

Kris Pastoriza, October 7, 2015

For the record,

the final Rules for the SEC contain no requirement for setbacks for transmission lines, though **Site 301.08** acknowledges the need for them:

**“Site 301.08 Effects on Public Health and Safety.** Each application shall include the following information regarding the effects of, and plans for avoiding, minimizing, or mitigating potential adverse effects of, the proposed energy facility on public health and safety:

**(b)** For electric transmission facilities, an assessment of electric and magnetic fields generated by the proposed facility and the potential impacts of such fields on public health and safety, based on established scientific knowledge, and an assessment of the risks of collapse of the towers, poles, or other supporting structures, and the potential adverse effects of any such collapse.”

Setbacks for transmission lines are mentioned once in the final Rules:

**“Site 301.17 Conditions of Certificate.** In determining whether a certificate shall be issued for a proposed energy facility, the committee **shall** consider whether the following conditions **should** be included in the certificate:

**(g)** A requirement that the energy facility be sited subject to setbacks or operate with designated safety zones in order to avoid, mitigate, or minimize potential adverse effects on public health and safety;” (emphasis added)

The SEC states: “The text of the Final Proposal represents the Committee's considered judgment of the relevant statutory language and legislative intent, as well as policy determinations based on a balancing of the respective interests of various stakeholder constituencies.”

The members of the public who have spent months involved in the Rulemaking take the position that the intent of the rules is to create criteria that will protect the citizens of New Hampshire from poorly sited and unnecessary projects, not to compromise between such criteria and those desired by industry.

I request that **Site 301.17 Conditions of Certificate** (g) above, be expanded as shown below, based on three principles; to protect system reliability, to protect private property from tower failure, and to protect people from the potential effects of electromagnetic radiation. In addition, specific criteria would give applicants the ability to know before submitting an application whether their project would meet siting requirements, thus avoiding inappropriate projects and costly litigation at SEC hearings.

**(g)** A requirement that the energy facility be sited subject to setbacks or operate with designated safety zones in order to avoid, mitigate, or minimize potential adverse effects on public health and safety. For electric transmission systems, setbacks shall be:

(1) from occupied buildings; not less than three times the height of the tower, or 300', whichever is greater. The setback distance shall be measured from the center of the tower base to the nearest point on the foundation of the occupied building.

(2) from property lines; not less than the 2.5 times the tower height or 300', whichever is greater. The setback distance shall be measured to the center of the tower base.

(3) from public roads: not less than 1.5 times the tower height as measured from the right-of-way line of the nearest public road to the center of the tower base, or 300', whichever is greater.

(c) All transmission towers shall be 100' from the edge of the ROW.

(d) Milligauss levels at the edge of the ROW may not exceed 85 mG.

In addition, under **Site 301.08** I request the wording in (b) be changed from "established" to "current", and tower collapse assessment be removed as unnecessary **if** setbacks are required:

(b) For electric transmission facilities, an assessment of electric and magnetic fields generated by the proposed facility and the potential impacts of such fields on public health and safety, based on current scientific knowledge.

The following wording should be added:

"Such plan shall include:

(1) The number and type of each building or area within the following distance categories-as estimated from the edge of the ROW: 0-25 feet, 26-50 feet, 51-100 feet, and 151- 300 feet. Types of building include homes, apartments, schools, daycare centers, hospitals, commercial/industrial buildings and playgrounds.

(2) Detailed magnetic field profiles for each unique structure type or circuit configuration (new and existing) M.R. profiles to be measured from the ROW centerline out to a distance of 300 feet on each side of the centerline, at intervals of 25 feet, including at the edge of the ROW at one meter above ground level.

(3) For routes that would affect existing electric lines, provide magnetic field profiles for the existing lines and a post-construction scenario that incorporates the new and the existing lines. Mitigation methods should include:

(a) Increasing the distance between the transmission line and the public's exposure to the magnetic fields;

(b) Bringing lines closer together (magnetic fields interfere with one another, producing a lower overall magnetic field level, too close could cause arcing between the lines.)

(c) Burying transmission lines to reduce magnetic fields.

