



**Woburn to Wakefield Line Project
and
Mystic to Woburn Line Project
Town of Winchester: Questions and Answers (Q&A)**

January 15, 2016

April 7, 2016 Revision

Ownership and Regulation

Q: Who owns and operates the transmission lines?

A: For the Mystic to Woburn Line Project, Eversource will own and operate the transmission line. For the Woburn to Wakefield Line Project, Eversource will own the transmission line in Woburn, Winchester, and Stoneham; while National Grid will own the transmission line in Wakefield. The Independent System Operator for New England, ISO-NE, coordinates the operation of the lines through the designated Local Control Centers (LCC). There are six LCCs in New England. ISO-NE is an independent, not-for-profit corporation regulated by the Federal Energy Regulatory Commission (FERC) responsible for keeping the lights on in the six New England states and ensuring that the region has access to reliable, competitively priced wholesale electricity today and into the future.

Q: Who regulates the location, construction and operation of the lines?

A: There are many regulatory agencies involved in the approval of the location, construction and operation of the transmission lines in the area, including for these two proposed transmission line projects. ISO-NE is responsible for planning and managing the operation of the New England regional transmission network and continually analyzes whether the transmission system meets mandatory national and regional reliability standards both now and in the future.

Both of these Projects require the approval of the Massachusetts Energy Facilities Siting Board (EFSB). The EFSB approves the project, including the project route (location). The approval issued by the EFSB often has requirements related to the way the project is constructed to minimize impacts. Both of these Projects also require additional state and local permits and approvals. However, the EFSB has the authority to issue an overriding approval if the Company [or “project sponsor”] is prevented or hindered from building a project approved by the EFSB because of an adverse state or local agency permitting decision or undue agency delay.

The respective utilities manage the construction of the lines in compliance with regulatory requirements.

Q: What is the process for planning, permitting and construction of the lines?

A: Determining the need for a transmission upgrade takes place through a Federal Energy Regulatory Commission (FERC)-regulated stakeholder process administered by ISO-NE. The stakeholder process includes representatives from a number of sectors, including the “end-user” (or customer). Once a system reliability need has been identified and a preferred solution selected through the ISO-NE process, the permitting process typically entails three levels of regulatory oversight: federal, state and local.

At the federal level, all transmission enhancements must meet national reliability standards, be prudently administered, and meet federal environmental requirements as applicable.

At the state Siting level, each project must balance three basic principles:

- Reliability, including timeframe to meet identified need
- Cost, including constructability
- Environmental impacts, including community impacts

These principles are addressed in our Permit application as filed with the EFSB. As part of the siting process, we must identify a “preferred route” and a “noticed alternative route” distinct from the preferred route. The Projects must also meet the requirements of various applicable state permitting agencies, which may include MA EOEEA (including MEPA and MassDEP requirements), MassDOT, MassDCR, NHESP, MBTA, and/or MWRA, among others.

At the local level, the Projects may require certain municipal permits including Grants of Location, Street Opening permits, and/or Conservation Commission approvals. (Depending on the type of permit requested, denials or delays in receiving permits may be addressed through direct appeal, e.g., under statute (Section 28) for Grants of Location.)

In addition to these regulatory requirements, we also meet with the municipal officials in host communities to solicit their input and feedback on the proposed Projects, and incorporate such suggestions into the proposed project route and/or design when technically and prudently feasible to do so.

For underground utility lines being placed primarily in the streets or in other paved areas, construction will involve several separate crews to cut pavement, excavate, install pipe; and backfill. Several months later a separate specialized crew will pull and splice cables. Following completion of the Project, final paving will be conducted.

Q: When and how are abutters and the general public notified about the projects?

A: We take a very hands-on, individualized approach with affected customers in host communities. During the siting process for these Projects, we hosted a series of well-

publicized public open houses to brief the residents, businesses, and other stakeholders on the proposed Project, provide opportunities to discuss the Project with subject matter experts, and solicit input. A total of seven local open houses were held for these Projects, including one in Winchester on April 29, 2015. Personal invitations to all of the open houses were sent to all property owners along or near the Project routes under consideration.

Over the course of developing the Projects, the Companies also participated in a series of public town meetings to discuss the Project and solicit feedback, including the most recent Board of Selectmen meeting held in Winchester on January 11, 2016. (In addition to these public town meetings, the Companies held a series of meetings with various town officials and department heads to discuss the proposed Projects, potential alternatives, and solicit their input.)

The EFSB also held public comment hearings for each of the projects. The public comment hearing for the Woburn to Mystic Line Project was held on July 15, 2015. The public comment hearing for the Woburn to Wakefield Line Project was held on November 18, 2015. Abutting property owners within 300 feet of both the preferred routes and noticed alternative routes/variations on each respective Project were notified of the Project and their opportunity to attend the hearings to participate in the EFSB process. Notice of the hearings was also published in multiple local and regional newspapers, such as the Boston Globe and Winchester Star, and posted both at the Town Clerk's office and libraries in the host communities.

A dedicated website has been developed to provide an overview of the Project, timely Project updates, route maps, and contact information. A toll-free phone line (1-844-646-8427) and email address (info@ma-nhsolution.com) is available for the general public to ask questions, voice concerns or express ideas about the Project and construction activities. The Companies' commitment is to respond to all requests promptly.

