

EXHIBIT 7



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August 4, 2016

George Bacon
ESS Group, Inc.
100 Fifth Avenue, 5th Floor
Waltham, MA 02451

Subject: Clear River Energy Center – REVISED
Exponent Project No. 1507086.000

Dear Mr. Bacon:

At the request of ESS Group, Inc. (ESS), Exponent has evaluated the electric and magnetic field (EMF) levels associated with the operation of the Clear River Energy Center (CREC) transmission line. It is Exponent's understanding that the transmission line is to connect the CREC gas-fired combined-cycle electric generating facility proposed to be located in the Town of Burrillville, Rhode Island, within the property of an existing gas compressor, to National Grid's Sherman Road Substation.

To deliver the electricity generated by the CREC project to the nearby substation, a 0.8 mile 345-kV interconnection transmission line will be constructed on a new ROW between the switchyard within the CREC facility and the existing National Grid 345kV ROW located west of the CREC facility. This new ROW will be contained wholly within 67 acres of land area that will be purchased from the Spectra Energy Algonquin Compressor Station site ("Spectra") and is a subset of a 730-acre Spectra-owned site that currently contains the Burrillville Compressor Station.

From the point of connection to the National Grid ROW to the Sherman Road Substation about 6 miles to the northeast, the 345-kV CREC transmission line will be constructed adjacent to two existing 345-kV National Grid transmission lines. The locations of XS-1 (orange line) and XS-2 (blue line) and the transmission interconnection (XS-3, green line) are shown in Figure 1.

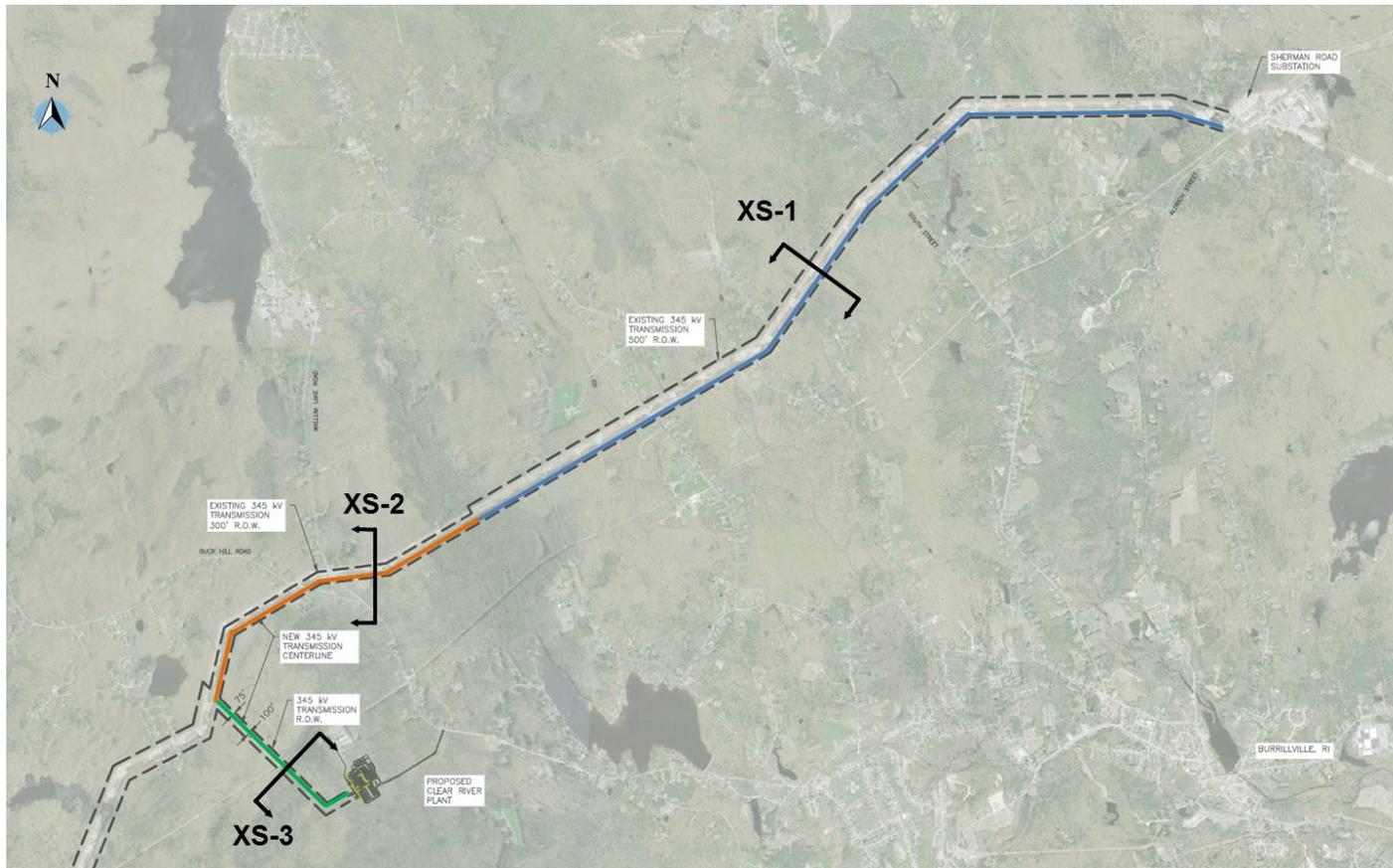


Figure 1. Map showing the location of the two sections of the proposed CREC route and the interconnection line to the CREC generating facility.¹

¹ In the original memorandum sent to ESS October 27, 2015, the CREC transmission line in Figure 1 was shown, incorrectly, to be on the north side of the National Grid ROW. In addition, the locations of XS-1 and XS-2 were swapped (with XS-2 shown exiting the Sherman Road Substation and XS-1 shown further south/west). This figure was used for illustrative purposes only and the transmission lines were modeled correctly (as designed). At the request of the Rhode Island Department of Energy Management, Exponent is now including EMF calculations for the transmission interconnection from the CREC generating facility on Spectra property to the existing National Grid ROW (section XS-3) and this figure also has been updated to correctly show the location of this interconnection and revised location references for XS-1 and XS-2.

