

**THE STATE OF NEW HAMPSHIRE
BEFORE THE
SITE EVALUATION COMMITTEE
DOCKET NO. 2015-04**

PRE-FILED DIRECT TESTIMONY OF SARAH D. ALLEN

**APPLICATION OF PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
D/B/A EVERSOURCE ENERGY
FOR A CERTIFICATE OF SITE AND FACILITY FOR CONSTRUCTION OF A
NEW 115 kV TRANSMISSION LINE**

THE SEACOAST RELIABILITY PROJECT

April 12, 2016

1

Qualifications and Purpose of Testimony

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Q. Please state your name and business address.

3

A. My name is Sarah D. Allen. My business address is 25 Nashua Rd,

4

Bedford, NH 03110

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Q. Who is your current employer and what position do you hold?

6

A. I am employed by Normandeau Associates Inc. as a Senior Principal

7

Wetland Scientist in the Wetland/Terrestrial Group. I am Normandeau's Project Manager

8

for the Seacoast Reliability Project ("SRP").

9

Q. What is the purpose of your testimony?

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A. The purpose of my testimony is to support the air and water resource, and

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wildlife habitat information in Public Service Company of New Hampshire's (PSNH")

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Seacoast Reliability Project Site Evaluation Committee (SEC) Application. My testimony

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describes the resources mapped and evaluated for the site, the Project's efforts to reduce

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impacts to wetland and wildlife resources, and the assessment of remaining unavoidable

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impacts resulting from the final design. I also address the Project's proposed

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compensatory mitigation for those unavoidable impacts. I conclude with my opinion that

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SRP will not cause an unreasonable adverse effect on air and water quality or on the

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natural environment.

19

Q. Please summarize your background and qualifications?

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A. I received a Bachelor of Science in Wildlife Biology from the University

21

of Vermont in 1979 and received my Master of Science in Natural Resources (Wetland

22

Ecology) from the University of Rhode Island in 1989. I worked in salt marsh ecology

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research for 7 years for the Marine Biological Laboratory in Woods Hole, MA. I have

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been at Normandeau since 1989 in the Terrestrial/Wetlands Group, where I have

25

provided field identification and evaluation of wetlands and wildlife; wetland mitigation

26

and restoration design, implementation and monitoring; and local, state and federal

27

permitting. I am a Professional Wetland Scientist under the Society of Wetland Scientists,

28

and am a New Hampshire Certified Wetland Scientist (#83). I am currently serving on

29

the New Hampshire Association of Wetland Scientists Board as the Education Chair, and

30

served for 16 years on the Conservation Commission in the Town of Warner. Please see

31

Attachment A for my resume.

1 **Q. Have you testified before the New Hampshire Site Evaluation**
2 **Committee previously?**

3 A. No, I have not.

4 **Q. Are you familiar with the Project that is the subject of this**
5 **Application?**

6 A. Yes, I am very familiar with the SRP and its proposed route, having
7 overseen the delineation of wetlands by Normandeau staff, and provided quality control
8 for most of those delineations. As Project Manager, I have consulted with multiple
9 natural resource agencies on the Project, including NH Department of Environmental
10 Services (NHDES), NH Fish and Game (NHF&G), NH Natural Heritage Bureau, US
11 Army Corps of Engineers (USACE), US Environmental Protection Agency (USEPA),
12 US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS)
13 to discuss the Project. Normandeau worked with PSNH and its consultants through many
14 design stages of the Project, to ensure that natural resource related issues and impacts
15 were addressed and minimized where possible in the Project design.

16 **Q. Please describe your role in the project.**

17 A. Normandeau was contracted to provide the natural resource assessments,
18 including air quality, water resources, general wildlife habitat, rare species and
19 communities, essential fish habitat and intertidal and subtidal biological resources for the
20 Project area. We prepared technical reports and applications for all state natural resource
21 permits. While I serve as overall Project Manager for Normandeau's work, my testimony
22 focuses on air quality, vegetated wetlands, wildlife and terrestrial rare species and
23 communities.