(4) For routes that would have multiple adjacent underground circuits, provide magnetic field profiles for each set of circuit configurations.

(a) Estimate for proposed lines at 80 percent and at 100 percent of peak load for one year post-construction and 10 years post construction. For existing lines, use present day loadings to estimate the magnetic field levels.

(b) Expected current levels for 80 and 100 percent of peak load at one and ten years post-construction.

(c) Provide all assumptions used to model magnetic field levels including:

-Pole design diagram that includes the dimensions of pole arms, dimensions of conductor locations, horizontal distance from the pole to the conductors, and the distance of conductors from the ground at the pole.

-Height of lowest conductor(s) at mid-span.

-Depth from ground surface to circuits, for underground construction.”

Setbacks were proposed in the SB-99 Health and Safety workgroup report in August 2014.

27 submissions were made to the Rulesmaking requesting transmission line setbacks between August 2014 and September 2015. The following submissions summarize the rationales for the three types of setbacks:

**Setbacks based on electromagnetic radiation:**

Submitted by Dr. Campbell McLaren, member of the SB-99 Health and Safety workgroup, and are based on the precautionary principle and prudent avoidance.

“The premise is that children living in a magnetic field of more than 2-4 milligauss have double the incidence of leukemia. See RAPID, IARC and WHO studies referenced in Dr. Campbell McLaren’s submission on the SEC Rulemaking docket; March 5, 2015.

Exhibit B:

Massachusetts:

The Commonwealth of Massachusetts has defined an edge-of-ROW level of 85 mG as a benchmark for comparing different design alternatives. Although a ROW-edge level in excess of this value is not prohibited, it may trigger a more extensive review of alternatives.

New York:

New York has a policy that required transmission lines to be designed, constructed and operated so that magnetic fields at the edges of the ROW will not exceed 200 mG.

Florida:

Florida limits magnetic fields at the edge of the ROW to 150 mG for transmission lines with voltages of 69 kV through 230 kV. For lines greater than 250 kV, the limit is 200 mG. Double circuited 500 kV lines and lines greater than 500 kV may not exceed 250 mG, also at the edge of the ROW.

Wisconsin:

Until the mid-2000s Wisconsin followed a policy of prudent avoidance. Under the policy, the Public Service Commission, which holds full jurisdiction over transmission siting, could mandate changes to the transmission line route based on mG levels at nearby residences. Today the PSC typically responds to concerns raised by abutters under a hardship finding.

At the very least, schools, day-care centers, youth camps and playgrounds must be more than 300' from the center of the most proximate transmission line.

Please see Campbell McLaren's submissions on the SEC site, Rulemaking docket 2014-04:

February 16, 2015 (two submissions)

February, 20, 2015

March 5, 2015

September 16, 2015"

<http://www.nhsec.nh.gov/projects/2014-04/documents/09-23-15-sec-2014-04-late-filed-letter-campbell-mclaren.pdf>

### **Setbacks based on electromagnetic radiation;**

Submission by Pam Martin, September 16, 2015

I would like to refer back to the subject of setbacks for high voltage power lines. This is in reference to 301.14 (f) (2) c. A while back, attorney Weisner was asked if he knew of any other states that had setback regulations for high voltage power lines, and he said he didn't know of any. I'm afraid this Commission might have taken his "I don't know" as a negative as in "no,

there are none” Well, the answer actually is Yes, there are states with power line setbacks. A number of states, local jurisdictions and countries have statutory limitations on the distance transmission lines can be built from various structures or the distance buildings can be sited near transmission lines. Some other states have implemented maximum levels of electric fields or magnetic fields, or both, either on or at the edges of the transmission line right of way.

For instance, California has specific guidelines of how close residences and schools can be built near power lines:

- 100 feet from the edge of an easement for a 50-133 kV line
- 150 feet from the edge of an easement for a 220-230 kV line
- 350 feet from the edge of an easement for a 500-550 kV line

California’s guidance was developed in consultation with international experts on the health effects of electromagnetic fields, the state Department of Public Health, the Division of the State Architect, the California Public Utilities Commission, electric utilities, school districts, consultants, and private citizens.