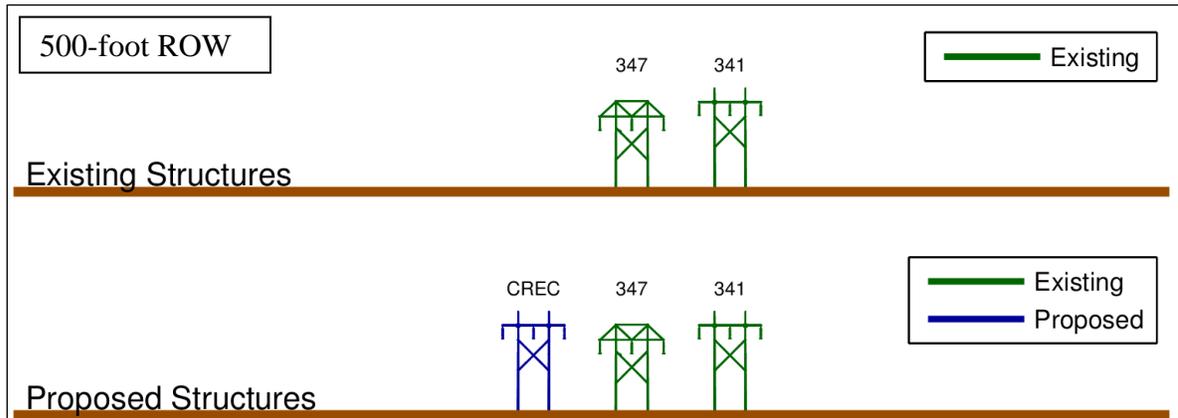


Figure 2. Configuration of existing and proposed Lines in XS-1 (View facing southwest).

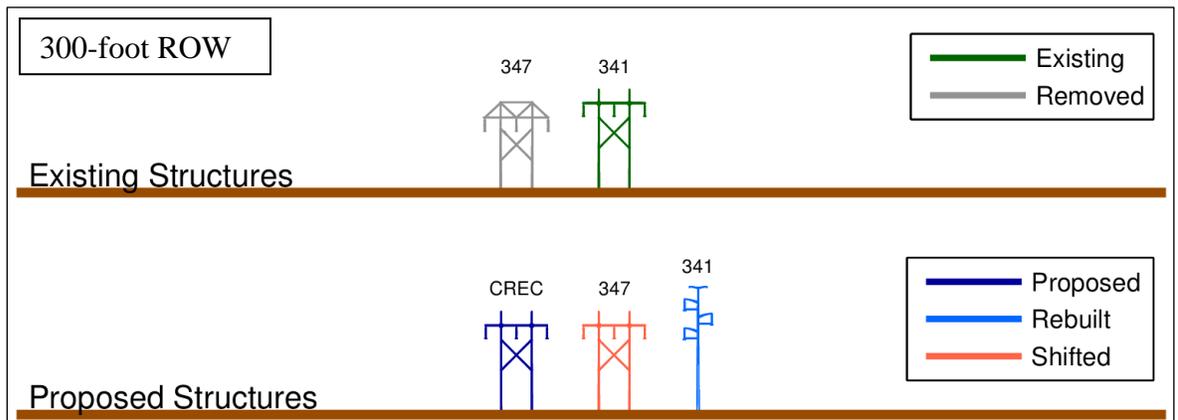


Figure 3. Configuration of existing and proposed Lines in XS-2 (View facing west).

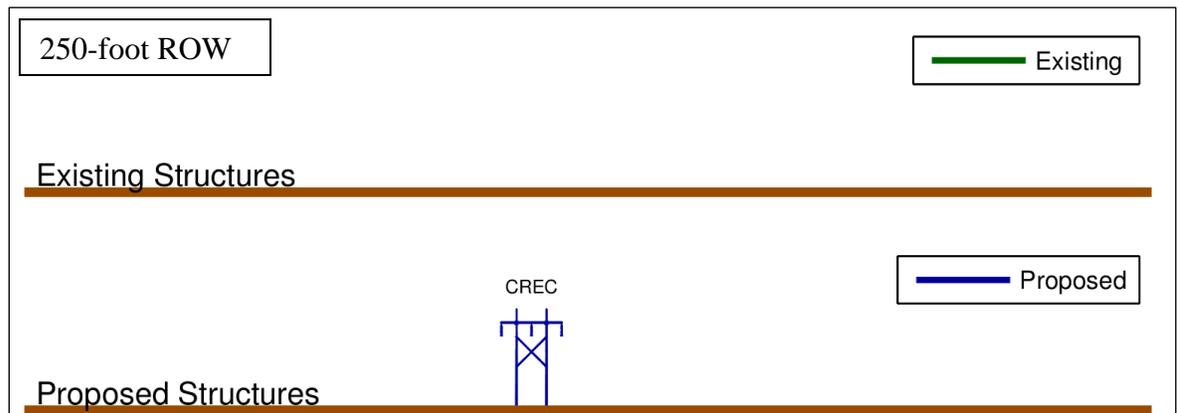


Figure 4. Configuration of existing and proposed Lines in XS-3 (View facing southeast).

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In the first route section (XS-1, approximately 4.4 miles long), two existing 345-kV National Grid transmission lines (Lines 341 and 347) are situated on a 500-foot wide ROW. The 345-kV CREC Line is proposed to be constructed on H-frame structures approximately 200 feet from the eastern ROW edge and 85 feet east of the existing centerline of the 347 Line as shown in Figure 2. In the second section of the route (XS-2, approximately 1.6 miles long) the ROW is 300 feet wide and existing 341 Line will be rebuilt on a new set of vertical delta monopoles 73 feet west of the existing centerline and 57 feet from the west ROW edge. The existing 347 Line will be shifted west and will be installed on the existing (to be vacated) H-frame towers currently supporting the 341 Line. Finally, the CREC Line will be constructed on a new set of H-frame structures, placed at the same centerline as the existing 347 Line as shown in Figure 3. In the third section (XS-3, approximately 0.8 miles long) the CREC interconnection transmission line will be constructed on a new 250-foot wide ROW, approximately 75 feet from the northern ROW edge, as shown in Figure 4.

The following sections provide background information on EMF; a description of the methodology used to calculate EMF levels; and a discussion of the relevant guidelines and standards for EMF levels. Finally, the calculated EMF values are summarized and compared to relevant guidelines and standards.

Electric and Magnetic Fields

Transmission lines, distribution lines, household appliances and equipment in our homes, workplaces, and other locations (i.e., any source of electricity) produce both electric fields and magnetic fields. Most electricity in North America is transmitted as alternating current (AC) at a frequency of 60 Hertz (Hz), i.e., it changes direction and magnitude in a continuous cycle that repeats 60 times per second. The fields from these AC sources are commonly referred to as power-frequency or extremely low frequency (ELF) EMF.²

Electric Fields

Electric fields are created by the voltage on the conductors of transmission lines. The strength of project-related electric fields in this report is expressed in units of kilovolts per meter (kV/m), which is equal to 1,000 volts per meter (V/m). Virtually all objects are conductive—including fences, shrubbery, and buildings—and thus can block electric fields. In general, the intensity of an electric field diminishes with increasing distance from the source and in the case of transmission lines that decrease is typically in proportion to the square of the distance from the conductors, so the electric-field level decreases rapidly with distance. As the voltage increases, the electric-field level increases; and is independent of the current flow on the line.

