STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Petition of Northland Solar, LLC for a Certificate of Public Good, pursuant to 30 V.S.A. § 248a, for approval to install and operate a 4.999 MW solar generation facility in Lowell, Vermont	))))))	Case No. 25-2346-PET

PREFILED REBUTTAL TESTIMONY OF THOMAS HAND

May 20, 2026

Summary: Mr. Hand's rebuttal testimony responds to testimony and exhibits from Intervenors and the Town of Lowell and describes additional mitigation measures proposed by Petitioner.

Exhibits

NS-TH-2 (Rev.) – Revised Site Plan
NS-TH-2a – Comparison Plan
NS-TH-3 (Rev.) – Revised Representative Equipment Specifications
NS-TH-7 – VEC Public Comment Letter (12/1/2025)
NS-TH-8 – MHG Solar Letter to Town of Lowell & Town Response

Q1. Please state your name, occupation, and business address.

A1. My name is Thomas Hand. I am the manager of Northland Solar LLC. My business address is 170 Bonnet Street, Manchester Center, VT 05255.

Q2. Have you previously submitted testimony in this proceeding?

A2. Yes, I submitted prefiled direct testimony on behalf of Petitioner Northland Solar LLC ("NS" or "Northland Solar") on October 1, 2025.

Q3. What is the purpose of your rebuttal testimony?

A3. The purpose of my testimony is to respond to comments and concerns about the Project filed by Intervenors and the Town of Lowell (the "Town"). Specifically, I address concerns regarding the Project's location in the Sheffield-Highgate Export Interface ("SHEI"), public safety, potential for glare and radio frequency disruption, materials in the solar panels, and water supplies. I also introduce some changes to the Project design in response to concerns from other parties about the Project's aesthetic impact and explain why this site was chosen for the Project. Finally, I address the assertion that the Project has not offered any offsets or benefits to the Town of Lowell and reiterate the benefits that the Project will provide to the Town, VEC customers, which includes the residents of Lowell, and the State of Vermont.

Q4. Let's begin with concerns about the Project's location in the SHEI. How do you respond to this?

A4. Several individuals and witnesses for the Town of Lowell raised concerns about the Project being located in a grid constrained location and question the need for the Project's power. Northland Solar has worked with VEC to address any potential adverse economic impacts that could be experienced as a result of the Project's added generation in the SHEI area and will pay a grid adjustor fee of $62,737.45 based on the Project size to offset any adverse economic impacts. See ***Exhibit NS-TH-6.*** As stated by VEC in its public comment letter to the PUC, which I have attached as ***Exhibit NS-TH-7***, this impact payment reflects VEC's consideration of planned transmission upgrades by VELCO that are specifically intended to support additional generation capacity in the SHEI. This same approach has been accepted by the Commission in other generation projects recently approved in the SHEI area. The need for the Project's power was confirmed by VEC in its comment letter, which stated that this Project will help VEC meet its Vermont Renewable Energy Standard ("RES") obligations and also secure a long-term generation resource at stable pricing, which helps keep electricity rates more steady for utility customers. ***Exhibit NS-TH-7.***

Q5. The Lowell Fire Chief, Gerry Nick, raised some public safety concerns about the Project. Can you please summarize these concerns?

A5. Yes, Chief Nick raised concerns about how the Lowell Fire Department would respond to a fire at the solar facility and potential interference from Project equipment with radio frequency

communications. Chief Nick also raised questions about who to contact in an emergency and how the Fire Department would access the Project in the winter.

Q6. How do you respond to Chief Nick's questions and concerns?

A6. With respect to the potential for a fire at the facility, the facility does not pose a unique fire risk from other construction sites or solar facilities. It is Petitioner's general expectation that any fire that could occur during construction or operation of the Project could be addressed with typical firefighting techniques and would be comparable to fires that could occur at other construction sites. If a fire occurred during the winter and the access road to the Project area was not plowed, the risk of spread beyond the facility would be virtually non-existent given the snow cover. Additionally, as Petitioner informed the Town in discovery, the Project will be equipped with protective design measures to shut off the system. These are standard features on ground-mounted solar projects installed across the state. See ***Exhibit NS-TH-4a*** at page 21, which includes a description of the disconnect switch between the Project and the distribution system. Petitioner is also willing to discuss concerns directly with the Fire Department. With respect to emergency contact information and obtaining access to the gate to the facility in the event of a fire, Petitioner would be happy to do a walk through of the facility with the Fire Department once the facility is constructed and to provide the Fire Department with contact information and a key to the facility gate.

