

And here are the conclusions from the environmental impact statement. Again, the MMTP line will increase these levels on the right-of-way, but result in only a small change in these parameters at the edge of the right-of-way and beyond. And all of these calculated values will comply with standards and guidelines.

And the current consensus among numerous national and international scientific agencies that have reviewed this body of research is there are no known adverse health consequences of exposure to ELF, EMF, at levels generally found in residential and occupational environments, including proximity to electric transmission line and distribution facilities, and results from research do not provide evidence to alter this conclusion.

Next slide.

Okay. Thank you for your attention. I will be available to follow up with any specific questions that people have in the back.

Thank you.

THE CHAIRMAN: Thank you very much, Mr. Bailey, for an informative and very comprehensive presentation.

As Mr. Bailey indicated, he will be available -- I'm not sure how long you are going to be here; do you know?

What's that? As long as needed? Okay.

So he will be available at the back to answer any detailed questions or specific issues you might want to raise with him. And take advantage of it, because it is not often that we will have someone with this kind of background available to us.

Is there anyone else who would like to make a presentation or speak at this point?

Yes? You would like to? Come on up.

If you didn't leave your name at the back -- I don't know if you did -- you did? Okay, good. Thank you. I was just going to mention that you could do it afterwards, but that's fine.

Well, the floor is all yours, and we are anxious to hear what you have to say.

MS. JOHNSON: Not quite yet.

THE CHAIRMAN: Oh, yes. Sorry. You have to affirm.

(Jerry Carrier sworn)

MR. CARRIER: To begin with, my

presentation is short, and it's sweet, and it doesn't have a lot of video. My name is Jerry Carrier.

I'm in opposition to the proposed route. I live approximately 400 metres east of where this proposed line crosses Provincial Road 501, on the -- I'm on the southwest corner of Section 2297, near the 501/Monominto intersection.

I have lived on this property for over 60 years, and I've seen first-hand how a power line changes the landscape. I'm a Metis harvester, and I've seen how the Bipole line, approximately 1,500 metres west of me, on property leased by my grandparents and now by my father, has devastated the harvest of fruit, plants, mushrooms, and game. This proposed line will be approximately three times that size.

On a quiet evening, my wife and I sit on our front south-facing deck, winter and summer, and on occasion we can hear the constant buzz and pop of that line. I can't imagine the noise that we will get from a line 800 metres closer and several times larger.

Another of my concerns is the waste of useful land. Mark Twain said it best: "Buy land.

They are not making any more."

Putting this line through so many properties, and forever taking it out of production for agriculture and residential use, makes no logical sense when a more easterly route is available with much less disruption.

The southeast region is one of the fastest-growing in the province. I would ask that the CEC consider what they want the landscape to look like in 50 years, when my grandchildren are looking for a property to retire on.

I thank you for the opportunity to express my concerns.

THE CHAIRMAN: Thank you for a good presentation, and yes, you made, I think, a very clear presentation too.

Are there any questions for clarification from the panel? No?

MS. STREICH: Laurie Streich here.

You had mentioned that the Bipole line was -- how many metres from you?

MR. CARRIER: About 1,500. It is a little over half a mile.

MS. STREICH: Okay. Thank you.

MR. CARRIER: And I can hear it on

pretty much any evening that there isn't a wind, or if the wind is from the right direction, you can still hear that one. And this one is going to be less than half that distance away.

THE CHAIRMAN: So, just to be clear I understood it, the existing line is 500 metres away?

MR. CARRIER: About 1,500.

THE CHAIRMAN: Oh, 1,500. I'm sorry.

MR. CARRIER: It passes on -- just west of the Monominto/501 intersection, and I live just east of that.

THE CHAIRMAN: Okay. And the new one will be about half that distance?

MR. CARRIER: Yeah, a little less than half.

THE CHAIRMAN: Okay, good.

Anyone else? Okay. Well, thank you very much for your presentation.

Are there any other presentations at this time? We do have one or two listed for after the lunch break, but I wanted to make sure there was no one else here who wanted to do one.

Okay. We will take a break now, then. Is there any announcement in between? And we will

reconvene until after lunch. That will be around --

MS. JOHNSON: No, we will just hang around, and if somebody shows up, we will --

THE CHAIRMAN: Okay. Sure. We can do it that way.