² The EMF described in this report are quasi-static (non-propagating) fields, not to be confused with higher frequency electromagnetic fields (e.g., fields produced by mobile phones).

Magnetic Fields

Magnetic fields are created by current that flows in transmission line conductors. The strength of magnetic fields in this report is expressed as magnetic flux density in units of milligauss (mG), where 1 Gauss (G) = 1,000 mG. Magnetic fields are not blocked by conductive object as are electric fields; however, similar to electric fields, the intensity of magnetic fields diminishes with increasing distance from the source. In the case of transmission lines, magnetic fields also generally decrease with distance from the conductors in proportion to the square of the distance.

Magnetic fields depend on the current flowing in transmission line conductor, whereas electric fields depend on the voltage on the conductors. Since the current flow varies depending upon the patterns of power demand on the bulk transmission system, the current, expressed in units of amperes (A), and the magnetic field it generates, also varies. As the demand for electricity varies on a given day, throughout a week, or over the course of months and even years the magnetic field varies. Therefore, current flow is often described as annual peak load (producing the highest magnetic-field level that might occur for a few hours or days during the year) and annual average load (a good prediction of the magnetic field on any randomly selected day of the year).

Phase optimization

Where two or more transmission lines share a ROW, the level of EMF will depend on the specific arrangement of the conductors of each circuit. In many circumstances the field levels at the ROW edge (or elsewhere) can be minimized by a careful selection of these phases in a phase-optimization analysis.³ In the present case, variations of the CREC Line phasing were considered (though the contributions of all three transmission lines were considered in all calculations). The optimal phasing for both sections of the proposed CREC Line on the existing National Grid ROW that minimizes the magnetic field at the edges of the ROW is C-B-A (from west to east) and this phasing was applied when computing the EMF levels for the proposed configuration.⁴

Methodology

To characterize the potential effect of the proposed operation of the new CREC Line on the existing levels of EMF, Exponent modeled the levels of these parameters under existing and proposed conditions. EMF levels associated with line operations under various projected loading scenarios were calculated using computer algorithms developed by the Bonneville Power Administration, an agency of the U.S. Department of Energy, which have been shown to accurately predict field levels

³ Phase optimization is one of the ways to minimize EMF levels consistent with recommendations to apply low cost measures to minimize magnetic fields (see e.g., World Health Organization. Environmental Health Criteria 238: Extremely Low Frequency (ELF) Fields. Geneva, Switzerland: World Health Organization, 2007).

⁴ The phasing of the line on the new interconnection will not currently change results in that portion of the route as there is only one transmission line in that location and at least two lines are required to take advantage of optimal phasing.

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near transmission lines.⁵ The inputs to the program for the existing and proposed transmission lines were provided by the ESS, and include the voltage, current flow, phasing, and conductor geometries of the lines, as well as their configurations and loading.

ESS also provided Exponent with average and peak loading for the existing transmission lines, as well as expected peak loading for the proposed CREC Line. The existing 341 and 347 Lines were modeled both at average and peak modeling configurations, while according to ESS, the new CREC Line will be among the most efficient gas-fired generation plants in New England and as such is expected to operate near full capacity the majority of the time. The CREC Line has therefore been modeled at 1080 MW capacity for both average and peak modeling configurations. The loading scenarios for all lines are shown in Table 1.⁶

Table 1. Loading summary of modeled transmission lines

Line	Voltage	Line Voltage			
		Average		Peak	
		MW	MVAR	MW	MVAR
341	345	72.6	18	-429.4	11.2
347	345	344.2	36.8	-434.8	72.6
CREC	345	1080*	0.0*	1080*	0.0*

* The CREC transmission line was modeled at 1080 MW capacity for both average and peak loading configurations.

Based on these data, Exponent calculated magnetic-field levels at 1 meter (3.28 feet) above ground as the root-mean-square value of the field at each location along a transect perpendicular to the transmission line's centerline in accordance with IEEE Std. C95.3.1-2010 and IEEE Std. 644-1994.⁷ All transmission and distribution line voltages were assumed to be in phase; both electric fields and magnetic fields were calculated as the resultant of x, y, and z field vectors; EMF levels were calculated along profiles perpendicular to lines at the mid-span point of lowest conductor sag (i.e., closest to the ground); and the conductors were assumed to be located on flat terrain and at maximum sag for the entire distance between structures.

⁵ Bonneville Power Administration (BPA). Corona and Field Effects Computer Program. Portland, OR: Bonneville Power Administration, 1991.

⁶ The generating capacity of the CREC Project is 1080 Megawatts.

⁷ Institute of Electrical and Electronics Engineers (IEEE). IEEE Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines (ANSI/IEEE Std. 644-1994). New York: IEEE, 1994; Institute of Electrical and Electronics Engineers (IEEE). IEEE Recommended Practice for Measurements and Computations of Electric, Magnetic, and Electromagnetic Fields with Respect to Human Exposure to Such Fields, 0 Hz to 100 kHz (IEEE Std. C95.3.1-2010). New York: IEEE, 2010.

For electric fields, the same line configurations used to calculate magnetic fields were included in the models and a 5% overvoltage condition was assumed for all lines to ensure that the calculated values represent the maximum expected electric field for each of the route sections analyzed.

Standards and Guidelines

Neither the federal government nor the state of Rhode Island has enacted standards for EMF from transmission lines or other sources.

Some other states have statutes or guidelines that apply to fields produced by new transmission lines, but these are not health-based guidelines. New York and Florida, for example, have limits on EMF that were designed to limit fields from new transmission lines to levels produced by existing transmission lines (i.e., to maintain the *status quo*).⁸

More relevant than the various state-enacted guidelines are exposure limits recommended by scientific organizations that were developed to protect health and safety based on scientific reviews and risk assessments. These exposure limits are based on extensive weight-of-evidence reviews and evaluations of relevant health research and are designed to prevent acute, short-term biological responses such as perception, annoyance, and the stimulation of nerves and tissue that can occur at very high EMF exposure levels to which the general public would not be exposed.