In 2004 the Connecticut General Assembly enacted Public Act 04-246 which restricted the siting of overhead transmission lines 345 kV or greater adjacent to “residential areas, private or public schools, licensed child day care facilities, licensed youth camps or public playgrounds,” unless the applicant can demonstrate that “burying the facility will be technologically infeasible” or may result in an unreasonable economic burden on the ratepayers of the state.

Iowa’s Code Chapter 478 places restriction on the distance of new transmission lines from any home or business. In Washington State, there are prudent avoidance municipal regulations for electrical transmission and distribution facilities which include a preference for undergrounding transmission and distribution facilities.

In Colorado, no public utility may construct facilities within the territorial boundaries of a city or county unless the utility complies with the applicable zoning requirements.

Other countries, as well, have setback requirements for high voltage power lines, including Great Britain, Finland, Switzerland, Bulgaria, and Israel. Austria requires underground burial of all new transmission lines. There are setbacks for houses from each other, houses from the street, building near or in flood plains, lakes, streams, creeks and rivers, setbacks for septic systems and fences, setbacks for cell towers and wind turbines. There is absolutely no excuse not to have setbacks for high voltage power lines.

In Northern Pass’s original alternate route, their plan was to go directly through two children’s camps. Right through them. They took that proposal off the table because they were denied the right of eminent domain, but not because they worried about the children’s health or safety.

The reason utility companies balk at setbacks is not because they are unnecessary, as National Grid argued in their testimony, but because they don’t want to be forced to bury their power lines; they want maximum profit from their investment. But testimony at NH legislative hearings by companies that bury power lines has proven that burial of power lines is not only

technologically feasible, it is affordable and much safer for humans and the environment. Burial of power lines along pre-softened transportation rights of way is 21st century, state-of-the-art technology, avoiding property damage, environmental impacts and EMF fears. Stringing overhead power lines from giant steel towers is a relic of the past.

One committee member mentioned unintended consequences of requiring setbacks, but what about the unintended consequences of not requiring setbacks. A 125 ft. tower could someday be replaced by a much taller tower. Hydro Quebec's own website states that they have towers up to 175m. That's 574 ft. What happens to the residence, school, children's camp or playgrounds which are now within the fall zone. Without reasonable setback requirements, the welfare and safety of the residents of NH and our property are put at risk. So, Commission members, for the sake of the health, welfare and safety of the public, please rethink your position on setbacks for transmission lines following HUD requirements. Study what the other states I have mentioned have done. We have an opportunity to be part of the future like the other New England states, not the past.

Pamela Martin, Plymouth  
House Representative Susan Ford, Easton  
Rick Samson, Coos County Commissioner, Stewartstown  
Robert Tuveson, Holderness  
Elizabeth Terp, Thornton  
Pat Kellogg, Littleton  
Mary Northrop, Littleton  
Irene Mosedale, Littleton  
Tom Mullen, Campton  
Brad & Daryl Thompson, Gilford  
Susan Schibanoff, Easton  
Roxanne Busch, Sugar Hill  
Chris Thayer, Appalachian Mountain Club, Sugar Hill  
Dorothy McPhaul, Sugar Hill  
James & Judy Ramsdell, Dalton

<http://www.maine.gov/mpuc/legislative/Reports/ATTACHMENT%201%20-%2011-30-13.pdf>

<http://www.cde.ca.gov/ls/fa/sf/powerlinesetback.asp>

<http://www.nhsec.nh.gov/projects/2014-04/documents/09-15-15-sec-2014-04-letter-pamela-martin.pdf>

#### **HUD setbacks referenced by Pam Martin:**

**“Setback from Occupied Buildings:** The setback distance between a wind turbine tower, a radio/TV transmission tower, microwave relay dish or satellite dish (radio, TV cable), or high-voltage electrical transmission tower\* and a non-participating landowner's existing occupied building shall be not less than three times the height of the tower. The setback distance shall be

measured from the center of the tower base to the nearest point on the foundation of the occupied building.

