



Docket UE20324
Order UE08-05

IN THE MATTER of a
complaint by J. William Costain regarding a
transmission line on the Howlan and Locke
Roads in Prince County, PEI.

**BEFORE THE
COMMISSION**

on Thursday, the 17th day of April, 2008.

Maurice Rodgerson, Chair
John Broderick, Commissioner
Anne Petley, Commissioner
Ernest Arseneault, Commissioner

Order

Compared and Certified a True Copy

(Sgd) *Mark Lanigan*

Technical and Regulatory Services

IN THE MATTER of a
complaint by J. William Costain regarding a
transmission line on the Howlan and Locke
Roads in Prince County, PEI.

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IN THE MATTER of a
complaint by J. William Costain regarding a
transmission line on the Howlan and Locke
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Reasons for Order

1. Introduction

[1] Maritime Electric Company Limited (“MECL”) constructed a 69kV transmission line (“T27”) during the fall of 2006 to connect the West Cape Wind Farm project, owned and operated by Suez Renewable Energy North America (formerly “Ventus Energy”), to the Island’s transmission grid located at the O’Leary substation on the Howlan Road. This transmission line is presently operating at 69kV with the current load of 20MW produced by Phase 1 of the West Cape Wind Farm project. The line has the capability to operate at 138 kV with increased wind energy generation at West Cape.

[2] J. William Costain, acting in an unofficial capacity as representative for the residents of the Locke and Howlan Roads (the “Complainants”), filed a complaint with the Commission on September 14, 2007 stating, “We are writing in the interest of the present and future health of the people who live on these roads.”

[3] Prior to addressing the complaint, the Commission needed to satisfy itself that it possessed jurisdiction to address the issues raised by the Complainants. The Commission, a body created by statute, has jurisdiction over issues that have been specifically assigned by legislation. The Commission receives legislative authority over electricity matters from both the *Island Regulatory and Appeals Commission Act*, R.S.P.E.I. 1988 Cap. I-11 and the *Electric Power Act*, R.S.P.E.I. 1988 Cap. E-4.

[4] Two sections of the *Electric Power Act* provide some indication of jurisdiction, specifically:

- 3 *Every public utility shall:*
- a) *Furnish at all times such reasonably safe and adequate service and facilities for services as changing conditions require;*

...

26(1) *The Commission has general supervision of all public utilities and may make such regulations and orders respecting equipment, appliances, safety devices, extension of works or systems, filing of schedules of rates, reporting, and other matters as it considers necessary or advisable for the safety, convenience, or service of the public, or for the proper carrying out of this Act or of any contract, charter, or franchise involving the use of public property or rights.*

(2) *Subject to this Act, the Commission may make regulations requiring a public utility to conduct its operations in such a manner that it does not unnecessarily interfere with, or cause unnecessary damage or inconvenience to, the public.*

[5] The legislation does not provide the Commission with any clear guidance on whether the perceived health concerns fall within the legislative meaning of the words *safety, convenience or service of the public* set out in Subsection 26(1).

[6] In considering jurisdiction, the Commission requested both MECL and Mr. Costain to provide comments. The Complainants provided documentary evidence on electromagnetic field (“EMF”) with no comment on jurisdiction. MECL stated that, in its opinion, statutory jurisdiction does not exist; however, the Commission could assume jurisdiction due to the nature and variety of evidence required to be considered.

[7] The Commission, after consideration of the submissions and relevant legislation, determined it did have jurisdiction to hear and decide the matter. On November 29, 2007, the Commission informed the parties it had jurisdiction and would proceed to hear the matter.

2. The Complaint

[8] On September 14, 2007, J. William Costain filed a complaint with the Commission requesting a hearing as follows:

It is with concern for those residents that we send this letter requesting a hearing with IRAC where our concerns can be put forward to be granted a moratorium on all further construction of wind turbines and upgrades to the transmission lines and the eventual removal of the newly constructed lines on the Locke/Howlan Roads.