The International Committee on Electromagnetic Safety (ICES) and the International Commission on Non-Ionizing Radiation Protection (ICNIRP) have developed standards and guidelines to assess levels of EMF acceptable for safe public exposure. The EMF Reference Levels set by these organizations at a frequency of 60 Hz to ensure compliance with Basic Restrictions are summarized in Table 2 below.⁹

Table 2. Reference Levels for whole body exposure to 60-Hz fields: general public

Organization	Magnetic Fields	Electric Fields
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⁸ Florida Department of Environmental Regulation (FDER). Electric and Magnetic Fields. Chapter 17-274: FDER, 1989; Florida Department of Environmental Protection (FDEP). Electric and Magnetic Fields. Chapter 62-814: FDEP, 1996; New York Public Service Commission (NYPSC). Opinion No. 78-13. Opinion and Order Determining Health and Safety Issues, Imposing Operating Conditions, and Authorizing, in Case 26529, Operation Pursuant to those Conditions: NYPSC, 1978; New York Public Service Commission (NYPSC). Statement of Interim Policy on Magnetic Fields of Major Transmission Facilities. Cases 26529 and 26559 Proceeding on Motion of the Commission: NYPSC, 1990.

⁹ International Committee on Electromagnetic Safety (ICES). IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields 0 to 3 kHz. Piscataway, NJ: IEEE, 2002, reaffirmed 2007; International Commission on Non-ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz to 100 kHz). Health Phys 99: 818-836, 2010.

ICNIRP	2,000 mG	4.2 kV/m
ICES	9,040 mG	5 kV/m 10 kV/m*

* This is an exception within transmission line ROWs because people do not spend a substantial amount of time in ROWs, and very specific conditions are needed before a response is likely to occur (i.e., a person must be well insulated from ground and must contact a grounded conductor) (ICES, p. 27).⁹

Results

Magnetic Fields

Calculations at various locations on and beyond the ROW are summarized in Table 3 for all modeled sections. Graphical results of magnetic field calculations are shown in Figure 5 through Figure 7. As expected, the addition of the heavily-loaded CREC Line to the ROW increases the maximum magnetic-field level on the ROW as well as at the ROW edges. The edge of ROW magnetic-field level in XS-1 where the ROW is very wide, however, remains 12 mG or less under average loading conditions. The maximum magnetic-field level under average loading on the XS-2 ROW is similar to that of XS-1, but the narrower ROW width in XS-2 results in a higher magnetic-field level, primarily on the eastern side of the ROW (65 mG) when the CREC Line is operating. Similarly, in XS-3, the shorter distance to from the structures to the ROW edge results in a higher magnetic field level (88 mG) at one ROW edge. It is important to note, however, that even at CREC 1080 MW capacity the magnetic-field levels are all well below the Reference Levels recommended by ICES and ICNIRP.

Table 3. Magnetic-field levels (mG) calculated at 1080 MW capacity of the CREC and average loading and peak loading of the 341 and 347 Lines

Section	Loading	Condition	Distance from Centerline of ROW				
			- ROW Edge -100 ft	- ROW Edge	Max on ROW	+ ROW Edge	+ ROW Edge +100 ft
XS-1	Average	Existing	1.0	1.8	116	1.9	1.1
		Proposed	5.0	12	365	4.3	2.3
	Peak	Existing	0.5	1.1	171	8.2	2.0
		Proposed	6.4	14	342	3.8	1.6
XS-2	Average	Existing	4.5	21	116	1.9	1.1
		Proposed	13	65	366	5.9	1.6
	Peak	Existing	3.5	22	171	8.2	2.0
		Proposed	19	79	336	46	14

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Section	Loading	Condition	Distance from Centerline of ROW				
			- ROW Edge -100 ft	- ROW Edge	Max on ROW	+ ROW Edge	+ ROW Edge +100 ft
XS-3	Average	Existing	N/A	N/A	N/A	N/A	N/A
		Proposed	17	88	351	17	7.0
	Peak	Existing	N/A	N/A	N/A	N/A	N/A
		Proposed	17	88	351	17	7.0