**Setback From Property Lines:** The setback distance between a wind turbine tower, a radio/TV transmission tower, microwave relay dish or satellite dish (radio, TV cable), or high-voltage electrical transmission tower\* and non-participating landowner's property line shall be not less than the 2.5 times the tower height. The setback distance shall be measured to the center of the tower base.

**Setback From Public Roads:** All wind turbine towers, radio/TV transmission towers, microwave relay dish or satellite dish (radio, TV cable), or high-voltage electrical transmission tower\* shall be set back from the nearest public road a distance of not less than 1.5 times the tower height as measured from the right-of-way line of the nearest public road to the center of the tower base.

\* A High-Voltage Electric Transmission Line is a power line that carries high voltage between a generating plant and a substation. These lines are usually 60 Kilovolts (kV) and greater, and are considered hazardous. Lines with capacity of 12-60 kV and above are considered high voltage. High voltage lines do not include local distribution and service lines. Low voltage power lines are distribution lines that commonly supply power to housing developments and similar facilities. These lines are usually 12 kV or less and are considered to be a minimum hazard. These lines may not pass directly over any structure, including pools or other outbuildings.”

<http://www.nhsec.nh.gov/projects/2014-04/documents/09-20-15-sec-2014-04-late-filed-letter-peter-pamela.pdf>

### **FERC setbacks request and rationale;**

Submitted April 21, 2015 by Susan Schibanoff, Easton.

“Dear Mr. Wiesner,

I urge the Site Evaluation Committee to adopt the most recent guidelines from the Federal Energy Regulatory Commission (FERC), issued May 31, 2012, concerning easement setbacks for new overhead transmission lines. These guidelines do not apply to existing lines or distribution lines.

FERC has issued its setback guidelines as the conclusion to its staff study of the massive power outages that resulted from the October 2011 nor'easter snowstorm, which caused estimated damages of \$1 billion to \$3 billion in New England and adjacent states as well as incalculable other losses. Utilities blamed the trees, not the response to the outages, and, indeed, limbs and branches falling on power lines was the direct reason for much of the problem. But trees are a (splendid) fact of life in the northeast. The immediate question for FERC was what to do about the overlap of trees and power lines, the ongoing conflict between nature and technology, in this case, overhead high voltage transmission lines. The distribution lines that run along roads and

bring power into a residence may be able to tolerate contact with trees; high voltage transmission lines cannot.

In the case of existing power lines and all distribution lines, FERC sides with the lines. It recommends more prudent and consistent vegetation management -- tree cutting -- by utility companies so that even limbs and branches outside the easement do not endanger existing power lines. Call it eminent-domain by-vegetation-management if you will.

But for new overhead transmission lines, FERC comes down on the side of the existing trees and the attendant rights of the people who own them. That is, FERC recommends that these lines have sufficient set backs to prevent "fall ins" -- trees outside the easement falling in on the lines. The burden is on the developer to acquire wide enough ROWs to accommodate existing and future vegetation conditions outside its easement. Put simply, new power lines should not hug the edges of the ROW.

Here's what FERC said: Preventing fall-ins from both inside and outside the right-of-way is easier if utilities consider vegetation management needs when siting new transmission lines and acquiring new easements. Therefore, staff recommends that utilities carefully assess vegetation and growth rates in the area of planned lines in order to establish the appropriate right-of-way width. **For example, if native trees have a mature height of 100 feet, the easement should cover an area wide enough to ensure that existing and future trees outside of the right-of-way will not fall into the facilities.** [Emphasis added.]

New overhead high voltage transmission lines that crowd the edge of the easement - or cause the relocation of existing overhead high voltage lines to the edge of the easement - should be prohibited with an appropriate SEC rule.

Thank you for your consideration.