Mr. Costain cited various sources of information obtained from the Internet to support their concerns.

3. Investigation & Findings

3.1 Investigation

[9] The Commission reviewed information provided by Mr. Costain and determined that specific expertise in electromagnetic radiation was necessary to assist in addressing the complaint.

[10] The Commission subsequently engaged the consulting firm of Exponent and principle scientist Mr. William Bailey, Ph.D. (the “Consultant”) to perform the following:

- .1 to review the relevant technical specifications of the transmission line in dispute;
- .2 to perform a site inspection of the transmission facilities and the locations of the residences along the transmission route;
- .3 to prepare a written report containing analysis, comments, conclusions on potential health effects of the transmission facility; and
- .4 to draw to the attention of the Commission such other issues and make such other comments and recommendations on related matters as the consultant considers advisable.

[11] The Consultant was later asked to expand the scope of the engagement to include a review of information provided by Mr. Costain, provide the Commission with expert commentary on this information, and to perform modeling calculations of the current EMF levels and the potential levels associated with the increased line loading and conversion to 138kV.

3.2 Consultant's Report

[12] The report was provided to the Commission on March 20, 2008 with copies provided to both Mr. Costain and MECL. Both parties were asked to review the report and to provide their comments on the report to the Commission by April 4, 2008.

[13] The Bailey report provided several conclusions:

- Epidemiological studies have typically estimated magnetic field exposure using a time-weighted average (“TWA”) metric which gives EMF measurements more or less weight depending upon the amount of time a person spends in the location where the measurement was taken or calculated. Alternatively, the residents of the Howlan and Locke Roads are looking at point in time measurements which is an inappropriate basis in which to draw conclusions regarding overall health risks.
- The measurements reviewed and calculations performed suggest the transmission line at present is not a large source of magnetic field exposure and, although the exposure will increase with the conversion of the line to 138kV, under any of the loading conditions examined the magnetic field level expected will be within safety guidelines.
- The information used by the residents in assessing the exposure risks is from non-scientific or non-peer reviewed sources and can be misleading.
- The use of the “precautionary principle” would not support a different technical approach to the siting and construction of the line as employed during this process.

3.3 Complainants' Response to Consultant's Report

[14] The Commission received comments from both Mr. Costain and Mr. Gordon Ramsay, another resident of the Howlan Road, on the contents of the Bailey report. Both Complainants suggest the Consultant was biased on this issue. They stated that the Consultant and the firm of Exponent have worked for utilities in the past before other regulatory commissions and, therefore, are in a conflict of interest in this investigation. In addition, they state that the Consultants' conclusions in this investigation are the same as the testimony before the Pennsylvania Utilities Commission.

[15] The Commission takes this allegation seriously and reviewed the Complainants' suggestion and information provided in support of this position. Subsequently, the Commission reviewed rebuttal information provided by the Consultant. The Consultant advised that Exponent has provided services to a wide variety of organizations including industry, governments and scientific agencies in this field. In response to the complainant's claim of bias in this investigation the Consultant states:

...the conclusions I provided in the testimony from Pennsylvania are indeed similar to the report to the Commission, as both summarize the consensus of scientific conclusions reached by national and international agencies.

[16] The Commission reviewed the Complainants' assertion that an alternate opinion on EMF was expressed before the Pennsylvania Utilities Commission. In response the Consultant states:

Messrs. Ramsay and Costain also appended a filing by a geographer (Hanham) who offered opinions about electric and magnetic fields (EMF) and health and criticized my testimony in Pennsylvania. They parrot his allegations; therefore, I have attached my rebuttal to those allegations (Response to Hanham). That rebuttal shows that the allegations are based on fallacious assumptions, and misconceptions arising from his lack of technical knowledge.

[17] The Consultant has many years experience providing advice and expertise to groups such as the World Health Organization. The Commission notes the Complainants refer to World Health Organization information in their complaint. Having fully considered this issue, the Commission is satisfied that the Consultant provided an unbiased report with conclusions based on the empirical research regarding this issue.