During construction, pamphlets, letters or postcards will be periodically mailed or hand-delivered to abutting property owners to keep them apprised of Project activities in their area. We will also conduct pre-construction briefings with town officials, business owners and other stakeholders to outline the construction process, key milestones, and expected timelines, and will work with each as needed to mitigate project impacts.

Q: What recourse does the Town or abutters have if they object to the projects?

A: Both Eversource and its partner National Grid have done extensive community outreach to proactively solicit feedback on the Projects so that we can do everything practical to address the specific concerns of abutting property owners, municipal officials, and other stakeholders. Any resident or business owner can obtain information at www.ma-nhsolution.com and/or contact a Company representative directly with a question or concern by calling 1-844-646-8427 or sending an email to info@ma-nhsolution.com.

Any concerns about the Projects on the part of municipal representatives can be brought to the attention of the Eversource Community Relations Representative(s) assigned to the municipality (Jack Lopes @ 508-660-5251 or Bill Zamparelli @ 617-629-3265 for the Town of Winchester).

Municipalities, members of the public, and other stakeholders may also elect to participate in the permitting process. Opportunity for participation varies by the specific permit or approval required. Information on participating in the EFSB proceeding can be found on <http://www.mass.gov/eea/energy-utilities-clean-tech/energy-facilities-siting-board/for-the-public.html>. Questions on the information presented on the EFSB website should be directed to EFSB staff (contact information can be found at www.mass.gov/eea/energy-utilities-clean-tech/energy-facilities-siting-board/).

Q: Have any of the municipalities affected by the project worked with Eversource to change the project route, or rejected the project entirely?

A: Yes. During the route selection phase of the Projects, the Project Teams met with various representatives of each municipality on many occasions. The Teams collected input on known issues, future construction projects, and areas of specific town concern. At these meetings, new potential routes were identified for evaluation and potential routes were also discarded at the request of the municipality. With this information, potential routes were developed seeking to best meet the scoring criteria required.

One of the host communities declined our invitation to provide their preference on the Companies proposed preferred and noticed alternative routes/variations. Instead, officials from this community asked the Companies to redirect the line outside town boundaries. After review and exploration of potential alternatives, the Companies declined, given that there was no practicable way to avoid a route through their town in order to make the necessary transmission line connection between substations. The Companies then proceeded with their proposed preferred and notice alternative routes/variations through that town in their Petition to the EFSB.

Network

Q: What is the regional transmission network?

A: The regional transmission network is an integrated series of 345kV, 230kV, 115kV and 69kV transmission lines and interconnecting substations and switching stations throughout New England. It serves as the “backbone” of the electric system carrying bulk supply of electricity that is then “stepped down” in voltage at the substations to the distribution lines, which carry power to local businesses and homes.

Q: Why are the additional transmission lines needed?

A: The additional transmission lines are needed to meet the reliability standards set forth by NERC (North American Electric Reliability Corporation), NPCC (Northeast Power

Coordinating Council) and ISO-NE. ISO-NE identified inadequate transmission resources to serve the Greater Boston area, including potential overloads to the existing 345-kV and 115kV systems serving the area.

It is important to note that the proposed Projects are system reliability improvements serving an essential public need and are not discretionary private projects.

Q: How will the lines benefit the region?

A: These new lines are part of a suite of projects designed to improve system reliability and meet projected customer demand and load growth in the Greater Boston and surrounding area, including residents in Winchester. The lines are designed to provide the needed capacity to maintain the network system under contingency conditions. Without the projects, potential overloads to the existing system serving the area could occur under certain operating conditions.

Q: How will the lines benefit Winchester?

A: Reliable electric service to Winchester residents and businesses is directly dependent on the reliability of the area's transmission system. Specifically, Winchester's distribution system, which brings power directly to homes and businesses, is mainly fed by a substation in Woburn. The ability to provide power to this substation will be significantly increased by the Projects (both projects terminate at the Woburn Substation).

In addition to the system reliability benefits, the suite of the Greater Boston Solution projects is projected to save hundreds of millions of dollars per year in congestion costs for customers in the Greater Boston and surrounding area, including customers in Winchester. As with most large local infrastructure project, host communities will also benefit from annual property tax revenues, and the local and surrounding areas will benefit from new jobs and the use of local services during the construction phase of the Project process.

Routes

Q: What routes were considered?

A: The Companies evaluated many routes within the Project area, and solicited municipal input and other stakeholder input for that evaluation. Most routes used public roadways, but existing rights-of-way (i.e., railroad and utility ROWs), parkland, and some private lands were also considered in the route selection analysis. Of the 25+ potential routes initially identified, the Companies completed in-depth analyses of the resulting primary routes and several variations to the primary routes, as presented in the Projects' Petitions submitted to the EFSB. (The Petitions are located on the EFSB website. Under "Siting Dockets", enter Docket #EFSB15-04 for the Woburn to Wakefield Line Project or Docket #EFSB15-03 for the Mystic to Woburn Line Project.)

Q: What criteria were used to screen and evaluate the routes?