Susan Schibanoff Easton NH”

<http://www.nhsec.nh.gov/projects/2014-04/documents/150421schibanoff.pdf>

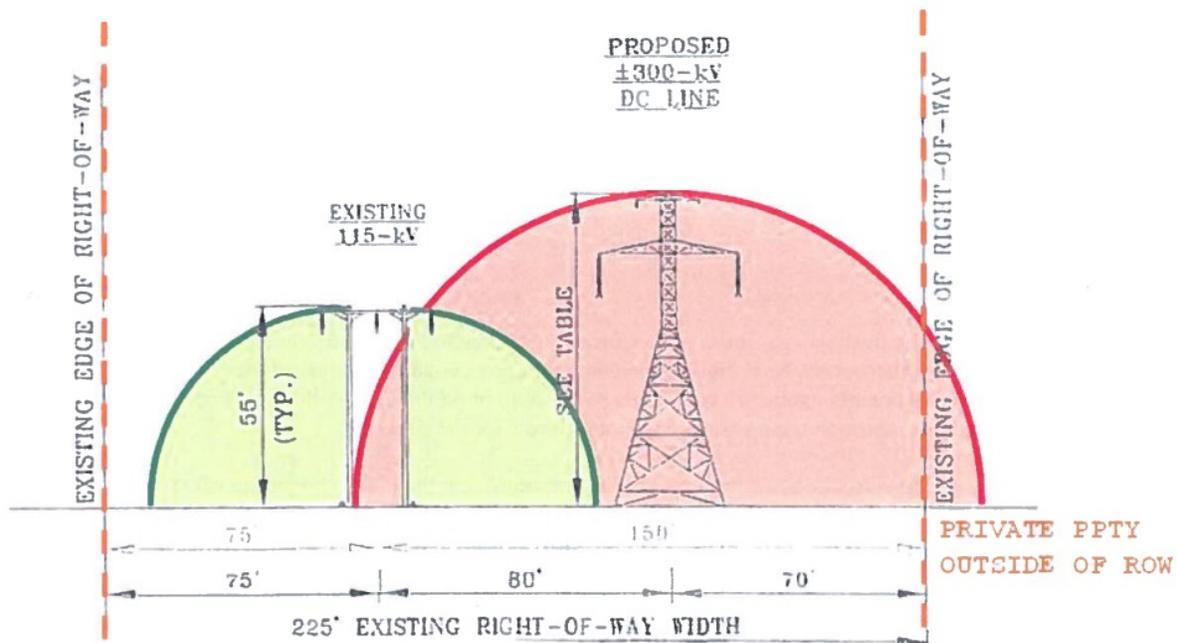
### **Setbacks and the legal history of the existing PSNH lines:**

Portions of a letter to Governor Hassan submitted to the SEC Rulemaking site by David Presby, Sugar Hill, NH July, 2015:

“It is also worthwhile to note that it has always been my belief, based upon personal experience, that a tower in a right of way (ROW) should be designed in such a way so that if it ever falls, it will only fall within the right of way so that it will not land on, or damage, any property that it does not have rights to. The current plan for the transmission lines does not guard against such an event. As you can see in the diagram below, even when the towers are in the lower end of their proposed range of heights (80 to 138 ft), the area on either side of the tower is not large enough to prevent the towers and lines from falling either in the woods on property outside of the ROW that they do not have rights to (causing unsafe situations on property that Eversource does not

own) or on the existing power lines (causing extensive outages and costly repairs). Simply put, Eversource cannot guarantee that overhead lines will not collapse during inclement weather or that their towers will not harm other property or existing lines. ROW

I witnessed firsthand what happens to these large transmission lines when they fall, and the damage and havoc that ensues. I drove trucks through Quebec in the aftermath of the infamous ice storm of 1998, when the ice caused downed transmission lines and extensive power outages. Burying the transmission lines will ensure that such an event will not occur in New Hampshire, and prevent unnecessary harm to people and property.



It is hard to believe that when landowners originally signed the electricity conveyance easements over 60 years ago, that they ever envisioned or would have agreed to a project like Northern Pass. Certainly Eversource's predecessors never foresaw this project or they would have bought bigger ROWs at the time in order to support the bigger, taller structures required for Northern Pass. **When the original ROWs were bought by the power company, they intended to eventually erect identical power lines like the one that already exists in the ROW; thus, at the time they bought the exact width needed for an identical line to ensure the safe operation of the power lines within the existing ROW. Had they intended to install bigger high voltage lines, they would have, and should have, bought a wider ROW.**

The Northern Pass project is extending, without permission, the original agreement between landowners and the electricity utilities...