24 **Q. Please describe any potential effects to air quality associated with the**
25 **Project.**

26 A. Normandeau reviewed the Project for potential air pollutant sources resulting
27 from the construction and operation of the Project. The review involved conversations
28 with PSNH, Project engineers, and construction representatives to identify any potential
29 emissions. The Project will not combust any fuels to produce electricity and, therefore,
30 will not create any air emissions during operation. Generators that may be used during
31 construction of the Project will be operated in compliance with permitting and emission

1 requirements. Contractors are expected to adhere to NH state laws relative to idling. The
2 potential for fugitive dust resulting from construction activity will be controlled in
3 accordance with conditions of the NPDES CGP (Section 2.1.2.5 Minimize Dust). No air
4 permits are required for the Project.

5 **Q. Please describe the assessment of wetland resources completed for the**
6 **Project site.**

7 A. Our work included delineation of all wetland resources in the existing
8 corridor, wetland functional assessment, impact analysis, and development of
9 compensatory mitigation. The wetland resource surveys included jurisdictional wetlands;
10 perennial, intermittent and ephemeral streams; and vernal pools. Our site work began in
11 Spring, 2013, and continued through Summer, 2015. During that period, Normandeau
12 biologists surveyed for regulated natural resources within the corridor proposed for the
13 SRP, assisted in assessing wetlands and wildlife issues during the alternative route
14 analysis, and reviewed the Project area for rare species and exemplary natural
15 communities. We systematically surveyed the study area for jurisdictional wetland
16 resources (wetlands, streams and vernal pools), flagged the boundaries of wetland
17 resources encountered, and collected data on a variety of characteristics. Wetland
18 resource boundaries were mapped using GPS units capable of sub-meter accuracy, and
19 photo documented.

20 In the office, the wetland resource data were plotted in GIS and the delineator
21 who did the field work reviewed the map for accuracy. A senior wetland scientist
22 reviewed the wetlands in the field by spot checking delineations and reviewing data for
23 accuracy. Changes were recorded with GPS and transferred into the database. We also
24 plotted resource buffers associated with streams and shorelands. Based on agency
25 guidance during pre-application meetings, buffers of 25, 50, and 100 feet were assigned
26 to ephemeral, intermittent, and perennial streams, respectively, and proposed impacts
27 within the buffers were quantified.

28 **Q. Please explain the results of your wetland resource studies.**

29 A. The water resource study area was approximately 152 acres, including 142
30 acres of terrestrial habitat and 10 acres of tidal flats and subtidal areas of Little Bay. The

1 electric corridor passes through predominantly forested lands, but includes areas of
2 urban, suburban and residential development, and some agricultural lands. Within the
3 undeveloped portions of the electric corridor, the actively maintained portion for the
4 existing distribution line within the corridor is a mix of emergent and shrub habitats, with
5 more mature forested habitats bordering the edges of the corridor.

6 Approximately 43 acres of jurisdictional wetlands were delineated within the SRP
7 corridor, the majority of which were characterized as a mix of freshwater emergent and
8 scrub-shrub wetlands with the remainder consisting of various combinations of emergent,
9 forested or scrub-shrub wetlands. The estuarine salt marsh comprised less than 1% of
10 total vegetated wetlands. Within Little Bay, the wetland resources consisted of salt
11 marsh, rocky shore, intertidal flats and subtidal flats.

12 As described earlier, a large percentage of the delineated wetlands fall within the
13 mowed portion of the electric corridor. After multiple design revisions, balancing
14 avoidance and minimization of wetland resources with the necessary engineering
15 constraints of structure and access road locations, the Project will result in unavoidable
16 permanent impacts to approximately 0.14 acres of wetlands and streams with an
17 additional 13.25 acres of temporary impacts, and 6.2 acres of vegetation conversion. The
18 most common principal functions and values identified across the impacted terrestrial
19 wetlands include wildlife habitat, groundwater discharge, floodflow alteration,
20 sediment/toxicant retention, and export of primary production.

21 Thirty-two streams pass through the electric corridor, including 18 perennial, 8
22 intermittent and 6 ephemeral streams. The largest stream is the Oyster River in Durham, a
23 state-designated river under the NH Designated Rivers Act. All other streams are first,
24 second or third order streams and do not qualify for protection under the Shoreland Water
25 Quality Protection Act. No permanent impacts to streams will occur. Most streams will
26 be crossed using timber mat bridges to avoid impacts to the stream channels and banks.
27 Temporary culverts are proposed under two workpads to provide better protection to the
28 stream.