AC Magnetic Field Cross Section XS-1

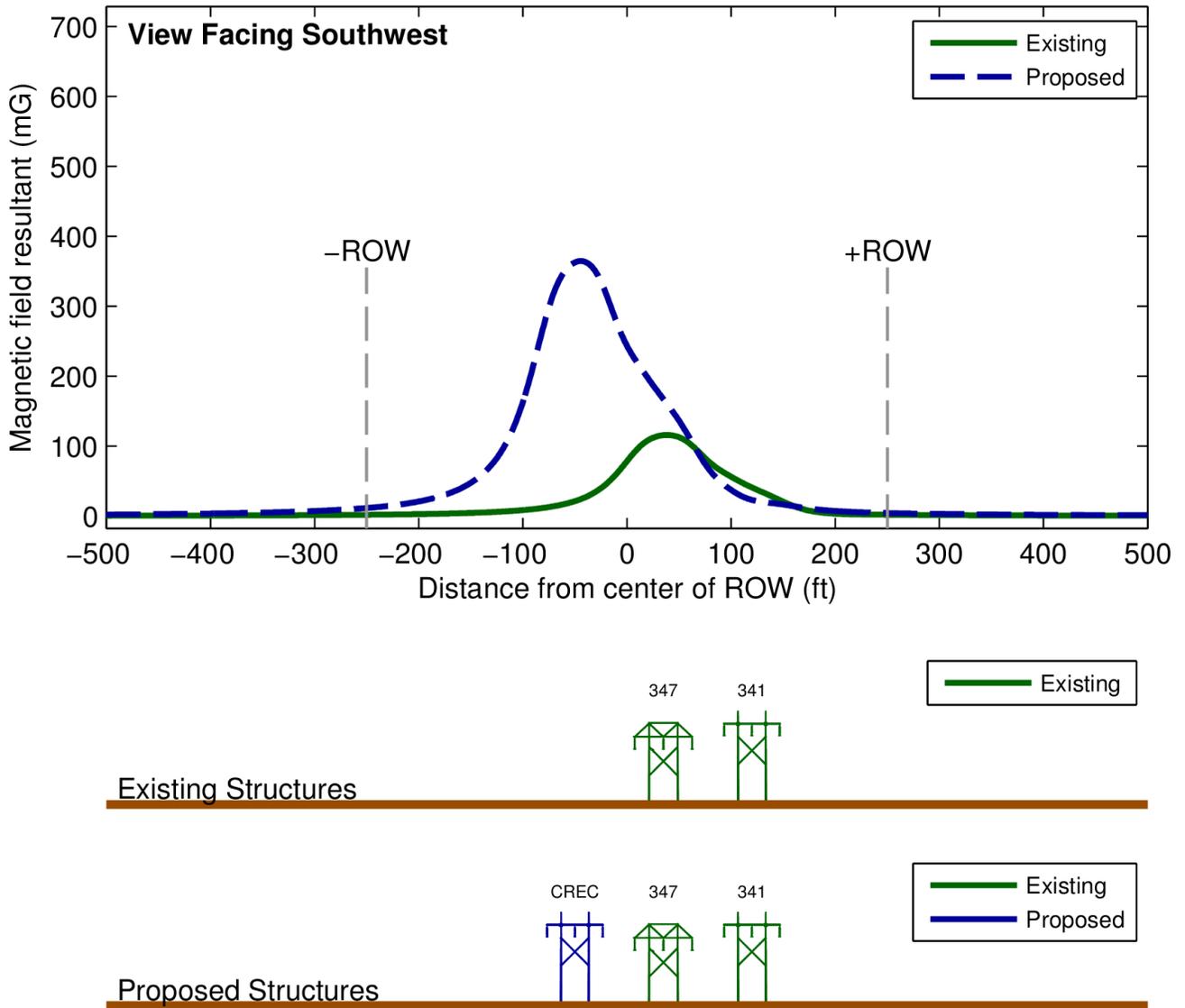


Figure 5. Calculated magnetic-field level at average loading for both existing and proposed conditions in XS-1.

AC Magnetic Field Cross Section XS-2

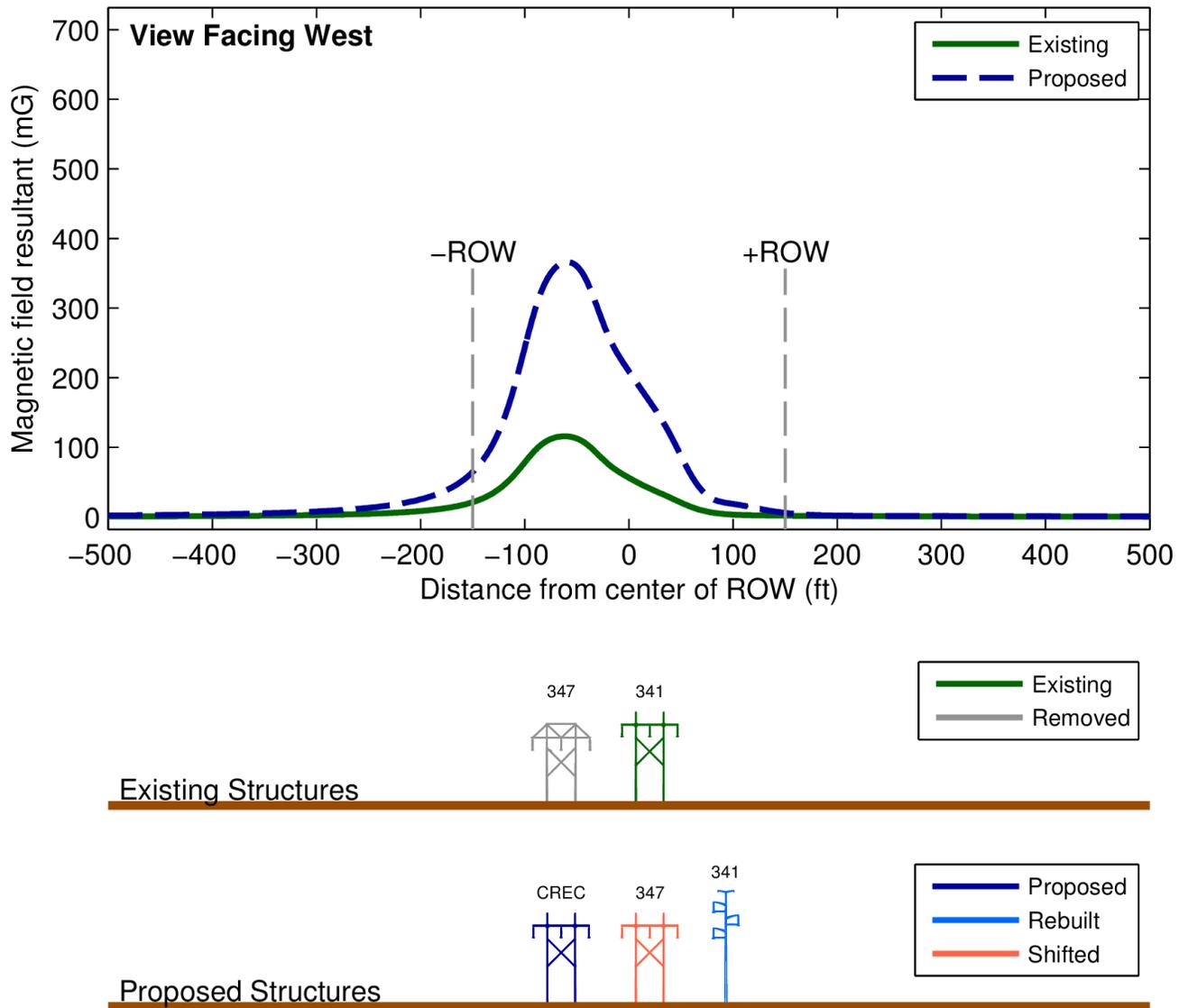


Figure 6. Calculated magnetic-field level at average loading for both existing and proposed conditions in XS-2.