MS. JOHNSON: -- fit them in.

THE CHAIRMAN: We will be here if someone does want to speak, and for sure we've got at least one or two people speaking after lunch.

Okay. Thanks.

(Recess taken)

Proceedings resumed at 1:30 p.m.

THE CHAIRMAN: Well, good afternoon, everyone, and welcome back to our hearings into the Manitoba-Minnesota Transmission Project.

I did make some introductory remarks this morning. Some of you were already here, so I don't think I will repeat it all, but just to say that we are here because the Minister asked us, the Commission, an independent organization that's been holding hearings for several decades now, to hold a hearing prior to her making a licensing decision on this project. So, we don't make decisions, but we do make recommendations to the

Minister.

And as part of that, she asked us to hold public hearings, which we have been doing for about three weeks now in Winnipeg. Thursday night we came out to La Broquerie, and today we are here in La Broquerie because, of course, it is very important to hear from people all along the -- all through the study area and all along the route. And so that's what we are doing.

So with that, I will say that so far we have one person registered to present this afternoon. If any of you would like to present or add to a presentation you have already made, just let Cheyenne know at the back, and you can speak next.

As I mentioned earlier, we also accept written submissions. So if any of you would prefer to do a written submission, or you know other neighbours and friends who would like to do written submissions, they are more than welcome, and they are given the same value as a presentation here at the hearing. So we will look at those carefully, just as we listen carefully here.

So with that, I would like to turn it

over to our next person who would like to make a submission or an oral statement to us, and that's Mr. David Dawson. So if you would like to move up to the mic here, and before you start, you will have to affirm, and Cathy here on my left will look after that. Thanks.

(David Dawson sworn)

MR. DAWSON: Thank you. My name is David Dawson, as you indicated. I'm a resident of La Broquerie, and I've lived here for 30 years, pretty well.

I noticed that you said the proposed -- sorry, you are having these hearings along the route, not one of the alternatives to the route. And that kind of concerned me slightly when you said that, because it sounded to me as if it was a fait accompli, rather than one of two alternatives.

I'm here today to give you my reasons for opposing this route, which is one of the proposals. And I have two main reasons.

The first one, it is wrong. Absolutely wrong. And the second one, it is a mistake. And I think it is a big mistake. I will expand on those two points separately.

I think it is morally wrong, first of all. We have currently seven and a half billion people on the planet earth, and it's been estimated that a sustainable number of people on the planet would be 2 billion. We are already five and a half billion people on the planet beyond the sustainable number. We already have millions of people dying of starvation across the world, in Africa, the Middle East. The drought in Africa currently, there is a huge problem in -- I believe in Ethiopia and Sudan, and countries around there, with people not having enough to eat. Yet this proposition is proposing to consume agricultural land when it is not necessary.

One of the reasons why we have such large numbers of immigrants coming out of Africa and out of the Middle East is a result of lack of food resources. They are coming out, yet we are wasting agricultural land.

Now, if a private developer wanted to build houses on some land and that private developer didn't have access to the land, he couldn't go and expropriate land from his neighbour or her neighbour, just take it, to put in an access to this land-locked piece of land for

a house development or some other kind of development.

But if it was, for example, they needed to put a new school on a land-locked piece of land, maybe there would be a good case for expropriation of land for something that is in the public good, if there is no alternative. In that case it might be acceptable to expropriate the land for building a school.

The government, in their wisdom, has provided other governments -- municipalities, Crown corporations and so on -- with the ability to expropriate land where it is necessary, where there is no alternative, and where it is in the public good.

Now, in this case, with this Hydro line, there were two routes proposed. One goes through La Broquerie, and the other one goes further east, through the Sandilands Forest. Now the government already owns the Sandilands Forest. It is Crown land. But for some reason they do not wish to use their own land to put this line in; they want to expropriate the land of private individuals whose business is going to suffer as a result.

Many tractors these days have GPS units on them, and the tractors go straight up and down the fields, and if you go to a hydro tower right in the middle of your field, you can't use your tractors in the traditional or modern way; you have to drive around it all the time. It is a nuisance. It is ruining their ability to farm.