29 No vernal pools occur within the Project corridor.

1 **Q. Please describe the consideration that the Applicant and its**
2 **consultants have given to wetland issues associated with the Project.**

3 A. The SRP design team has made multiple, iterative design changes to avoid
4 and minimize impacts to water resources where possible. The proposed locations of the
5 electric structures were shifted multiple times to avoid and minimize resource impacts,
6 and the primary access road was laid out to avoid wetlands where possible and, if
7 unavoidable, to cross at the narrowest feasible location. Direct permanent impacts from
8 the structure footprints total less than 800 square feet. All direct permanent impacts to
9 perennial and intermittent streams have been avoided.

10 The installation of the three cables crossing Little Bay will result in temporary
11 disturbance of 6.2 acres of estuarine habitats. The impacts were dictated by the design
12 and safety requirements of the crossing, but were minimized along the individual cable
13 paths to the extent possible. Minimization measures included reducing the number of
14 cables from six to three by increasing the size of the individual cable. Another impact
15 reduction was reducing the depth of the jetflow in the intertidal areas from 8 feet to 3.5
16 feet, which reduced the depth of the trench, thus reducing the amount of sediment
17 disturbed. In addition, the cables “funnel” together as they approach each shore which
18 has the effect of reducing the footprint of the cables in the intertidal rocky shore and
19 saltmarsh.

20 **Q. Please describe the assessment of wildlife habitat completed for the**
21 **Project site.**

22 A. Habitat assessment surveys were conducted by a Certified Wildlife
23 Biologist based on a combination of site investigation, review of habitats from aerial
24 photographs and review of the NH Wildlife Action Plan. Normandeau staff biologists
25 conducting other field work (water resource and botanical surveys) also recorded habitat
26 and wildlife observations throughout the site. General habitat features were noted, as well
27 as unique and/or high value habitat features.

28 The habitats present in and around the proposed SRP have a low to moderate
29 amount of development, including some protected conservations lands, substantial areas
30 of low density residential development, and some areas of higher intensity development
31 associated with Durham and Newington/Portsmouth. The undeveloped areas and low

1 density residential areas are primarily forested while the vegetation maintenance practices
2 conducted in the cleared corridor create a mix of shrub and grassland habitat types. Shrub
3 and grassland habitats are important resources for many types of wildlife and are also
4 relatively rare in New Hampshire's predominantly forested landscape. Although narrow
5 (approximately 60 feet wide), the existing cleared corridor provides some relatively
6 valuable habitat resources for grassland/shrubland species, and may also provide a
7 dispersal corridor for species that depend on these habitats.

8 The proposed corridor clearing to 100 feet in width is likely to only minimally
9 affect the status quo, with little significant habitat loss to adjacent forested habitat and the
10 wildlife species present. Shrub and grassland species will benefit from the proposed
11 widening by enlarging the habitat currently available. The widened corridor is unlikely to
12 create a barrier for wildlife using the surrounding forested habitats. The wildlife species
13 that live in moderately developed landscapes, like the ones that surround the Project
14 Area, are generally able to cross open habitats as needed.

15 Construction oversight and timing of construction will be managed according to
16 best management practices for affected species and habitats to minimize impacts. See
17 Appendix 34 *Natural Resource Impact Assessment Report*.

18 **Q. Please describe the assessment of rare species and communities**
19 **completed for the Project site.**

20 A. Normandeau biologists performed assessments for rare, threatened and
21 endangered (RTE) species and exemplary natural communities potentially occurring
22 within the existing corridor and cable area. Assessments were conducted based on data on
23 RTE species and exemplary natural communities received from the New Hampshire
24 Natural Heritage Bureau (NHNHB) in 2013, 2014 and 2015, USFWS and National
25 Marine Fisheries Service in 2014. Field surveys were performed for most of the listed
26 RTE plant species and natural communities, invertebrate species and one wildlife species.
27 In consultation with NHB, the remaining wildlife and fish were either assumed to be
28 present based on their known distributions, or assumed to be absent based on the historic
29 nature of the NHNHB records and/or the lack of suitable habitat for them within the
30 Project Area.