A: Various criteria (including nearby residential/commercial land uses, parks, and hospitals; environmental impacts; project length; public transit facilities and traffic patterns; utility density; and constructability, among others) were used in the analysis of potential Project routes, along with input from municipalities and state agencies. These criteria were used to compare and rank the Project's impacts on the natural and manmade environments. (See routing criteria in Petitions under: Section 5 (at 5.5.2.1), for the Woburn to Wakefield Line Project, and Section 5.5.1, pages 5-16 thru 5-26 for the Mystic to Woburn Line Project.)

Q: What were the weights and rankings of each of the criteria for each of the routes and alternatives evaluated by Eversource?

A: The weighting and ranking process used by Eversource to select its preferred and noticed alternative routes is a robust analysis that is best described in its Siting filings. Both the Woburn to Wakefield Line Project and Mystic to Woburn Line Project Siting filings are available for review at the Winchester town library and on-line at <http://www.ma-nhsolution.com>.

For the Woburn to Wakefield Line Project, the applicable section can be found in Volume 1-Section 5 entitled "Route Selection". Page 5-49 of that section contains Table 5-5, entitled "Candidate Route Scoring".

For the Mystic to Woburn Line Project, the applicable section can be found in Volume 1-Section 5 entitled "Route Selection Process". Page 5-27 of that section contains Table 5-2, entitled "Route Evaluation Matrix".

Q: Who selected the "preferred routes?"

A: The preferred routes were selected by the Companies based on the results of the route scoring analysis and with input from the subject matter experts, host municipalities, state agencies, special interest groups, and/or other stakeholders.

Q: What criteria do the State Energy Facilities Siting Board consider in approving the "preferred routes?"

A: The Siting Board is mandated by statute to ensure the Project will provide a "reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost". The EFSB may approve the preferred route or any of the noticed alternative routes/variations contained in the Petition, and considers a variety of factors in the approval of an electric transmission line route, including system reliability, impacts to the human and natural environment, constructability, and cost. These factors are described in detail in the Project's EFSB Petitions which can be found in the local host community libraries as well as on-line through the EFSB or Project websites. General details are also available in the DPU document "The Energy Facility Siting Handbook" (July, 2011).

Q: Can the Town change the routes?

A: Through discussions with the Companies prior to the filing of the Petitions, the towns have already influenced the Companies' preferred and noticed alternative route/variations proposals by providing material information that the Companies then included in their evaluation criteria and route scoring analyses.

While input about the routes from each municipality is actively encouraged and considered by both the Companies and the EFSB, once the Petition has been filed with the EFSB, the responsibility for final approval of the Project route lies with the EFSB.

Construction Impacts

Q: What do the transmission lines, conduits and junctions look like?

A: The transmission lines and conduits will be placed in trenches underground. Where sections of the line need to be jointed together, this will occur in manholes (junction or splice boxes). The manholes are approximately 8'x8'x30' long for the Woburn to Wakefield Line Project and approximately 10'x10'x24' long for the Mystic-Woburn Project.

Q: How are they constructed?

A: Construction will consist of manhole installation, trench excavation, conduit installation, backfill and temporary asphalt patching. Where applicable, river and railroad crossings will also be conducted. Next, the cables will be installed, spliced and tested. Final pavement and other Project restorations will be conducted after Project completion per municipal agreements.

Q: How much of the roadway is excavated?

A: The typical trench width will be 4' wide for both the Mystic to Woburn and the Woburn to Wakefield Line Projects. The excavation for the manholes will be larger (the sizes of the manholes are listed above).

Q: How deeply are the lines buried?

A: The depth of the trench depends on the location of other nearby utilities. If no other utilities are in close proximity, the typical depth of the trench would be approximately 5 feet. The lines may be installed deeper where they cross under existing utilities, rivers and railroad lines.

Q: How deep are the "manholes"/splicing boxes buried?

A: Manholes will be buried and typically have 2-3 feet of cover.

Q: Approximately where (nearest street address) the "manholes"/splicing boxes located?

A: The preliminary manhole location maps within Winchester for both Woburn to Wakefield and Mystic to Woburn projects are shown at the end of these FAQs. Within Winchester, the maps show six (6) manholes for each of the projects (twelve manholes

total). The quantity and locations are subject to change during permitting review and final design.

Q: Will construction require temporary or permanent property takings?

A: No property acquisitions or additional property easements are planned or anticipated in Winchester at this time for the proposed routes.

Q: Will construction equipment or materials be placed on private property?

A: No construction equipment or materials will be placed on private property without the property owner's consent. In consultation with town officials, construction materials will be stored at a location determined by the contractor who may elect to lease space for this purpose (i.e., laydown yards).

Q: Will construction interfere with electrical, water, sewer, cable, etc., services along the route?

A: As part of its construction planning process, the Companies will review mapping and other information on existing utilities/facilities, and make every effort to limit potential impacts to other utilities/facilities in the area. However, there is the potential for some unavoidable conflicts. If that situation occurs, some services, particularly smaller services, may need to be relocated and temporarily shut off for short periods of time during this relocation. Costs for such relocations will be paid through the respective Project. Affected property owners will be notified in advance.

Q: How will the contractor control dust, mud, noise, vibration, diesel fumes, stormwater runoff, etc.?