[18] Both Complainants refer to specific EMF measurements at their residences and do not accept the conclusions of Mr. Bailey. Both persons reiterated various pieces of information originally provided to the Commission at the time the initial complaint was filed. Neither party requested an opportunity to cross examine the Consultant in a public hearing, nor to present an expert rebuttal witness.

[19] Both Complainants suggest that research indicates higher risk of adverse health effects. They did not provide any information or comment on the Consultant's caution that all publicly accessible information is not peer reviewed scientifically recognized research, nor did they directly rebut Mr. Bailey's comments on the material they presented to the Commission.

[20] Neither Complainant commented on epidemiologic study approaches which involve consideration of the frequency and duration of exposure producing a time-weighted average measurement in considering the health impact of EMF.

[21] Both Complainants suggest that the precautionary principle would require the removal or relocation of the transmission line as EMF exposures at levels they are experiencing have health risks. They do not comment on Mr. Bailey's conclusion that, although specific measurements vary, it is the average exposure over a person's life which is relevant in assessing health consequences.

3.4 Procedure for Review

[22] In this respect, the Commission has reviewed the comments of both parties on the independent expert's report and has determined that a public hearing would not provide any further assistance to the Commission in reaching a determination on the complaint filed. The Commission is satisfied that all parties had ample opportunity to present evidence on the matter.

3.5 Available Scientific Research

[23] The Commission understands that there is no single measure of acceptable or unacceptable EMF exposure that is recognized and accepted by the scientific community. The issue is subject to much debate and differing viewpoints. The Commission must look to the various health protection organizations charged with the responsibility of overseeing the health of the population for guidance on this issue. Health Canada and the World Health Organization provide important information on this issue.

[24] The Commission reviewed information provided by Health Canada noting:

Health Canada, along with the World Health Organization, monitors scientific research on EMFs and human health as part of its mission to help Canadians maintain and improve their health. At present, there are no Canadian government guidelines for exposure to EMFs at ELF (Extremely Low Frequency). Health Canada does not consider guidelines necessary because the scientific evidence is not strong enough to conclude that typical exposures cause health problems.

[25] The World Health Organization Task Group of scientific experts assembled to assess any risks to health that might exist from ELF exposure to electric and magnetic fields concluded:

Following a standard health risk assessment process, the Task Group concluded that there are no substantive health issues related to ELF electric fields at levels generally encountered by members of the public.

[26] The Commission reviewed information from the International Commission on Non-Ionizing Radiation Protection (ICNIRP), a body of independent scientific experts formed to disseminate information and advice on the potential health hazards of exposure to non-ionizing radiation. This group concluded that there was insufficient evidence of long-term adverse health effects. ICNIRP set limits in 1998 to protect against acute health effects (the stimulation of nerves and muscles) associated with higher exposures. Those exposure limits were 833mG for residential and 4,200 mG for occupational exposure. Other groups have recommended higher exposure limit tolerances.

[27] The Commission has noted the EMF readings of certain Howlan and Locke Road residents and the conclusions reached by Mr. Bailey as follows:

The measurements reviewed and calculations performed as part of the investigation suggest that the transmission line at present is not a large source of magnetic field exposure...

[28] In his submission, Mr. Ramsay noted readings at his property under the transmission line of 11 to 14mG and suggests these represent harmful exposure levels. Various pieces of information filed with the Commission by Mr. Ramsay and Mr. Costain suggest instances of childhood leukemia associated with exposure above 4mG. The Commission notes that this information is viewed as non-conclusive by others in the scientific community and that the 4mG referred to in the research is the weighted average daily exposure and not a spot measurement. Although Mr. Ramsay's spot measurement under the line may be 11 to 14mG, this exposure would not represent the weighted average daily exposure. Five measurements inside and a further five outside of Mr. Ramsay's home are less than 1mG. Although a continuous EMF reading device would need to be worn over a period of time to determine average exposure, it is reasonable to conclude that the average exposure on this property is well below 4mG.