1 One listed plant species, the state-Endangered crested sedge (*Carex cristatella*),
2 was observed within the Project area. Crested sedge is typically found in open habitats,
3 including the wet meadows and open field of the existing corridor. Most of the crested
4 sedge habitat will be avoided during construction. A small portion of its habitat will need
5 to be traversed during tree removal. This work will be done on timber mats to minimize
6 impacts. An environmental monitor will oversee timber mat installation and removal
7 within the crested sedge habitat.

8 Four exemplary natural communities or natural community systems were
9 identified within the Project area in Little Bay: High salt marsh, Salt marsh system,
10 Sparsely vegetated intertidal system and Subtidal system. Impacts to the High salt marsh
11 and Salt marsh systems have been minimized to the extent possible by locating the
12 cables' landfalls at locations where the salt marsh fringe is narrowest (west shore) or
13 fragmented (east shore). The jet plow technology used for burying the cables in the
14 Sparsely vegetated intertidal and Subtidal systems will have minimal impact by using a
15 narrow trench and brief installation period. See Appendix 34*Natural Resource Impact*
16 *Assessment Report*.

17 The ringed boghaunter, a state-Endangered dragonfly, occurs in a sedge meadow
18 near the corridor. Some marginally suitable habitat for this species was identified during
19 a field survey, but no exuvia were observed. The corridor widening is not anticipated to
20 adversely affect the nearby population, and temporary matting over the wetland during
21 tree removal and construction is not expected to have a long-term adverse effect on the
22 habitat.

23 The northern black racer, Blandings and spotted turtles, bald eagles, and osprey
24 are likely to occur in the Project area based on their relatively large home ranges and use
25 of varied habitats. Project construction will implement best management practices to
26 avoid impacting these species as well as some supplemental measures to be implemented
27 by the environmental monitor. These measures include repeated surveys of active
28 construction to clear individual animals from the path of equipment and walkdowns of
29 the corridor to ensure no eagles or osprey have established nests.

30 New England cottontail is a state Endangered species dependent on early
31 successional habitat such as that found under transmission lines. The SRP corridor passes

1 through UNH's Foss Farm and NHF&G's LaRoche Brook parcel, both of which are
2 being actively managed for this species, although it does not currently occur at either site.
3 The SRP will potentially benefit New England cottontail by supplementing early
4 successional habitat and providing a potential connective route for this species to disperse
5 to other suitable habitats. PSNH routinely works with NHF&G to enhance its
6 transmission corridors to improve habitat for this species, and will do so on this Project.

7 The northern long-eared bat was listed in 2015 as a state and federally Threatened
8 species. USFWS issued final rules for this species on January 14, 2016. The final rule
9 states the species is threatened because of white-nose syndrome, not habitat loss,
10 therefore does not restrict tree clearing for projects that are not near known maternity
11 roost trees or hibernacula, such as the SRP, although consultation with USFWS is still
12 required. PSNH prepared a Biological Assessment to address the USFWS 4(d) rule
13 regarding potential impacts to this species. Based on the life history of the northern long-
14 eared bat, the narrow corridor, and the limited tree removal proposed, the conclusion of
15 the Biological Assessment is that the effect of construction of the SRP on this species is
16 so small as to be inconsequential to the population that may be present in the Project area
17 and the overall population as a whole.

18 Two federally listed fish species, shortnosed sturgeon (Endangered) and Atlantic
19 sturgeon (Threatened), may use the Little Bay corridor as feeding habitat. Neither species
20 is known to breed in New Hampshire. Short-nosed sturgeon is considered locally extinct,
21 but adults from other populations in the Gulf of Maine could occasionally feed in Great
22 Bay, including the Project area. Three state-listed fish species, American eel, swamp
23 darter and banded sunfish, are known to occur upstream and downstream of several
24 streams crossing the corridor, including the Oyster River and the Valentine Canal.
25 Minimal tree removal and no crossing will be necessary along either stream during
26 construction, thereby avoiding the potential for impact to fish species in these streams.
27 American eels could transit the LaRoche Brook, but the temporary mat bridges over this
28 stream will continue to allow this species to move along the brook.

1 **Q. Please describe the assessment of marine resources completed for the**
2 **Project site.**

3 A. This work was managed by a Normandeau senior marine biologist, Ms.
4 Ann Pembroke, who is providing separate testimony on marine resources and impacts.