A: The Companies will develop a Stormwater Pollution Prevention Plan ("SWPPP") for each Project that summarizes the various best management practices ("BMPs") that will be employed to mitigate construction impacts. The construction contractor selected for each Project will be responsible for adhering to the SWPPP, as well as any conditions included in federal, state and local permit approvals. Compliance with the SWPPP and permit approval conditions will be reviewed through periodic construction inspections.

Typical BMPs may include:

- Dust suppression: water application
- Mud/dust control: street sweeping, cleaning of equipment before entering public roadways
- Noise: use of newer low noise emitting equipment, noise-reducing mufflers, distance equipment from sensitive receptors
- Diesel fumes: restrictions on truck idling, use of emission control devices
- Stormwater runoff: erosion controls (straw wattles, silt fence, catch basin inlet protection)

Q: Will it be safe for children to walk to school during construction?

A: Yes. The Traffic Management Plan, to be developed in consultation with town officials and local police, will specify the requirements the contractors will follow to ensure that safe pedestrian and vehicular routes and access are always maintained. Construction related signage will also be placed in work areas. No unauthorized personnel are allowed to walk within the work zone of any Project. Police details will be present to direct traffic during construction.

Q: When will construction start in Winchester and how long will it take?

A: Overall, construction of the Projects is expected to last approximately 18 – 20 months. The construction contractors have not yet been selected, nor have detailed town-by-town Project schedules been established at this time.

Q: What are the allowable work hours and days of the week?

A: The allowable work hours are typically set or guided by the EFSB through its approval process. The Companies will also work with municipal leaders, and other applicable agencies as needed, to reach agreement to further refine work hours to minimize impacts to the host communities. Such work hours will be defined in a Host Community Agreement prior to the start of construction. Generally, the Companies will propose work hours to maximize efficiency, while avoiding peak traffic hours to minimize traffic congestion wherever possible.

Q: How long will construction be in front of my house/business?

A: The duration in front of any one location will depend on several specific construction related factors including proximity to other utilities, design depth, and types of soils or rock encountered. However, trench activities generally take place in 100-200 foot segments, and these segments as a whole are typically completed within 10-18 construction work days. Within each section, the amount of time crews spend in front of one specific location can range from approximately four to ten construction days.

We will work with each property and/or business owner along the route to mitigate construction impacts, ensuring continued access to their facilities. We will also work with municipal officials to develop an effective Traffic Management Plan to minimize construction impacts on local traffic and ensure safe pedestrian access.

Q: Upon completion of the project, how often will you need to access the lines for repair/service/upgrade?

A: The lines are accessed via the manholes for routine inspection, which generally occurs once every five years. Other regular maintenance and operation is carried out at the substations.

Traffic Impacts

Q: How long will my street be closed?

A: There are currently no plans to close streets due to trenching. We will work with municipal officials to develop an effective Traffic Management Plan to minimize

construction impacts on local traffic. However, if the town has a preference to close streets to reduce the overall construction timeline, we will work with them to accommodate that request. Eversource is also working to determine whether any temporary street closures may be necessary during the installation of manholes along certain, narrow streets.

Q: Will my street be partially closed (only one lane open to traffic) or fully closed (no lanes open to traffic)? How long will my street be closed?

A: At this time, Eversource does not plan to completely close any streets during construction; however, closing one lane will likely occur during active construction periods on some streets. We will work with municipal officials to develop an effective Traffic Management Plan to minimize construction impacts on local traffic. We would like to note that if the town has a preference to close streets to reduce the overall construction timeline, we will work with them to accommodate that request.

Q: Will construction block access to my house/business and driveway?

A: Every effort will be made to maintain continuous access to homes and businesses. Should access be required to any house during construction activities, the contractor will have steel plates available to cover in-street construction activities, if needed. Every effort will be made to maintain access to businesses during business hours. We will work with each property and/or business owner along the route to mitigate construction impacts.

Q: Will traffic be rerouted through my neighborhood?

A: As noted above, we will be working with municipal officials to develop an effective Traffic Management Plan to minimize construction impacts on local traffic. The Traffic Management Plans will include traffic re-routings to support traffic patterns and be developed in consultation with each community prior to obtaining Grants of Location and Street Opening Permits.

Q: How will traffic congestion affect commuting, school activities, police and fire emergency trips?

A: We will work closely with municipal officials, schools, fire and police to coordinate traffic and timing of construction activities.

Q: Who will be in control of traffic planning? The Town? Eversource?

A: As noted above, the Companies will be working with municipal officials to develop an effective Traffic Management Plan to minimize construction impacts on local traffic. Local police details will be hired to support inroad construction and help to implement the Traffic Management Plan.

Electro-Magnetic Radiation Impacts

Q: How much EMR do high-voltage transmission lines generate?

A: The term “EMR” stands for electromagnetic radiation. Utility transmission lines do not “radiate” in the sense that television and radio transmitting antennas (and your cell phone) release energy, which travels long distances. Thus, they do not generate EMR.

Transmission lines do create “EMF” or electric and magnetic fields. Electric and magnetic fields are two separate and distinct fields that are created wherever electricity is used.