[29] Mr. Costain wants adherence to the precautionary principle, an approach suggested for guiding actions when there is risk of harm. The Commission reviewed the concept of a precautionary principle as it relates to EMF exposure. The Commission understands that scientific protocol would suggest the precautionary principle requires mitigation actions to offset the level of risk associated with the activity.

[30] The Commission noted the evidence of Mr. Bailey which states:

With regard to the residents' claim that the precautionary principle should have been applied in the siting and construction of the transmission line, the Canadian and international applications of the precautionary principle would not support a different technical approach to the siting and construction of the line than has occurred.

[31] The evidence before the Commission is that the transmission line in question is constructed in accordance with existing standards and requirements. The Commission notes that the transmission line does not create EMF readings that approach the ICNIRP recognized levels of residential exposure of 833mG. Also, the transmission line does not create average daily exposure EMF readings that approach levels recognized by peer reviewed scientific bodies that consider potential health risks.

[32] The Commission accepts the conclusion of the Consultant that the line on Howlan and Locke Roads has not increased daily average EMF exposure to levels considered harmful to health. The Commission notes that the levels are well below the limits set by ICNIRP.

[33] The Commission notes that a Canadian multi-level government scientific group, the Federal Provincial Territorial Radiation Protection Committee (FPTRPC), conducts periodic reviews of the literature regarding EMF and makes recommendations to governments. There have been no recent changes to the scientific conclusions in this area.

[34] Matters of health and personal property tend to trigger strong emotional responses. The Commission appreciates the anxiety and concerns expressed by the Complainants, especially when they refer to certain information obtained from Internet searches on the topic. The Commission notes that a simple Google search will generate many thousands of items related to EMF. It is also noted that the Internet can easily provide unproven opinion as well as fully documented information from well established reliable sources. It was for this very reason the Commission sought an independent expert to assist in reviewing the material, the actual transmission line, and the various readings collected as part of the process.

4. Disposition

[35] An Order will therefore issue dismissing the complaint.

IN THE MATTER of a
complaint by J. William Costain regarding a
transmission line on the Howlan and Locke
Roads in Prince County, PEI.

Order

UPON receiving a complaint from William Costain, as
representative of Howlan and Locke Road residents, regarding a
transmission line developed by MECL;

AND UPON considering the complaint with the
information provided by Mr. Costain and the report of the
independent consultant, Mr. William Bailey, Ph.D. of Exponent;

NOW THEREFORE, for the reasons given in
the annexed Reasons for Order;

IT IS ORDERED THAT

1. the precautionary principle does not warrant the removal
of the transmission line currently established on the
Howlan and Locke Roads; and
2. the complaint is dismissed.

DATED at Charlottetown, Prince Edward Island, this 17th day of April, 2008.

BY THE COMMISSION:

(Sgd) Maurice Rodgerson

Maurice Rodgerson, Chair

(Sgd) John Broderick

John Broderick, Commissioner

(Sgd) Anne Petley

Anne Petley, Commissioner

(Sgd) Ernest Arsenault

Ernest Arsenault, Commissioner

NOTICE

Section 12 of the *Island Regulatory and Appeals Commission Act* reads as follows:

12. The Commission may, in its absolute discretion, review, rescind or vary any order or decision made by it or rehear any application before deciding it.

Parties to this proceeding seeking a review of the Commission's decision or order in this matter may do so by filing with the Commission, at the earliest date, a written Request for Review, which clearly states the reasons for the review and the nature of the relief sought.

Sections 13.(1) and 13(2) of the *Act* provide as follows:

13.(1) An appeal lies from a decision or order of the Commission to the Appeal Division of the Supreme Court upon a question of law or jurisdiction.

(2) The appeal shall be made by filing a notice of appeal in the Supreme Court within twenty days after the decision or order appealed from and the Civil Procedure Rules respecting appeals apply with the necessary changes.

IRAC140A(04/07)