Turning to the issue of radio frequency interference, the inverter equipment for the Project will be FCC 15 Compliant to avoid interference with radio services. See ***Exhibit NS-TH-3*** **at 6** (listing FCC Part 15 in Safety Certifications and Standards for CPS Inverters)**.** MHG

Solar has used this same inverter in many other solar projects in Vermont and is not aware of any radio interference issues around those projects or any other solar projects in Vermont. Furthermore, although Chief Nick's exhibit cites to an example of radio interference from a solar facility in Lebanon, New Hampshire, the City of Lebanon's website states that "[t]he Landfill Maintenance Garage array was taken down in 2020 due to interference issues with certain City communications equipment. The problem was resolved through the use of new inverter technology and the array was reinstalled in late March 2023."(Emphasis added). See https://lebanonnh.gov/1342/City-Solar.

Finally, it is worth reiterating that Vermont has thousands of solar installations currently operating, including on all kinds of buildings and close to airports, hospitals, and fire stations, and to my knowledge there have been no widespread issues with these installations causing major public safety concerns. Here, the Project's inverters will be set back well more than 1,000 feet from the Lowell fire station and over 900 feet from the closest public road. For these reasons, there are no unique public safety concerns for this Project with respect to fire or to radio frequency interference, and the Project will not pose any undue adverse risks to public health and safety.

Q7. How do you respond to Intervenor concerns regarding the potential for glare from the solar panels?

A7. I do not believe there is any material risk of solar glare issues from the Project for a number of reasons. First and foremost, there are hundreds of solar facilities around the state with many in close proximity to residences and public roads, and to my knowledge there have not been

widespread reports of glare issues. This is likely due to the fact that solar panels are specifically designed to absorb light, not reflect it—that is what makes the technology work. To the extent that some small amount of light could be reflected depending on the angle, nearly all solar panels on the market today include a form of anti-glare coating. Petitioner commits to using a panel that includes this type of coating to further reduce any risk of glare. Finally, as discussed in more detail below, mitigation plantings are proposed between the Project and Route 100 and additional plants are proposed to further screen views from neighboring residences. Therefore, there will be no substantial risk of glare from the panels for travelers on Route 100 or for neighbors.

Q8. How do you respond to concerns expressed by the Town regarding the safety of the solar panels?

A8. Again, I would point to the thousands of solar projects that have been built in Vermont using similar, or the same, materials to what are proposed in this Project. There is nothing unique about the materials proposed in this Project. Solar panels are located next to and on top of houses, schools, and hospitals throughout the State. Furthermore, while the exact manufacturer of the solar panel that will be used for the Project is not known at this point, the panel will meet international safety standards and be IEC 61215 and IEC 61730 certified. Thus, any concerns about soil quality and water quality impacts from solar panels in general are not unique to this Project. Insofar as the Town is specifically concerned about the panels potentially impacting the Ground Water Source Protection Area ("SPA") for the Town, there are no panels proposed within this area. The closest solar panel is over 400 feet from the boundary of the SPA. See also discussion in the Rebuttal testimony of Seth Goddard.

Moreover, as previously submitted, Northland Solar has executed Memorandums of Understanding with the Agency of Natural Resources ("ANR") and the Agency of Agriculture, Food, and Markets ("AAFM"). Under these MOUs, both agencies conclude that, subject to the inclusion of certain conditions in the Certificate of Public Good, the Project will not have an undue adverse impact on the criteria they are respectively responsible for, which includes water quality (ANR) and primary agricultural soils (AAFM). See ***Exhs. ANR-NS-1; AAFM-NS-1.***

Finally, as is our standard for ground-mounted solar arrays, this Project will be surrounded by a minimum 7-foot high fence to restrict access. I would note by comparison, there is an unfenced ground-mounted solar array located at 2047 Vermont Rte 100, approximately 1,000 ft from the Lowell Graded School, which is roughly the same distance as the Project from the school. The proposed design and fencing of the Northland Solar Project has significantly enhanced access restriction and safety measures compared to this unfenced ground-mount solar array in equal proximity to the Lowell Graded School. For these reasons, there is no unique public health risk from the Project's solar panels.

Q9. Ms. Blay, a witness for the Town, claims that there may be a residential water line running across the Project parcel. What is your response to this claim?

