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October 12, 2021

**VIA E-MAIL AND HAND DELIVERY**

*Emma.Rodvien@puc.ri.gov*

Emma Rodvien, Coordinator  
Energy Facility Siting Board  
89 Jefferson Boulevard  
Warwick, Rhode Island 02888

**Re: Docket No. SB-2021-01 – In Re: Revolution Wind, LLC’s Application to Construct and Alter Major Energy Facilities in North Kingstown, Rhode Island**

Dear Ms. Rodvien:

Enclosed please find an original and four copies of Revolution Wind, LLC’s (“Revolution Wind”) Responses to the Energy Facility Siting Board’s Second Set of Data Requests, issued on October 5, 2021 (the “Second Set of Data Requests”).

This filing includes Revolution Wind’s response to the Second Set of Data Requests EFSB 2-1. This completes Revolution Wind, LLC’s response to the Second Set of Data Requests.

Thank you for your attention to this matter.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Adam Ramos', written over a light blue horizontal line.

Adam M. Ramos

A handwritten signature in blue ink, appearing to read 'Robin L. Main', written over a light blue horizontal line.

Robin L. Main

AMR:cw  
Enclosures

cc: SB-2021-01 Service List (via e-mail)  
Meredith Brady (via hand delivery)

**SB-2021-01 Revolution Wind, LLC Application for Major Energy Facility****Updated August 27, 2021**

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EFSB 2-1

Request:

Regarding the October 3, 2021 written public comment filed with the Energy Facility Siting Board by Donald J. Dennehy Jr., please provide answers to each of the questions he posed.

1. What is the depth of the vault and conduit of the project?
2. How will transmission heat be dissipated? Is this an oil filled cable? North Kingstown's water supply comes from wells.
3. What is the expected period of road construction for the residential area? These roads are two lanes, and only have one point of egress to Post Road for all the residents, school busses, and business travel.
4. Will blasting be required for this construction? Rhode Island is known for its rocks. If required, this will be next to our homes.
5. Has the shore landing been redesigned taking into account the issues experienced with the current Block Island Cable landing? That cable landing has been eroded a number of times since installation.
6. If the route through the residential area is used, we will lose the current buffer zone between the street and the industrial park, which was placed to reduce sight lines, noise, and light pollution. What mitigation is planned for this?
7. The current intersection of Shores Acres Ave. and Camp Ave. floods with moderate rain. What effect will this have on the cable and splice vaults. What mitigation is planned for this?
8. Underground Transmission lines have a life expectancy of Approx. 40 Years. While that is a good period of time, again, why run this along a residential street when you have an industrial area next door?
9. While the topic of EMF was not addressed by the presentation, I did discuss this with the Revolution Wind team after the meeting. This installation will produce between 96 and 24 uT on centerline, falling to 13 to 3 uT 5 meters from centerline according to National Grid's own white paper. While these measurements are in microteslas (a European standard), and not milligauss, (a US standard), they are readily convertible. There are numbers of residents and workers from the industrial park that walk these streets at lunch or other times. Every one of these people will be exposed to this field. A number of studies point to health concerns due to exposure to EMF.

Response to 2-1(1):

*1. What is the depth of the vault and conduit of the project?*

The vaults on the Project are designed to be buried a minimum 3' to top of vault and approximately 15' to bottom of vault. The duct bank is designed to be buried a minimum of 3' to 6' to top of thermal concrete encasement. There are no proposed vaults located in Camp Avenue.

Response to 2-1(2):

2. *How will transmission heat be dissipated? Is this an oil filled cable? North Kingstown's water supply comes from wells.*

The conduits in which the cables will be installed will be surrounded by a thermal concrete mix. The mix provides both mechanical protection as well as a low thermal resistivity to allow for more efficient heat dissipation. Atop the concrete encasement there will be a fluidized thermal concrete backfill, which allows for a more timely backfill of the excavation while also providing further heat dissipation.

Neither the cable nor the cable system is filled with oil or other insulating fluid.

Response to 2-1(3):

3. *What is the expected period of road construction for the residential area? These roads are two lanes, and only have one point of egress to Post Road for all the residents, school busses, and business travel.*

Construction along the affected segment of Camp Avenue is anticipated to take approximately three months. As part of the required Street Opening Permit that Revolution Wind will need from the Town of North Kingstown, a Transportation Management Plan will be prepared that will include the following:

- Traffic Control Plans
- Detour Plans
- Allowable work times and schedule

The project will have some minor impacts to traffic; however, the primary goal during construction is to minimize the traffic impacts along Camp Avenue and to the abutters as follows, subject to the final TMP as approved by the Town:

- Camp Avenue will maintain one lane of alternating two-way traffic, except if construction activities require the full closure of Camp Avenue, during which time access to the properties along Camp Avenue will be maintained by detouring traffic around the work zone onto Windward Walk.
- Access and egress to all driveways will be maintained at all times including use of plating at very limited times for access. The project will coordinate with homeowners at all times to reduce any inconvenience.