And as I said before, when there is no alternative to doing a project, then under those circumstances, it may be -- or is, even -- acceptable to expropriate the land from a private individual. But in this case, there is an alternative. The alternative is to go through their own land, not take land from private individuals.

And this is why I say it is wrong, it is morally wrong, and it is taking advantage, an unfair advantage of the powers that were invested in government bodies with this expropriation ability. Do you follow me?

It is morally wrong, when you have your own land, to take somebody else's.

Now, the second point I want to raise is it is a mistake. I don't know what Mr. Green over there does; he is paying close attention, I

must say. Okay. We will leave that.

As I say, it is a mistake, and I have seen many mistakes made by Manitoba Hydro in the last few years. One of them, I would suggest -- and I don't have the facts here, the exact facts; this is what I've heard on the radio and other sources. But when you drive down in southern parts of Manitoba, you see many, many wind turbines generating electricity.

And what I've read and heard on the grapevine, I suppose, the Manitoba Hydro -- these turbines are privately owned, and Manitoba Hydro encouraged private owners to erect these turbines by paying them something like 14 cents per kilowatt hour of electricity generated.

Now Hydro is paying 14 cents for that electricity, and they are selling it to the United States for 4 cents a kilowatt hour. In other words, they are making a loss on every kilowatt-hour that's generated, and that difference is having to be made up by you and me on our Hydro bills every month.

Now, to me, if somebody is a house builder, for example, and he builds a house for $100,000, you'd think it would be madness to sell

that house for 30,000, and then build another and sell that for 30,000.

This is what Hydro is doing. They are paying 14 cents a kilowatt-hour, and they're selling it for 4. It's crazy.

Similarly the dam, dams up in the north of Manitoba, which -- and the Bipole III, we hear that they are now billions of dollars in debt, and they can't afford the payments. And they are planning to increase our Hydro rates by 8 per cent plus, or more, for the next five years, and it is currently before the Public Utilities Board. Making an increase in the next five years of 46 per cent on our Hydro bills.

Recently we heard from the Bank of Canada that the average personal debt of Canadian adults is something in the region of $22,000. And that's not counting mortgages; that's for things like car payments, who knows: Skidoos, four-wheelers, any gadgets and toys you care to think about, probably.

Now, I wrote an article about this in The Carillon newspaper a little while ago, and what I thought was, well, if you had -- what would you do if you'd got payments and you couldn't

afford to make the -- you lost your job, or you couldn't afford -- you made a mistake, and you couldn't afford to make your car payments. Would you go to your boss and say, "Look, I can't afford my payments; can I have a 46 per cent increase in pay?"Well, I don't think the boss would be very sympathetic. But this is exactly what Manitoba Hydro has got itself into.

They made a mistake with these dams and Bipole IIIs and so on. They can't afford the payments, and they can't go to the boss and get a 45 per cent increase in pay, or 46 per cent. They are coming to us, and they're not saying "Please"; they're just going to take it. Take it or leave it; you know? Go without electricity or pay. We have no option.

They made a mistake. They made a miscalculation. They made a miscalculation, or a bad mistake, in my view, on the wind generators, and I think they made a bad mistake on the dams and the Bipole IIIs, and I suspect they are making another big mistake on this line. But they are certainly making a mistake on where they are putting it through private land.

So that about covers what I wanted to

say, but one other thing did come up. I don't know if you've ever been to New Zealand, but when you go to New Zealand, they are very, very careful about bringing in diseases which might affect their agricultural industry. Even if you are -- you have to take your boots off, and they have to be clean, scrubbed clean. If you've got shoes in your backpack, they have to be taken out and scrubbed clean.

But here in La Broquerie, we have a large hog industry, and biosecurity on these hog plants, hog buildings, barns, is very, very severe, very strict, with lots of diseases that spread very easily, and all of the workers -- I don't know if you are familiar with this, but when you go in, you have to have a shower, change of clothes. You work in the barn; when you come out, you have another shower, change your clothes.

And if you go in for work, and then -- "Darn it, I left my sandwiches in the car." You have to come out and get your sandwiches. You have to have another shower, change your clothes, pick up your sandwiches, go back in, have another shower, and then go to work. You know, they take their biosecurity very, very seriously.