A9. Petitioner has reviewed a number of documents including a 1980 deed referenced by Ms. Blay in discovery, and has not been able to locate or determine the existence of the water line which has been claimed to have been installed "around 1978". Even the affidavits submitted by Ms. Blay indicate only a "roughly estimated" location of the pipe, which now falls outside of the Project site. Ms. Blay herself appears to have no personal knowledge of the line.

Even if this water pipe does run across the parcel, it is highly unlikely to be impacted by the Project as the revised design no longer has Project infrastructure where the line is "roughly estimated" to run according to Ms. Blay. See ***Exhibit NS-TH-2 (Rev.).*** I would also point out that to the extent the Town would prefer to see other development on this parcel, an unmarked buried water line would present the same risks, which the Town does not recognize. Regardless, Northland Solar will ensure the Project does not interfere with any property rights to lay and maintain a water line on the Project parcel, to the extent any such property right exists, and commits to repair any direct damage to this water line in the unlikely event it is damaged during construction given the new proposed Project layout.

Q10. On page 13 of her testimony, Ms. Blay suggests that the Project has not proposed any "offset" benefits to the Town for the Project impacts such as "securing of open space" for public use. How do you respond?

A10. I do not believe this is an accurate statement on Ms. Blay's part. After the public hearing, where Petitioner heard several townspeople express concerns about potential other uses for the Project parcel that the Town may have need or want of in the future, Northland Solar proactively reached out directly to Ms. Blay by letter in December to offer to transfer the portion of the parcel closest to Route 100 where there is no Project infrastructure proposed for the Town's future use towards whatever it wanted if the Project moves forward. This portion of the property is readily accessible by road and Northland's offer was in direct response to the Town's expressed desire for future use. See MHG Solar Letter, ***Exhibit NS-TH-8.*** This offer was not contingent on the Town taking any position in the case and would have given the Town several

acres of land for free as a way for the Town to also benefit from the Project. Northland Solar also reiterated that "[a]s we indicated at the site visit and hearings, we continue to be open to discussions about Project modifications and alterations that might address concerns raised. Our goal is to work with the community, and if there are ways within reason that we can improve this Project for the benefit of the Town and neighbors we are very willing to discuss with you." See ***Exhibit NS-TH-8.***

Q11. Did Northland Solar receive a response to Town regarding its offer to transfer part of the parcel to the Town at no cost for its future use?

A11. Yes. Ms. Blay responded on behalf of the Selectboard. She stated that they wanted the site to remain open in agricultural use or support local housing and businesses. She also stated that "there are no changes that could be made [to the Project] to make it acceptable other than finding another site." See Town Response in ***Exhibit NS-TH-8.*** Based on Ms. Blay's statement in the letter, it is clear that although the Town incorrectly suggests that Northland Solar has not made any attempts to address concerns, the Town has not been willing to work with Northland Solar despite outreach on multiple occasions.

Q12. Has Northland Solar made other attempts to address concerns raised by community members?

A12. Yes, we have. Northland Solar has repeatedly stated its desire to work with the Town and the community to try to address concerns to the extent we reasonably can. In the public meeting and site visit for the Project, I noted that Northland Solar was willing to discuss concerns and the

mitigation plantings proposed with Town residents and the adjoining landowners. We have not received any outreach following those meetings. With respect to the requests we received prior to that time from community members, Northland Solar agreed to accommodate each request. These include: agreeing to allow the VAST trail permanent access to cross the property, agreeing to let the Town use the acreage remaining outside the Project fence for a community garden as suggested at the October 14th, 2025 meeting with members of the Town (separate and aside from our subsequent offer to transfer the front unused portion of the property fully to the Town); agreeing to let the school and the school children to continue using the slope of the ravine on the Project parcel for sledding; agreeing to allow a neighbor to continue sugaring trees along the northern property line, and agreeing to allow sheep grazing within the array, at no cost to the farmer, if there is a local farmer who wants to graze sheep there.

Q13. You noted that Ms. Blay states in her response to Northland Solar's letter that only an alternative site for the Project would be acceptable to the Town. What is your response to this?