Because of the ubiquitous use of electric power, sources of EMF include not only the utility grid but also all wiring, appliances, and equipment drawing electric power. In the home, anything that uses electric current creates EMF (e.g., refrigerators, washing machines, electric can openers, hair dryers, microwave ovens). For most people, power-frequency EMF exposure is dominated by the levels in our homes and workplaces, and the Projects would not impact these exposures.

As a matter of course, the Companies design new transmission facilities to mitigate the potential for EMF exposure. The underground line (cable) sheath, as well as the ground itself, shields the electric field completely. While some materials may reduce magnetic fields, they are not shielded by the sheath, ground or most materials, but they do rapidly decrease in magnitude with increasing distance from the source. (For example, a steel pipe encasement - for specialty “pipe-type-cables” or PTC - reduces the magnetic field significantly.)

Generally, beyond 20 feet of an underground transmission route center line, the above ground magnetic field would be below or comparable to home and workplace levels. For these two Projects, the projected EMF levels, as determined by a third-party expert, fall well below the accepted health guidelines for magnetic field exposure. To help put the exposure in context, residents are exposed to magnetic fields from a variety of everyday sources, including household appliances as described above. While in-home, everyday exposures are well within recommended ranges, the level of magnetic fields is often greater than residents would have from walking or driving by the proposed new underground lines when in operation even under maximum loading.

Q: What is the strength of the magnetic field at 3’ 10’, 20’ and 40’ from the line?

A: Charts of magnetic fields vs. distance have been provided to the Winchester Board of Selectmen. For ease of reference, please see the Town of Winchester web site for the chart posting.

Q: What are the standards for maximum magnetic field strength and exposure time in densely settled residential areas?

A: The International Commission of Non-Ionizing Radiation Protection (ICNIRP) established the health based guideline for public exposure to EMF at 2,000 milliGause (mG).

Q: Is there a health risk to my children and me?

A: Over the past 40 years, many scientists (university, medical, government, and laboratory) have examined power frequency EMF to determine whether these fields affect biological systems and health. Despite concerted efforts by dedicated researchers to identify biological effects, mechanisms of action, and risks, the overall conclusion of public health agencies has been that the probability of power-frequency EMF exposure being a health hazard is truly small.

Q: Can EMR [EMF] be shielded?

A: Please see response above on EMR and EMF.

Q: What methods are available to shield EMF and how effective is each method?

A: Methods to reduce magnetic fields have been evaluated and described within a Project letter written to Winchester Chairman of the Board of Selectman Lance Grenzeback dated February 10, 2016 which is posted on the Winchester web site and also attached at the end of these FAQs.

Q: Is there a need for 345kv project versus 115kv project?

A: The necessary kV (voltage) level is determined by the identified system reliability need. Transmission line projects at certain elevated voltages are needed to efficiently convey electric power from the location where it is generated, to the areas and consumers where it is needed. At higher line voltages, the amount of electric current needed for any particular power level is correspondingly lower than if the same amount of current was carried on a lower voltage line, which leads to lower losses from line resistance (i.e., heating of the lines) and to lower power-frequency magnetic fields (i.e., because magnetic field is proportional to electric current).

Q: How many other 345kv projects are currently under construction or being permitted?

A: The following is a sampling of some 345-kV projects recently completed, under construction or presently being permitted.

Massachusetts

- Lower SEMA (Southeastern Massachusetts)
- Boston-Stoughton
- Greater Springfield Reliability Project
- Interstate Reliability Project (*Note: 3 state Project in CT, RI and MA*)

Connecticut

- Greater Springfield Reliability Project
- Middletown-Norwalk Project

New Hampshire

- Merrimack Valley Reliability Project

Rhode Island

- Rhode Island Reliability Project

Q: Have any Eversource distribution projects been halted because of health risks or litigation?

A: To our knowledge no distribution projects have been halted due to health risks related to EMF or litigation.

Q: Have any independent consultants been retained to report on the health effects of EMR?

A: Yes. Dr. Peter Valberg of Gradient, an environmental consulting company located in Harvard Square, Cambridge, was retained to do an independent assessment of the potential EMF impacts of the proposed underground transmission line. The EMF report was completed in March 2014, filed with EFSB, and can be examined by the public.

Dr. Valberg has 30 years of experience on the faculty of the Harvard School of Public Health and at Gradient. He specializes in the areas of exposure to, and toxicology of, environmental agents, and ionizing/non-ionizing radiation. Dr. Valberg was present at the public meetings in Winchester, including the January 11, 2016 meeting of the Board of Selectmen, to answer any EMF questions.

Town Costs, Taxes and Property Values

Q: Will Eversource cover the cost to the Town for police traffic-management details, construction inspections, public information meetings, etc.?

A: Yes. Details on police traffic management and construction inspection will be included in the Host Community Agreements to be negotiated with the host communities.

Q: What impact will the project have on taxes?

A: The Projects will produce significant new annual property tax revenue for the towns in which the new facilities are located.

Q: Will having a high-voltage transmission line near my house reduce the value of my property?

A: The new transmission lines are proposed to be installed underground primarily in roadways and/or railways, not on private property. The Companies, and studies conducted by third-party experts, have not found any evidence or studies of measurable effects on real estate value due to proximity to underground transmission lines on property values.