AC Magnetic Field Cross Section XS-3

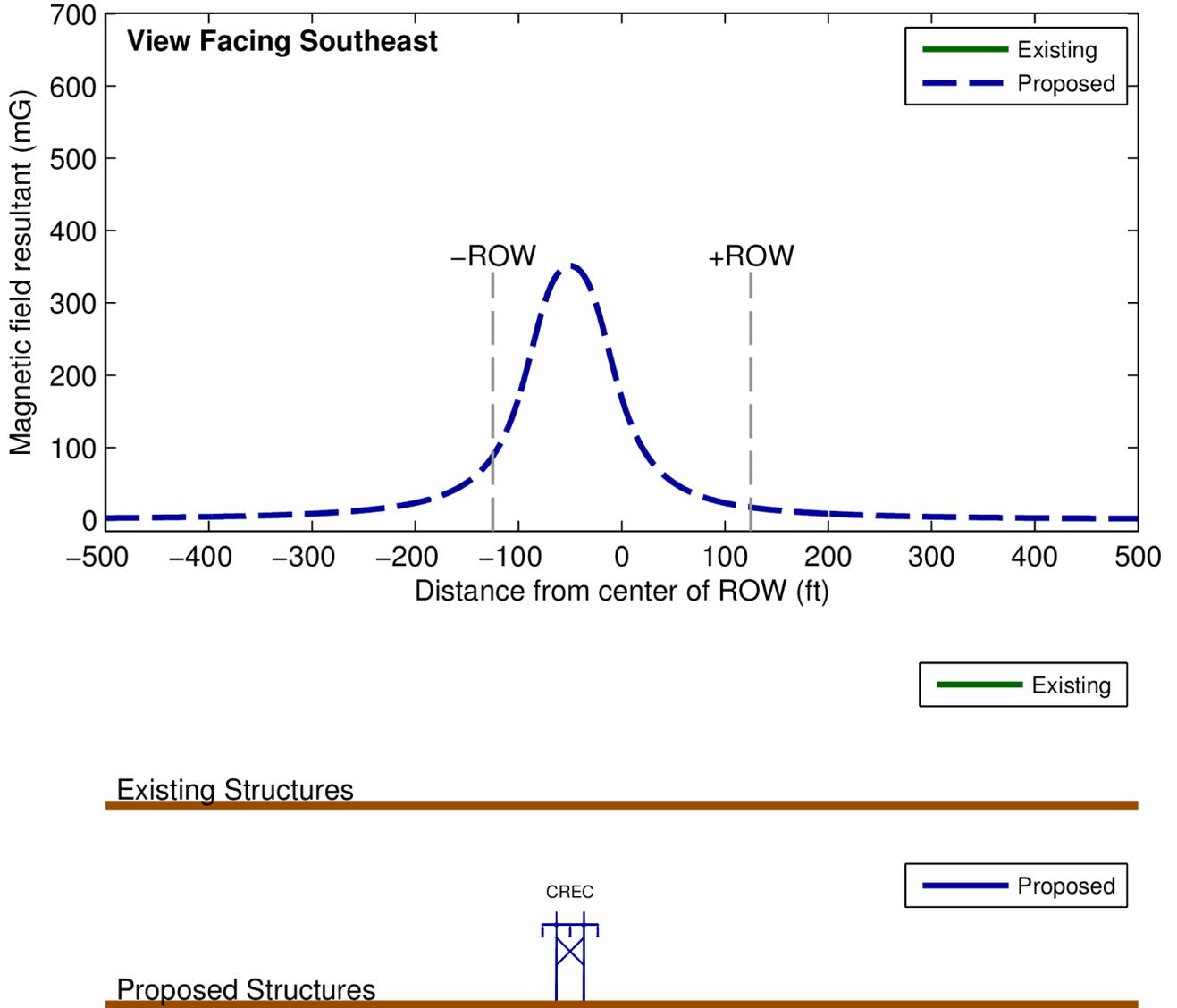


Figure 7. Calculated magnetic-field level at average loading for proposed conditions in XS-3.

Electric Fields

Calculations of the electric field at various locations on and beyond the ROW are summarized in Table 4 for all modeled sections. Graphical results of electric-field calculations for the three sections are shown in Figure 8 to Figure 10. As can be seen in Table 4 both the maximum electric-field level on the National Grid ROW as well as the edge of ROW electric-field level stays largely unchanged as a result of this project. The exception to this is the increase in the electric-field level on the western ROW edge in XS-2 where the 341 Line is rebuilt closer to the ROW edge and the field level is calculated to be 1.5 kV/m). Similarly, in XS-3, the shorter distance from the structures to the ROW edge results in a higher electric field level (1.7 kV/m) at one ROW edge. At the edge of the ROW, all electric field levels are well below the Reference Levels recommended by ICES and ICNIRP.¹⁰

Table 4. Electric field levels (kV/m) with all lines operating at maximum voltage

Section	Condition	Distance from Centerline of ROW				
		- ROW Edge -100 ft	-ROW Edge	Max on ROW	+ROW Edge	+ROW Edge +100 ft
XS-1	Existing	0.02	0.05	7.5	0.39	0.02
	Proposed	0.04	0.11	7.5	0.38	0.04
XS-2	Existing	0.14	1.2	7.5	0.39	0.14
	Proposed	0.13	1.2	7.7	1.5	0.13
XS-3	Existing	N/A	N/A	N/A	N/A	N/A
	Proposed	0.16	1.7	5.1	0.16	0.04

¹⁰ The maximum electric-field level on the ROW is higher than the specified Reference Level for ICNIRP, but is relatively unchanged from existing conditions. Additionally, with further analysis these field levels are clearly below the ICNIRP Basic Restriction levels in tissue (the actual exposure limits) calculated by methods such as described by Kavet et al., in: "The relationship between anatomically correct electric and magnetic field dosimetry and published electric and magnetic field exposure limits." *Radiat Prot Dosimetry* 152: 279-295, 2012.