But here, if we allow this line to go through, we are going to have all kinds of Hydro workers tramping all over the land, driving their trucks over the land, potentially spreading diseases from one hog barn to another, one area to the next. And I think it could be quite serious.

I'm pleased to see you are making lots of notes.

Thank you very much. I think that concludes what I had to say. If you have any questions -- I know I was limited to 15 minutes, but since I'm the only speaker, I could probably go on all afternoon, but -- and there is no clock anyway.

THE CHAIRMAN: If you need a little more time, go ahead.

MR. DAWSON: I think I've run out already. Thank you very much.

THE CHAIRMAN: Thank you.

Are there any questions from the panel?

I just had a question around New Zealand, because you mentioned New Zealand. I have not been there. You asked if any of us had been; I have not.

You talked about biosecurity, and I'm not surprised, because I know they have two or three agricultural industries that are very, very important.

Have you been -- you have been there? Or --

MR. DAWSON: I have, yes.

THE CHAIRMAN: Do they also practice -- I mean, they must have situations where other people, whether it is utility workers or other kinds of infrastructure workers, go onto the land there. Do they -- they must practice -- you know, they must have to get at least to the same level of care in biosecurity as would the workers who operate those facilities. So they must have protocols they have to follow there. Is that --

MR. DAWSON: I can't speak -- I don't know. I only went there on a visit. But I would say that when I went in there, they ask you -- I mean, here we go through security, and you get asked all sorts of questions when you are going through the airport: "Did you pack your suitcase yourself?" That sort of thing.

There, they want to know, do you come

from a farm, or have you visited any farms, or do you have clean shoes -- also, if you have apples in your bag, or if you have some honey -- in my case, I was taking a gift of some honey to some friends; it was all confiscated. They will not allow any agricultural produce in the country.

Thank you.

THE CHAIRMAN: Well, thank you. And thanks for answering the question, and for a very good presentation. Thank you.

MR. DAWSON: Thank you. You're welcome.

THE CHAIRMAN: Do we have any other presentations? And -- yes?

MR. BLONSKI: I have heard from people that said that they are going to pop in for the day, but they can't commit to the entire Saturday. So I don't now -- I can't say -- I do imagine that there would be people that are expecting us to be open until closing time.

THE CHAIRMAN: Well, we are going to -- that's a good point, actually, because we are going to stay here. So we will be here. So if anyone comes in and wants to speak, we will just reactivate things.

I did want to mention that we do have an expert in electromagnetic fields who spoke this morning, and stayed for the rest of the morning, and is here this afternoon. If there is anyone who has questions about that area, he is also sitting at the back of the room.

So I think I will leave it at that for now. We will just wait.

MS. JOHNSON: Mr. Bailey is here until 2:00 o'clock.

THE CHAIRMAN: Oh. Okay.

I think you all heard that, but Mr. Bailey, William Bailey, the expert on electromagnetic fields, will be here until 2:00 p.m., so not much longer. So grab him now if you want to ask any questions.

Thanks.

(Recess taken)

THE CHAIRMAN: I have a quick announcement to make. On Thursday night there was a couple of names mentioned during the course of presentations here. And we've had a discussion about it and it's been in the history of the operations of the Clean Environment Commission, and just makes it common practice in tribunals, so

we will not be printing those names in the official record which we post on our website. So the names that were mentioned, were individuals -- where individuals were mentioned or things are said about individuals, those are not to be mentioned in the record or transcript of the proceedings. Just so you are all aware. All of the points that are made throughout will be there, but not associated with names.

Just so you are all aware of that, that's what we will be doing with the record. Thanks. And we are still here waiting if any of you have presentations or for others to arrive, so thanks.

(Hearing panel stood down)

(Adjourned at 3:10 p.m.)

OFFICIAL EXAMINER'S CERTIFICATE

Cecelia Reid and Debra Kot, duly appointed Official Examiners in the Province of Manitoba, do hereby certify the foregoing pages are a true and correct transcript of our Stenotype notes as taken by us at the time and place hereinbefore stated to the best of our skill and ability.

Cecelia Reid

Official Examiner, Q.B.