Response to 2-1(4):

4. *Will blasting be required for this construction? Rhode Island is known for its rocks. If required, this will be next to our homes.*

Based upon the geotechnical field investigations completed to date, there is no indication that blasting will be necessary along the transmission line route or the onshore station parcel(s).



Response to 2-1(5):

5. *Has the shore landing been redesigned taking into account the issues experienced with the current Block Island Cable landing? That cable landing has been eroded a number of times since installation.*

An engineering analysis of the cable landing site at Quonset Point has been performed by Revolution Wind. This site-specific engineering analysis evaluated geotechnical, geophysical data, seabed mobility, and shoreline characteristics of Narragansett Bay. Based on this analysis horizontal directional drilling (HDD) has been selected as the preferred methodology for the cable landing. HDD is a trenchless technology and when constructed creates a bore hole through which the export cable will be installed. From a point approximately 900 feet from shore, the cable will descend into the seabed to a depth that will be a minimum of 50 feet below the seabed at the shoreline before gradually ascending to a point approximately 200 feet inland where it will enter the TJB at a depth of approximately 10 feet below grade. Based on the foregoing, the design adequately addresses the erosion and other conditions present at this location.

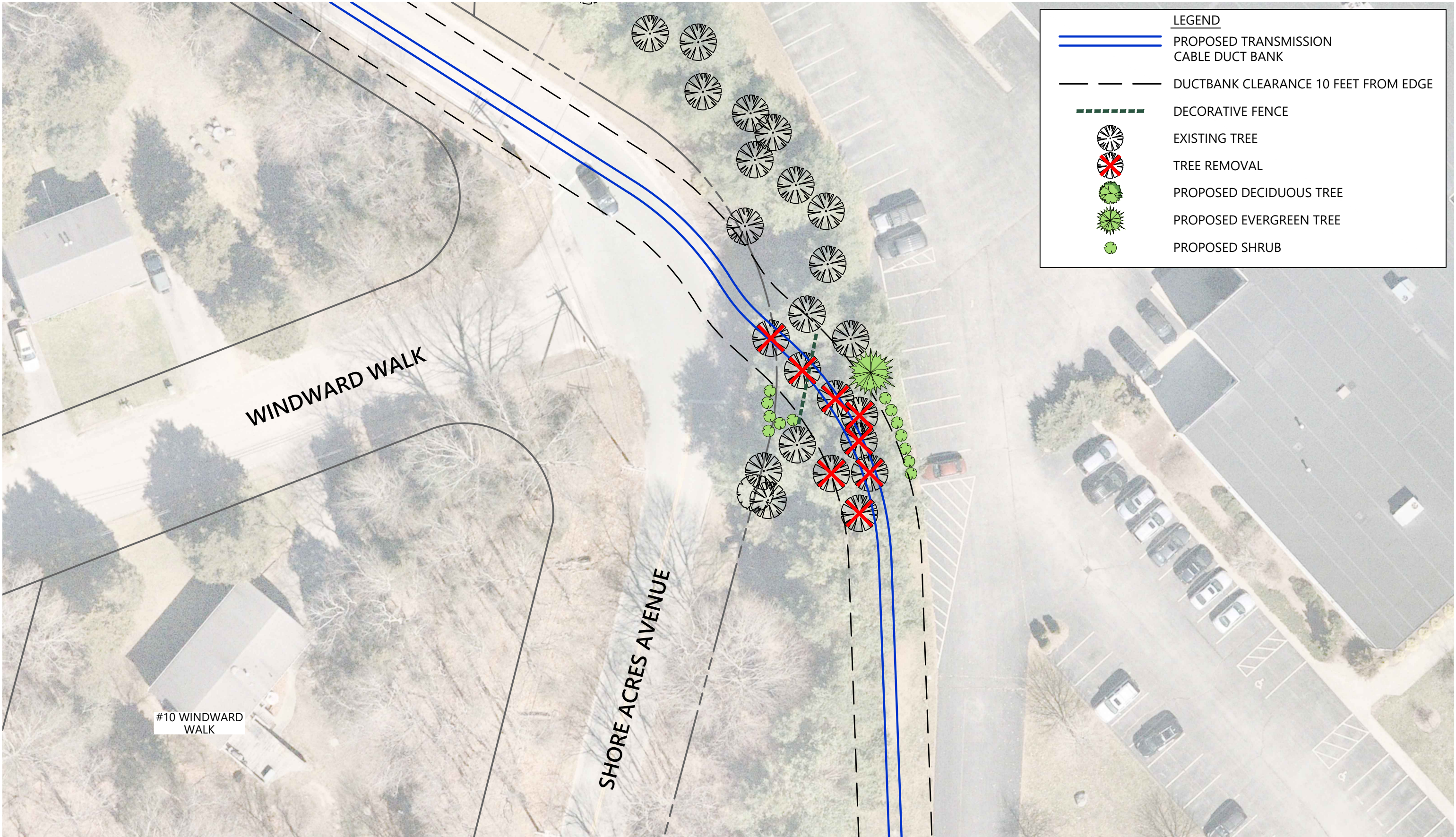
Response to 2-1(6):