AC Electric Field Cross Section XS-1

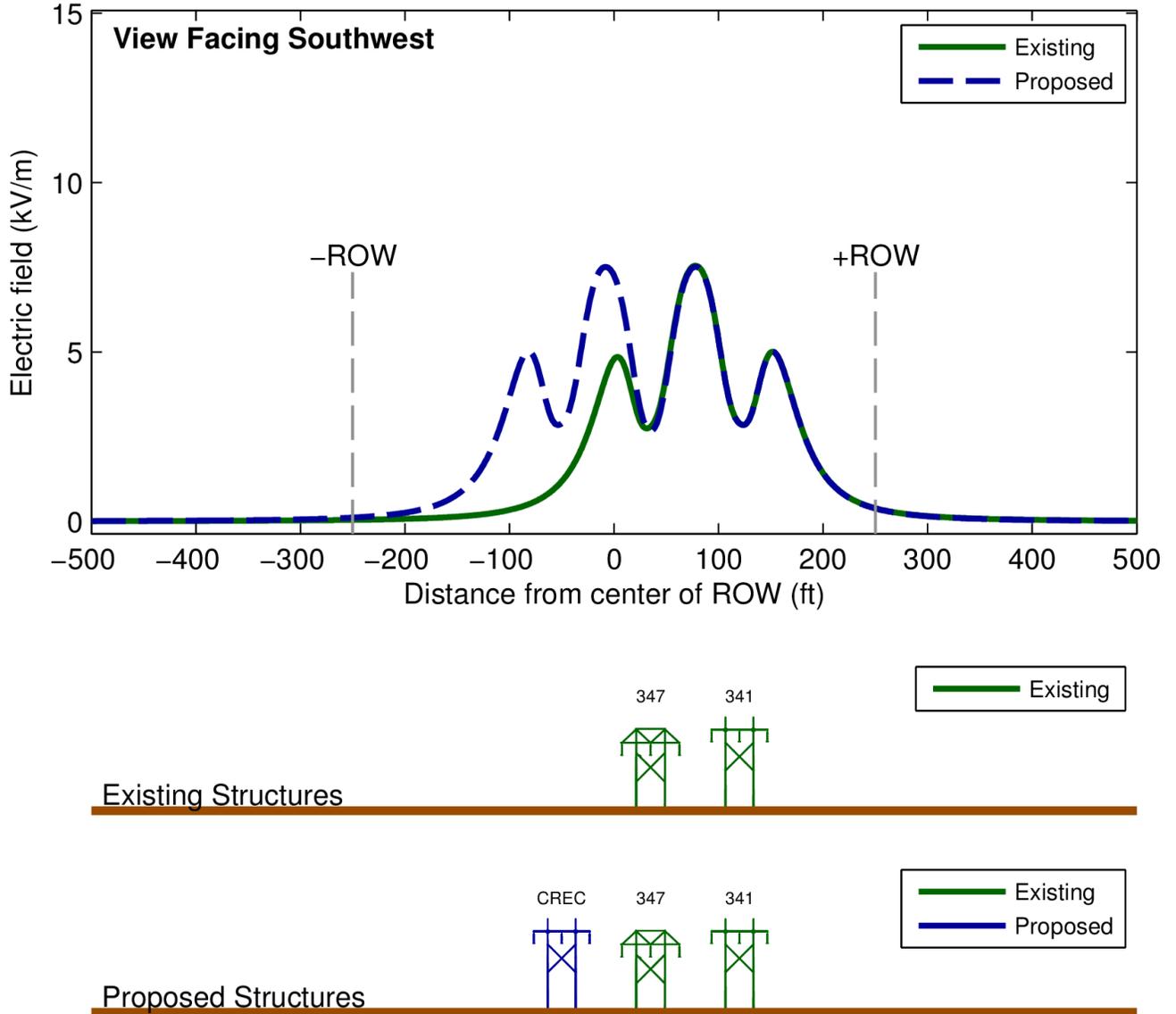


Figure 8. Calculated electric-field level for both existing and proposed conditions in XS-1.

AC Electric Field Cross Section XS-2

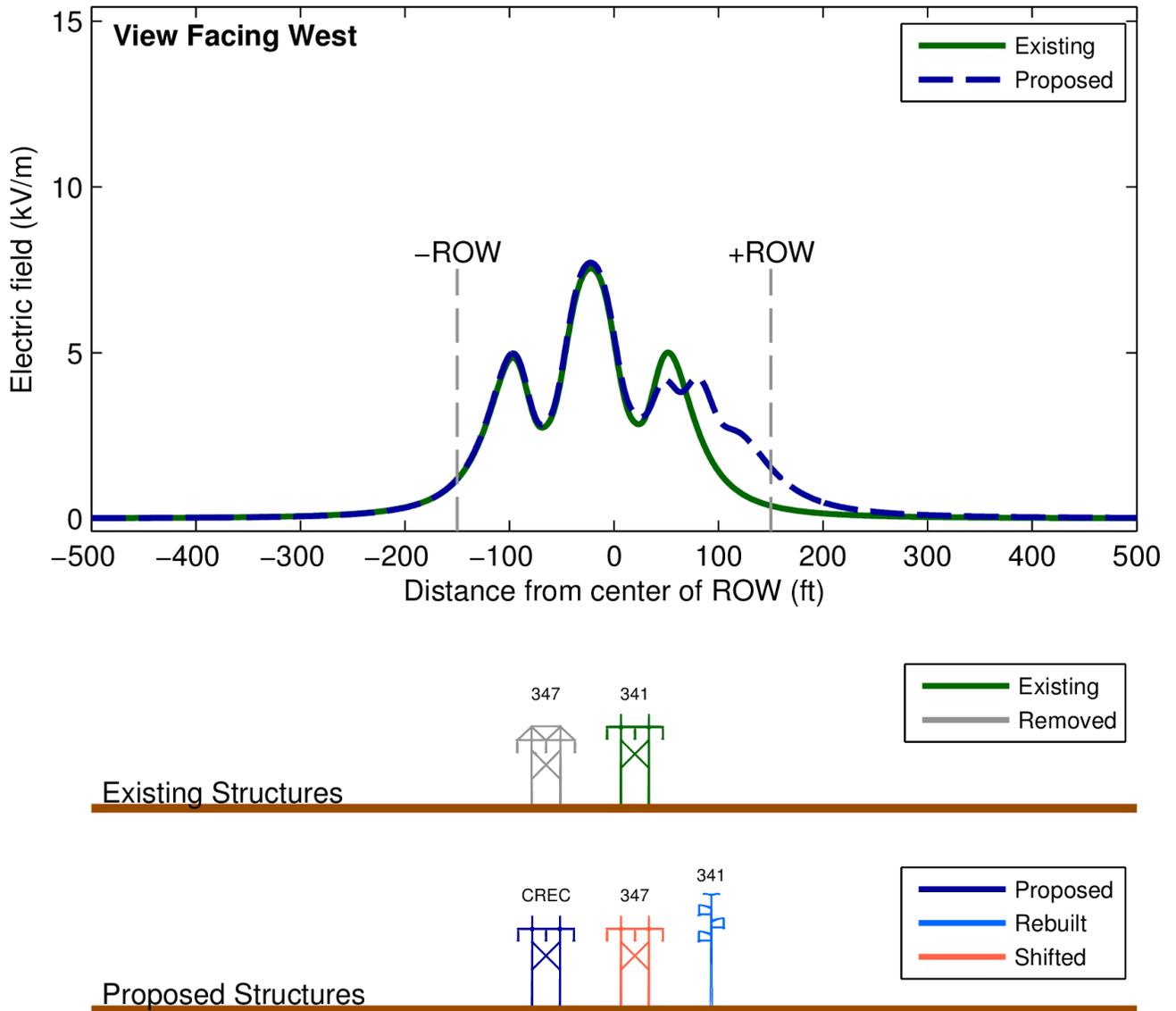


Figure 9. Calculated electric-field level for both existing and proposed conditions in XS-2.