Improvements

Q: What improvements will be made along the routes after the lines are in place?

A: The Companies will restore affected areas to previous or better condition, including sidewalks, roadways, pavement, etc., impacted by Project construction activities.

Q: Will roadways, sidewalks, intersections, traffic signs, etc., be rebuilt?

A: We will restore anything impacted by construction activities to its previous or better condition.

Q: What other improvements will be made?

A: We will work with the communities to develop a Host Community Agreement that may include other Project-related improvements.

Q: Will [projects] alleviate drastic rate increase as seen during the last year?

A: New England shares one electric transmission grid. For projects deemed to be of regional benefit, such as these two Projects, the cost of the new transmission facilities are shared by all electric consumers in the New England based on the level of energy consumed (“load share”). However, project costs that exceed what the ISO-NE determines to be “good utility practice” are not shared throughout New England and, instead, are paid for at the local level as determined by FERC (e.g., state-wide, portion of state, community). At this time, we believe that our proposed designs meet the regional cost allocation threshold.

While there may be a slight increase in the transmission portion of the electric bill (a fraction of the overall bill) due to Massachusetts’ share of the regional cost allocation for these Projects, we expect that consumers in the Greater Boston and surrounding area will save hundreds of millions of dollars per year in congestion costs that would be reflected in the generation portion of the bill. Congestion costs occur when there are not adequate levels of transmission to ensure the reliable flow of power, necessitating the need for ISO-NE to require certain (typically local) higher-cost generators to operate to meet customer demand.

Additional Questions Asked at the February 11, 2016 Winchester Public Information Session

Q: What is the temperature of the transmission lines?

A: Under normal operating conditions, the point of interface between the line conduit and the thermal concrete would be approximately 100°F. The temperature at the top most layer of soil of would be solely attributable to other factors (i.e not the line pipe or conduit) such as solar radiation, pavement heat absorption and other heat sources.. Typical ambient earth temperatures for the Greater Boston area can range due to soil type and moisture content, but a typical value for the top most layer of soil of approximately 65°F is widely accepted, as cited by the Electric Power Research Institute (EPRI) Underground Transmission Systems reference book.

Q: Provide results of EMF actual measurements to EMF modeled

A: The Companies use well-established, industry-accepted models to estimate EMF levels for its transmission projects, and have not performed post-construction comparisons which would require a comprehensive, controlled study that would account for magnetic fields from all existing sources as well as the line loadings at the time the

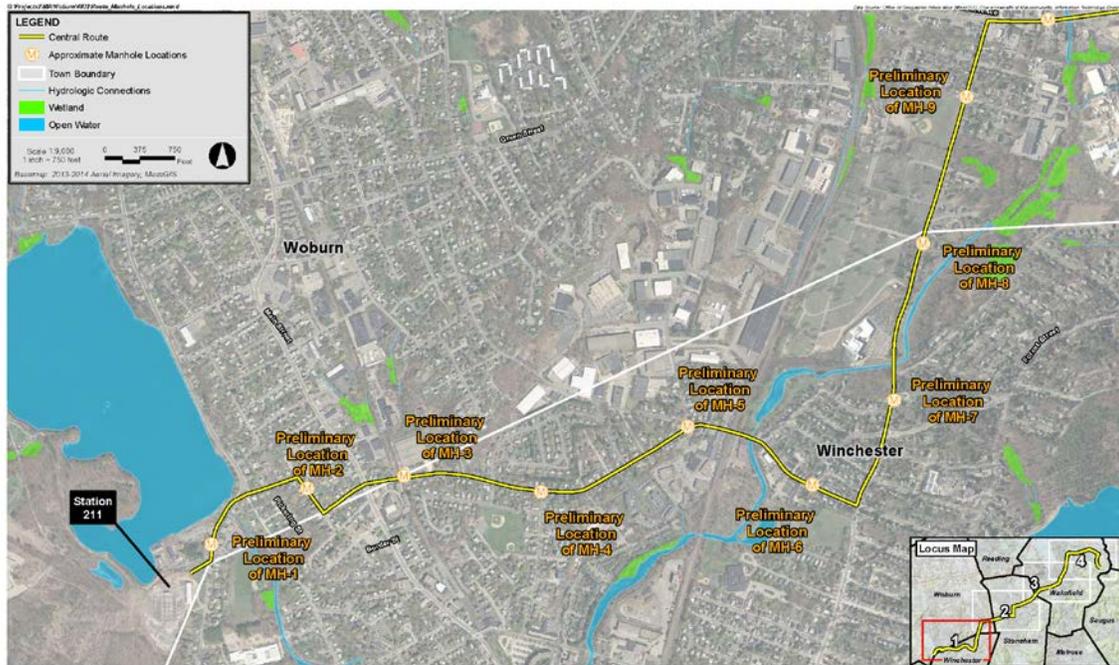
measurements are taken. The Companies' will offer pre- and post- construction spot measurements upon request.

Q: Why can't the Woburn to Wakefield Line Project be placed in a pipe?