6. *If the route through the residential area is used, we will lose the current buffer zone between the street and the industrial park, which was placed to reduce sight lines, noise, and light pollution. What mitigation is planned for this?*

Revolution Wind has been working with the property owner at 135 Circuit Drive to specifically address the installation of the transmission line and provide a robust landscaping solution. Attachment EFSB 2-1 depicts a draft landscaping plan developed to maintain screening while safely operating the transmission line.

Eight existing trees ranging in size from 6 inches to 18 inches in diameter will be removed in the hedgerow separating 135 Circuit Drive and Shore Acres Avenue where the Onshore Transmission Cable will be constructed. This area will be restored by replanting with 13 shrubs and one tree and a decorative fence over the duct bank that will serve to replace the buffer as the new plantings mature. These plantings will reduce sight lines, noise and light pollution.







Response to 2-1(7):

7. *The current intersection of Shores Acres Ave. and Camp Ave. floods with moderate rain. What effect will this have on the cable and splice vaults. What mitigation is planned for this?*

The conduit/vault system is designed to withstand water submersion, and surface flooding will have no effect on the cable and splice vaults.

Response to 2-1(8):

8. *Underground Transmission lines have a life expectancy of Approx. 40 Years. While that is a good period of time, again, why run this along a residential street when you have an industrial area next door?*<sup>1</sup>

*Footnote:*

1. *XcelEnergy- Information about burying High-Voltage transmission lines.*  
<https://www.transmission.xcelenergy.com/staticfiles/microsites/Transmission/Files/PDF/Projects/CO/Avery/Transmission-CO-Avery-Substation-Overhead-Vs-Underground-Info-Sheet.pdf>

Please see Revolution Wind's response to EFSB Data Request No. 1-2.

Response to 2-1(9):

9. *While the topic of EMF was not addressed by the presentation, I did discuss this with the Revolution Wind team after the meeting. This installation will produce between 96 and 24 uT on centerline, falling to 13 to 3 uT 5 meters from centerline according to National Grid's own white paper. While these measurements are in microteslas (a European standard), and not milligauss, (a US standard), they are readily convertible. There are numbers of residents and workers from the industrial park that walk these streets at lunch or other times. Every one of these people will be exposed to this field. A number of studies point to health concerns due to exposure to EMF. 2,3,4 These questions come from a concern for this cable installation only, and should not be taken as an attack on the offshore project as a whole. The current proposed route through the residential area is questionable with the industrial area next door. I hope the board takes the concerns of the neighborhood into account when they make their decision.*

*Footnotes:*

2. *National Grid- Undergrounding high voltage electricity transmission lines.*  
[https://www.nationalgrid.com/sites/default/files/documents/39111-Undergrounding\\_high\\_voltage\\_electricity\\_transmission\\_lines\\_The\\_technical\\_issues\\_INT.pdf](https://www.nationalgrid.com/sites/default/files/documents/39111-Undergrounding_high_voltage_electricity_transmission_lines_The_technical_issues_INT.pdf)
3. *EMFs.info-Units for measuring EMF's* <https://www.emfs.info/what/units/>
4. *Healthline- should you be worried about EMF exposure?*  
<https://www.healthline.com/health/emf>

The magnetic fields associated with the operation of the proposed onshore facilities were calculated for the Application to the EFSB and are summarized in section 8.19.2 of the Environmental Report. These calculations are specific to the cables, installation, voltage (275 kilovolts), electrical load currents (average and peak), and 60-Hertz frequency of the electricity carried by the onshore transmission cables. It is important to note that the electricity is proposed to be carried by six separate cables conductors in a double-circuit duct bank and the phasing of the cables (i.e., the specific phase arrangement of the conductors within the duct bank) has been specifically arranged to achieve maximum mutual cancellation of the magnetic field produced by all the cables. The calculations for the magnetic field of the onshore transmission cables were a maximum 19 milligauss (mG) [1.9 microtesla - $\mu$ T) over the cables, and 4.1 mG [0.41  $\mu$ T) at a distance of  $\pm 25$  feet to either side of the duct bank.