AC Electric Field Cross Section XS-3

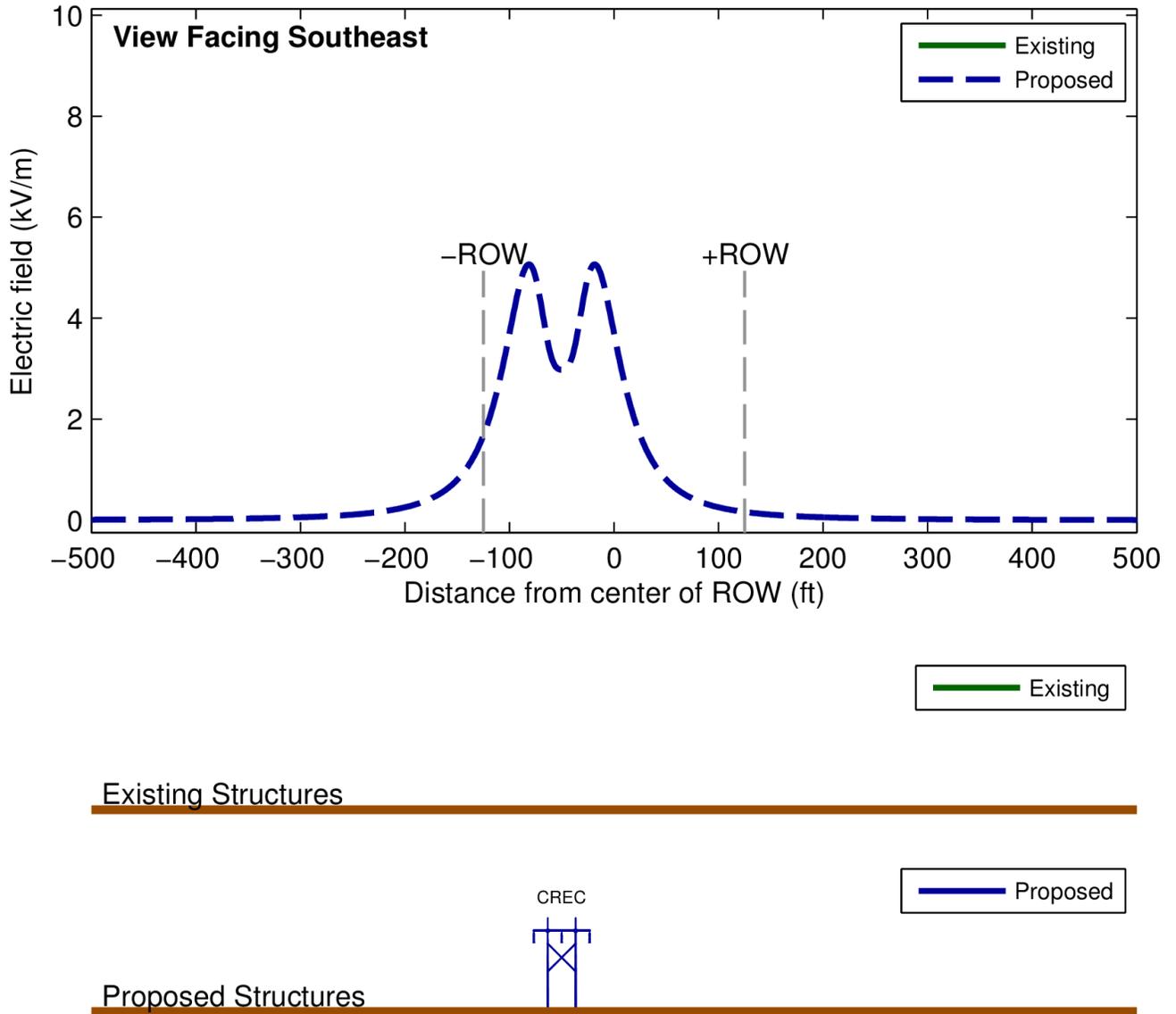


Figure 10. Calculated electric-field level for proposed conditions in XS-3.

Conclusions

The new CREC is planned to be among the most efficient gas-fired generation plants in New England and for this reason is expected to operate near full capacity the majority of the time. Therefore, the loading on the CREC Line, and hence magnetic-field levels in all sections, were calculated to increase when the two existing transmission lines are operating at average or peak loading. On the existing National Grid ROW, the new CREC Line will be near to the center of the ROW and the selection of optimal phasing for minimizing magnetic-field levels at the ROW edges serves to limit this increase. The new CREC Line is not calculated to significantly increase the electric-field level at the ROW edge in XS-1 because of the very wide ROW in that section. In XS-2, however, the rebuilding of the 341 Line nearer the west ROW edge is expected to increase electric-field levels somewhat. For the new interconnection between the CREC switchyard and the National Grid ROW, EMF levels are similar to those in XS-1 and XS-2, but levels at the northern ROW edge are somewhat higher due to the placement of the new line approximately 75 feet from the northern ROW edge. However, this interconnection will be constructed entirely on private property with no permanent public access. The closest residences are more than 1,000 feet from the proposed transmission line interconnection, so no increase in EMF levels off site is anticipated.

Magnetic-field levels are all calculated to be well below Reference Levels recommended by ICES and ICNIRP. At the ROW edge and beyond where people are more likely to spend significant time, electric-field levels are also well below ICES and ICNIRP Reference Levels. On the ROW, particularly beneath both the existing and proposed transmission lines, the electric-field level is calculated to be higher than the ICNIRP Reference Level but with further analysis is shown to be well below ICNIRP Basic Restriction levels using methods like that described by Kavet et al.¹¹

¹¹ Kavet R, Dovan T, Reilly JP. The relationship between anatomically correct electric and magnetic field dosimetry and published electric and magnetic field exposure limits. *Radiat Prot Dosimetry* 152: 279-295, 2012.

Limitations

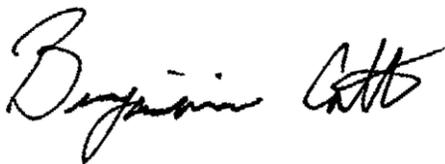
At the request of ESS, Exponent modeled the levels of EMF associated with the proposed energy center. This report summarizes work performed to date and presents the findings resulting from that work. In the analysis, we have relied on geometry, material data, usage conditions, specifications, and various other types of information provided by the client. ESS has confirmed to Exponent that the data provided to Exponent are not subject to Critical Energy Infrastructure Information restrictions. We cannot verify the correctness of this input data, and rely on ESS for the data's accuracy. Although Exponent has exercised usual and customary care in the conduct of this analysis, the responsibility for the design and operation of the project remains fully with the client.

The findings presented herein are made to a reasonable degree of engineering and scientific certainty. Exponent reserves the right to supplement this report and to expand or modify opinions based on review of additional material as it becomes available, through any additional work, or review of additional work performed by others.

The scope of services performed during this investigation may not adequately address the needs of other users of this report for purposes unrelated to project permitting, and any re-use of this report or its findings, conclusions, or recommendations presented herein are at the sole risk of the user. The opinions and comments formulated during this assessment are based on observations and information available at the time of the investigation. No guarantee or warranty as to future life or performance of any reviewed condition is expressed or implied

If you have any questions or require additional information, please do not hesitate to contact me at 301-291-2519 or bcotts@exponent.com.

Sincerely,

A handwritten signature in black ink that reads "Benjamin Cotts". The signature is written in a cursive, flowing style.

Benjamin Cotts, Ph.D.
Managing Engineer