A: The type of technology to use for underground transmission lines is highly project specific. For the Woburn-Wakefield Line Project, it was determined that a 345-kV underground transmission line was necessary to best address the identified reliability need. Two types of underground cable systems were considered: (1) a high-pressure fluid-filled (HPFF) cable system and (2) a cross-linked polyethylene (XLPE) cable system (a type of high-voltage "extruded dielectric" (HVED) insulated cable system). The XLPE system has a higher power transfer capability, requiring only one cable rather than the two that would be needed if the HPFF system was used. The HPFF system would also require significantly more equipment at the substations, including the installation of shunt reactors to stabilize voltage at both the Woburn and Wakefield Substations. In contrast, the XLPE system is less complex, less costly, and easier to maintain than the HPFF system, and is the preferred choice for this particular application. XLPE cable requires housing that is non-metallic, such as High Density Polyethylene (HDPE) conduit, to ensure that the necessary rating of the cable is met. For XLPE cables at high voltages, such as this one, the use of metallic housing (steel) would create excessive heat, leading to a significant derating of the cable.

For the Mystic-Woburn Line Project, the use of HPFF cable was selected because it has lower capacity requirements (115kV) to meet the identified reliability need and will be operated in parallel with an existing HPFF system. For HPFF systems, the use of steel does not cause excessive heat and, therefore, steel sheathing can be used.

Woburn to Wakefield Line Project – Preliminary Manhole Locations



Woburn to Wakefield Line Project

EVERSOURCE nationalgrid

Figure STEW-2-1(2)
Preliminary Manhole Locations Along Route

Mystic to Woburn Line Project – Preliminary Manhole Locations





February 10, 2016

The Honorable Lance Grenzeback
Chairman, Winchester Board of Selectmen
Winchester Town Hall
71 Mt. Vernon Street
Winchester, MA 01890

Dear Chairman Grenzeback,

Thank you for the opportunities for the Woburn to Wakefield and Mystic to Woburn Line Project (“Project” or “Projects”) Teams to present updates at the Board of Selectmen (BOS) public meetings held on January 27 and February 11, 2016. We continue to value input from the Board of Selectmen, Town Manager and local residents, and hope that our continued dialogue can assure Winchester’s residents of our commitment to pursue the least disruptive Project solutions, while meeting our regulatory obligation to maintain a reliable transmission system with the necessary capacity to meet the growing customer demand for power throughout the Greater Boston area.

From the BOS meeting held on January 27, 2016 on the Woburn to Wakefield Line Project, it appears that Electric and Magnetic Field (“EMF”) exposure is in the forefront of public concern. The purpose of this letter is to provide a summary of independent subject matter expert and applicable health organization positions on EMF exposure from electric transmission.

EMF Background

As a matter of course, Eversource and National Grid investigate practical and no- and low-cost approaches for reducing EMF when designing new transmission facilities, and follow the guidelines set forth by leading, independent health science organizations.

Sources of EMF include the electric power system and everything that runs on electricity such as household appliances, hair dryers, electronics, electric power tools and any other electric equipment drawing power. To help put the exposure in context, the public is exposed to EMF from a variety of everyday sources and locations, including the home, workplace, grocery stores, etc. In addition, with wireless communications so closely integrated into our daily lives, electromagnetic fields are all around us (e.g., mobile and cordless phones, wireless routers, wireless computers, fiber-optic cables). Over the past 30 years, many scientific studies have been conducted to determine whether these fields affect biological systems and health.

In the late 1990s, the United States Congress directed the National Institute of Environmental Health Sciences (NIEHS) to establish the EMF Research and Public Information Dissemination Program so that independent scientists could determine whether exposure to EMF poses risk to human health.

At the conclusion of this research in 1999, the Director of the NIEHS reported to Congress that: *"The probability that EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm."* Since that time, and in consideration of continued research that has occurred on this question, the recommendations from NIEHS to Congress have not changed.

In June, 2007, the World Health Organization (WHO) published its latest findings in its "Electromagnetic Fields and Public Health" fact sheet. The fact sheet is based on a review by a WHO Task Group of scientific experts who assessed risks associated with EMF and, based on the weight of the evidence, concluded, among other things, that policies based on the adoption of arbitrary low exposure limits are not warranted. (The fact sheet can be found at: <http://www.who.int/emf/publications/facts/fs322/en/index.html>.)

In response to media attention and general public concern, the International Commission of Non-Ionizing Radiation Protection (ICNIRP) established the health based guideline for public exposure to EMF at 2,000 milliGause (mG).

The EMF associated with these transmission projects are far below established, scientifically-based limits on EMF exposure. While public exposure from various everyday sources, as described above, are well within recommended ranges, the level of magnetic fields is often much stronger than that from transmission lines.

Independent Expert Testimony

As part of the review process by the Massachusetts Energy Facilities Siting Board, Eversource and National Grid must model and assess EMF levels associated with our projects. To do so we rely on independent industry experts. In the case of these Projects, we have engaged Dr. Peter Valberg of Gradient, an environmental and risk sciences consulting firm located in Harvard Square, Cambridge to perform independent assessments of the potential EMF impacts of the proposed underground transmission lines.

Dr. Valberg has 30 years of experience on the faculty of the Harvard School of Public Health and at Gradient. He specializes in the areas of exposure to, and toxicology of, environmental agents and ionizing/non-ionizing radiation. Dr. Valberg is frequently called upon to prepare and interpret health risk findings for a variety of audiences, and helps apply research results to the regulatory, litigation, and public policy arenas.