The calculated magnetic fields cited by Mr. Dennehy apply to a three-conductor 400 kilovolt direct-buried underground transmission line carrying an unspecified electrical load current.<sup>1</sup> For such an installation (only three conductors), it is not possible to reduce the magnetic field around the conductors by adjusting the phasing of adjacent conductors to minimize the magnetic field. Thus, the magnetic field levels reported by National Grid in the United Kingdom apply to a transmission line that differs in multiple ways from the underground cables proposed by Revolution Wind. For these reasons, the calculations cited by Mr. Dennehy have no relevance to this project.

Exposure to magnetic fields is a function of the intensity of the field from the cables, the distance of a person from the cables, and the time that a person spends at locations where the magnetic field from the cable is present. The suggestion that “[t]here are numbers of residents and workers from the industrial park that walk these streets at lunch or other times. Every one of these people will be exposed to this field” is a truism but ignores the fact that in our communities exposure to magnetic fields occurs wherever electricity is carried and used. The overall contribution of brief exposures to the magnetic field from the cables to a person’s time-averaged exposure over a day or week is very small. Moreover, as described in response to EFSB Data Request 1-3:

The magnetic field at a distance of 25 feet from the center of the duct bank containing the cables on the side closest to the residences is calculated to be 4.1 milligauss (mG) at average loading, a value encompassing a typical range of background magnetic field levels (away from any appliances) in American homes (EPA, 1992).<sup>2</sup> At a distance of 50 feet the magnetic field is calculated to be still lower, 1.8 mG or less. The closest residence, 613 Camp Avenue, is 55 feet away from the proposed transmission cable duct bank. Overall residences along Camp Avenue and Windward Walk are between 55 feet and 177 feet away from the duct bank.

Mr. Dennehy states that “[a] number of studies point to health concerns due to exposure to EMF.” [2,3,4]. The undergrounding and units discussion referenced [2, 3] do not address EMF and health. Other parts of reference [2] from National Grid state that “[t]he USA has no Federal exposure limits for ELF EMFs” and “[f]or public exposure, the UK policy is to comply with the 1998 ICNIRP guidelines in the terms of the 1999 EU Recommendation,” which is 100  $\mu$ T [1,000 mG] and “applies, in particular, to relevant areas where members of the public spend significant

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<sup>1</sup> [https://www.nationalgrid.com/sites/default/files/documents/39111-Undergrounding\\_high\\_voltage\\_electricity\\_transmission\\_lines\\_The\\_technical\\_issues\\_INT.pdf](https://www.nationalgrid.com/sites/default/files/documents/39111-Undergrounding_high_voltage_electricity_transmission_lines_The_technical_issues_INT.pdf)

<sup>2</sup> United States Environmental Protection Agency (USEPA). EMF in Your Environment: Magnetic Field Measurements of Everyday Electrical Devices. Report 402-R-92-008, December, 1992.

time.” The citation to an internet website [4] does provide some information from scientific and health agencies but overall may be confusing to the public and provides mixed messages.

The guidance from the World Health Organization (WHO) that has reviewed more than 40 years of research on electric and magnetic fields is clearer: “Despite the feeling of some people that more research needs to be done, scientific knowledge in this area is now more extensive than for most chemicals.” This quote and assessments of research by the WHO and other scientific and health agencies are summarized in Appendix F to the Environmental Report. The WHO has recommended EMF exposure guidelines published by the International Commission on Nonionizing Radiation Protection (ICNIRP) as protective of public health. The latest ICNIRP guideline for the general public published in 2010 is 200  $\mu$ T [2,000 mG]. The WHO and other agencies have reviewed and evaluated the large body of scientific literature on potential long-term effects of ELF EMF exposure, and none have concluded that the evidence confirms the existence of any adverse, long-term health effects in association with environmental exposure to ELF EMF below scientifically-established exposure guidelines.