5 **Q. What steps has PSNH taken to mitigate the impact of the Project on**
6 **wetlands and wildlife?**

7 A. PSNH and Normandeau have met with the natural resource regulatory
8 agencies, including NH Department of Environmental Services (NHDES), US Army
9 Corps of Engineers (USACE), and their supporting agencies, including NHHNB, NH
10 F&G, USFWS, National Marine Fisheries Service and the US Environmental Protection
11 Agency to discuss the Project and to identify a suitable, appropriate compensatory
12 mitigation package. The NHDES and USACE have concurred that in-lieu fee payment to
13 the state's Aquatic Restoration Mitigation fund could be appropriate mitigation for all
14 impacts. The preliminary calculation of the cost of in-lieu fee mitigation is shown by
15 municipality in the following table:

Municipality	Compensatory Mitigation Cost
Madbury	\$6,488.92
Durham	\$213,547.82
Newington	\$81,747.24
Portsmouth	\$8,187.14
Total	\$309,971.11

16 The Project has also received input from the municipalities and conservation
17 organizations working in the region to identify Project-specific mitigation as possible
18 local substitutes for in-lieu fee compensation. As a result there are several potentially
19 suitable projects for local compensatory mitigation. These include Project contributions
20 to a shoreline restoration and wetland protection at Durham's Wagon Hill Farm
21 conservation area. Both mitigation concepts have merit for compensation for different
22 aspects of wetland resource impacts by the SRP if the regulatory agencies and
23 municipalities concur.

1 **Q. In your opinion will this Project have an unreasonable adverse effect**
2 **on air and water quality and the natural environment?**

3 A. No, the Project will not have an unreasonable adverse effect on air and
4 water quality and the natural environment. I also rely on the assessments and pre-filed
5 testimony of my colleague, Ann Pembroke, at Normandeau Associates on water quality
6 and marine resources. The Project has carefully considered air quality, water quality and
7 natural resource issues and minimized impacts where feasible and reasonable.

8 The Project will not combust any fuels to produce electricity and, therefore, will
9 not create any air emissions during operation. Generators that may be used during
10 construction of the Project will be operated in compliance with permitting and emission
11 requirements.

12 Most permanent wetland and stream impacts have been avoided, and unavoidable
13 impacts have been minimized. The proposed compensatory mitigation for unavoidable
14 impacts to wetland resources is adequate for the small and scattered permanent impacts
15 from the Project. The vast majority of direct wetland impacts are temporary, and
16 measures to ensure appropriate habitat protection and restoration will be applied during
17 construction. These will include regular oversight by an environmental monitor to ensure
18 compliance with the Project-specific environmental protection requirements, removal of
19 all equipment, timber mats and erosion controls; surface raking to eliminate ruts; and
20 seeding bare areas.

21 Temporary salt marsh impacts will occur during cable burial performed by
22 excavator across the narrow fringing salt marshes on the east and west shores of Little
23 Bay. Given the shallow peat and underlying coarse gravel-sand substrates, the Project
24 will salvage the existing salt marsh vegetation and peat for restoration after construction.
25 The salvaged peat blocks will be stockpiled and protected during construction, and
26 replaced at grade after substrates have been restored. This technique has been successful
27 on multiple projects, and is expected to be so here. Post-construction monitoring will be
28 implemented for three years following restoration to assess the status and success of the
29 work, and to respond to any damage or adverse condition observed.

30 The state Endangered crested sedge habitat will be largely avoided during
31 construction. The small area that will be temporarily impacted during tree clearing will be

1 protected by doing the work on timber mats. PSNH will conduct population monitoring
2 both before and after construction to assess the response of crested sedge to the
3 construction impacts, and the tree clearing, both of which could be beneficial to this
4 open-grown species.

5 The corridor widening is not anticipated to adversely impact wildlife that
6 currently occupies the Project area, and may benefit species that prefer shrub habitats
7 such as the New England cottontail, northern black racer, and Blanding's and spotted
8 turtles. During construction, the disturbance and direct habitat loss will result in alteration
9 of habitats and displacement of some individual wildlife, but no adverse effects to
10 wildlife populations are expected. In balance, the potential adverse effects of the Project
11 on water resources and wildlife habitat are reasonable, and are fairly mitigated.

12 **Q. Does this conclude your pre-filed testimony?**

13 A. Yes.