The EMF reports completed by Dr. Valberg for both Projects have been filed with the EFSB as part of the Projects' respective Petitions, and can be examined by the public. The reports show that the magnetic fields for the proposed Woburn to Wakefield and Mystic to Woburn Line Projects are far below the ICNIRP guidelines.

Project Specific EMF Calculations

As the proposed transmission lines are underground, the ground and/or cable sheath will shield the electric field completely. Magnetic fields are not shielded by the earth but, like electric fields, they rapidly decrease in magnitude with increasing distance from the source.

- The Mystic to Woburn Line Project is a 115-kV High Pressure Fluid Filled (HPFF) design which includes a steel pipe to contain the cables and cooling fluid. The steel pipe reduces the magnetic field. Calculations show the maximum magnetic field generated by the combined effects of the existing underground 115-kV HPFF line and proposed transmission line at peak operation was calculated to be 3.61 mG at the ground surface directly above the line -- a nominal fraction of the guideline set forth by ICNIRP. The details of the evaluation can be found within the EMF report submitted to the EFSB.
- The Woburn to Wakefield Line Project is a 345-kV Cross Linked Polyethylene (XLPE) design and cannot be contained within a steel pipe for technical reasons, including the potential overheating of the cable. At peak loading, the maximum magnetic generated by the proposed underground line at ground surface directly above the line was calculated to be 34 mG -- a nominal fraction of the guideline set forth by ICNIRP. The details can be found within the Project EMF report submitted to the EFSB.

Additional methods of reducing magnetic fields on 345-kV XLPE cable are possible; however, these methods introduce additional Project cost with little to no benefit:

Steel Plates

Steel plates are sometimes considered in an effort to take advantage of a phenomenon known as "flux shunting". The use of steel plates will reduce magnetic fields directly above the trench. However, while the fields will be reduced directly above the trench (in the street), the fields will simply transfer to the nearby area not covered by plates. Therefore, exposure will actually increase for the public on the sidewalks and nearby facilities. In addition, using steel plates is not practical as they limit the ability to access the conduit and cable for repair. Further, if there are any weaknesses in the adjoining adjacent steel plates -- as what might occur over time due to traffic, then the flux shunting will break down at this location and the magnetic fields will actually be higher in these locations. The use of steel plates also affects cable performance as steel plate decreases the ratings of the cable by interfering with heat dissipation from the cables.

Conducting Plates (Copper and Aluminum)

Similar to steel plates as described above, the use of copper plates will simply redirect the magnetic fields from directly under the trench (streets) to areas more commonly used by the public. Conducting plate also has similar problems as those of the steel plate in terms of limiting access to the cable and the need to maintain good continuity between sections of plates. This option will also have a bigger effect on the rating of the cables because it not only blocks the heat dissipation, but also introduces a new heat source due to the copper/aluminum composition of the plating.

Cancellation Loops (Multiple Ground Continuity Conductors)

This method uses additional conductors in the trench to form currents which will cancel out the magnetic fields above the trench. While it does not have the maintenance concerns that the plate methods have, it does decrease the cable rating by introducing currents in the new cables which heat up the trench. Also, similar to the plate mechanisms described above, it reduces magnetic fields above the trench, but increases fields away from the trench.

Increased Trench Depth

Increasing the trench depth has the effect of only fractionally reducing fields directly above the trench. The benefit of increased trench depth is nominal and the significant increase in cost cannot be justified.

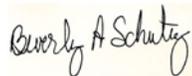
Conclusion

The United States has no federal health based standards limiting occupational or residential exposure to power frequency EMF. Eversource and National Grid rely on the consensus of independent health and scientific organizations and governmental bodies that make health risk determinations for the public, such as the NIEHS, the International Agency for Research on Cancer, ICNIRP, and the World Health Organization which have reviewed the large body of scientific research regarding EMF and health, when designing transmission lines.

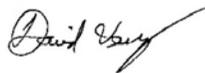
While the EMF associated with these transmission projects are far below established, scientifically based limits on EMF exposure, we understand that some residents in the community may have additional questions. Should any Winchester resident or business owner with property on or near the proposed transmission lines request additional information about the EMF levels at their particular property, Eversource is happy to take EMF readings, provide information, and/or respond to questions or concerns. Residents may call Eversource's dedicated toll-free phone number (877-993-6377) and email (EMFQuestions@eversource.com) with any EMF questions or concerns, or to set up an appointment for a field reading.

Eversource wants you and the Winchester community to know that we are committed to being a good neighbor and a responsible provider of the power that is essential for the daily needs of Winchester residents, business owners and municipal operations.

Sincerely,



Beverly Schultz
Eversource Project Manager – Woburn to Wakefield Line Project



David Velez
Eversource Project Manager – Mystic to Woburn Line Project

Cc:

James Johnson, Vice Chairman, Board of Selectmen

James Whitehead, Selectman

Michael Bettencourt, Selectman

Steve Powers, Selectman

Richard Howard, Town Manager

State Senator Jason Lewis

State Representative Michael Day