Sincerely,

David W. Presby President,  
Presby Environmental, Inc.  
Resident of Sugar Hill, Grafton County, NH  
Employer of North Country Residents”

List of submissions to the SEC Rulemaking site requesting transmission line setbacks:

1. <http://www.nhsec.nh.gov/projects/2014-04/documents/10-02-15-sec-2014-04-late-filed-comment-kris-pastoriza.pdf> (pgs. 16-17, 24-25 October 2, 2015)
2. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-28-15-sec-2014-04-late-filed-letter-leann-moulder.pdf> (September 28, 2015)
3. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-23-15-sec-2014-04-late-filed-letter-campbell-mclaren.pdf> (September 23, 2015)
4. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-20-15-sec-2014-04-late-filed-letter-peter-pamela.pdf> (September 20, 2015)
5. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-17-15-sec-2014-04-letter-senator-jeanie-forrester.pdf> (September 17, 2015)
6. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-17-15-sec-2014-04-letter-nancy-martland.pdf> (September 17, 2015)
7. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-16-15-sec-2014-04-letter-campbell-mclaren.pdf> (September 16, 2015)
8. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-15-15-sec-2014-04-letter-kris-pastoriza.pdf> (September 15, 2015)
9. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-15-15-sec-2014-04-letter-pamela-martin.pdf> (September 15, 2015)
10. <http://www.nhsec.nh.gov/projects/2014-04/documents/09-08-15-sec-2015-04-letter-pat-kellogg.pdf>  
(September 8, 2015)
11. <http://www.nhsec.nh.gov/projects/2014-04/documents/08-21-15-late-filed-comments-of-julie-moran.pdf> (August 21, 2015)
12. <http://www.nhsec.nh.gov/projects/2014-04/documents/08-16-15-late-filed-comments-from-rep.-rappaport.pdf> (August 16, 2015)

13. <http://www.nhsec.nh.gov/projects/2014-04/documents/late-filed-comments-of-presby-environmental-inc.pdf> (July 31, 2015)
14. <http://www.nhsec.nh.gov/projects/2014-04/documents/sec-rulemaking-public-comment-issues-list-7-9-15.pdf> (p. 16. July 9, 2015)
15. <http://www.nhsec.nh.gov/projects/2014-04/documents/150421schibanoff.pdf> (April 21, 2015)
16. <http://www.nhsec.nh.gov/projects/2014-04/documents/150420noyes.pdf> (April 20, 2015)
17. <http://www.nhsec.nh.gov/projects/2014-04/documents/150409pastoriza.pdf> (pgs. 5-6. April 9, 2015)
18. <http://www.nhsec.nh.gov/projects/2014-04/documents/150415minutes.pdf> (pgs. 105-8, 110-115. April 4, 2015)
19. <http://www.nhsec.nh.gov/projects/2014-04/documents/150323block.pdf> (March 23, 2015)
20. <http://www.nhsec.nh.gov/projects/2014-04/documents/150323mcphaul.pdf> (p. 2. March 23, 2015)
21. <http://www.nhsec.nh.gov/projects/2014-04/documents/150310holderness.pdf> (March 10, 2015)
22. <http://www.nhsec.nh.gov/projects/2014-04/documents/150305mclaren.pdf> (March 5, 2015)
23. <http://www.nhsec.nh.gov/projects/2014-04/documents/150304martin.pdf> (March 4, 2015 Public Hearing)
24. <http://www.nhsec.nh.gov/projects/2014-04/documents/150220mclaren.pdf> (February 20, 2016)
25. <http://www.nhsec.nh.gov/projects/2014-04/documents/150216mclaren2.pdf> (February 16, 2015)
26. <http://www.nhsec.nh.gov/projects/2014-04/documents/150216mclaren.pdf> (February 16, 2015)
27. <http://www.nhsec.nh.gov/projects/2014-04/documents/150130pastoriza.pdf> (pgs. 4-6. January 30, 2015)
28. <http://www.nhsec.nh.gov/projects/2014-04/documents/140812oep.pdf> (pgs. 60-62, SB-99 Health & safety workgroup report, August 23, 2014)