A13. I don't believe that the Town understands the time and number of considerations that go into finding appropriate sites for solar facilities before a petition is even submitted. Prior to submitting a petition we must obtain site control, review numerous criteria including but not limited to: access to existing electrical infrastructure to allow for power export to the local grid, access to existing roads to allow for materials to be delivered, slope and aspect of the land to avoid substantial grading, openness of the land, required level of vegetative clearing, natural resource constraints such as wetlands, rare and endangered species or necessary wildlife habitat,

local and regional planning constraints, prime agricultural soils, and potential aesthetic impacts. Petitioner spent a significant amount of time and resources identifying, procuring, and studying this site to determine that it met these criteria before submitting the Petition. Therefore, the Town's suggestion that the appropriate place for this Project in Lowell is the asbestos mine is not reasonable or reflective of the considerations above. Moreover, setting aside the fact that Northland Solar has no property rights over that location, the Town Plan specifically identifies the asbestos mine as a place where development **should not occur** due to significant public safety concerns over disturbing the soils. See Exh. TL-GS-3 at 64:

> The Planning Commission is aware of the location of the [abandoned asbestos] mine and affected areas so development on these lands can be intervened. The grounds must be left alone because if the soils are disrupted it will cause the carcinogen to become airborne which can pose health threats. The only duty of the Board at this time is to ensure that no development is done on the land or affected areas.

The Planning Commission's position above aligns with common sense that a site like an asbestos mine presents a myriad of dramatic environmental and health issues that are different from other types of extraction sites (e.g. gravel or sand) and that make sites like this impractical for financeable, cost-effective development of solar facilities.

Q14. Can you explain why, in your view, the Project site is an appropriate location for the Project?

A14. Yes. Firstly, the site is located in close proximity to power lines and two electrical substations, one of which is capable of receiving the full output of the Project with minimal upgrades. The Project site is not forested, nor does it contain steep slopes that would block the development of a

cost effective solar Project. Access to the site is relatively straightforward, takes advantage of an existing curb cut off Route 100, and requires only an extension to the already existing drive into the site from Route 100, which minimizes new impervious surface. The site does not contain RTE species or other major environmental constraints and is large enough that the fenced in Project area can avoid Class II wetlands and wetland buffer impacts while still allowing for appropriate setbacks to neighboring properties that are in excess of the statutory minimums. The site is in the "Rural-Residential Agricultural" zoning district and there are no town or regional planning constraints that prohibit development on this parcel.

From a visual perspective, much of the site is naturally screened by topography and intervening vegetation, and the Department of Public Service's expert, Mr. Perkins, estimated that the Project could potentially be visible from only approximately 1.4% of the surrounding 2 mile radius, meaning that it is not visible from approximately 98.6% of the surrounding area. In the immediate vicinity, the Project area already contains industrial electric infrastructure that is clearly visible to travelers along Route 100 and neighbors, including the transmission line running through the property and the two utility substations that sit prominently in the foreground of the primary public viewpoints of the Project site. I would also note that, as discussed by Mr. Owens in his rebuttal testimony, the area around the Project parcel also contains a lot of visible infrastructure, including a tall cellphone tower to the west in the center of the Village. See ***Exhibit NS-JO-4 (Electric Infrastructure Context Plan)***. As noted above and shown on the context map, there is also a residential ground-mounted solar facility just up the road from the Project site that appears to sit less than 75 feet from the edge of Route 100, is clearly visible from Route 100 and has no perimeter fencing (meaning it is accessible to anyone

walking by), in addition to rooftop solar installations, including on the Mannings' roof. Additionally, although there are a few residences that have views of portions of the Project parcel, the natural landform and substantial existing vegetation surrounding the Project allow for selective vegetative planting to filter the limited views of the Project from public and private vantage points. Much of the parcel is not widely visible to the surrounding area, so visual impacts to public views would be limited.

In total, the Project site's size and proximity to existing infrastructure (electrical and physical access) make the site uniquely situated to provide cost-effective power while also minimizing impacts to natural resources.

Q15. You mentioned above that you are proposing changes to the Project design and additional mitigation plantings as part of this filing. Can you please summarize why Northland Solar is making these changes and what the changes include?

A15. Yes. As I mentioned before, Northland Solar has been open to feedback from the Town and Intervenors regarding the Project's impacts and ways to reasonably mitigate these further. While we have not received any direct feedback on requested mitigation from the Town and Intervenors, the testimony submitted by other parties, including the DPS, raised concerns about visibility of the Project in particular areas, including views from the Mountain View Cemetery and the Manning and Sullivan residences. While we believe that the changes we are proposing to the Project today go well beyond "reasonably available mitigation measures," we are looking to be responsive to these concerns. Therefore, Northland Solar is willingly modifying the Project design to significantly reduce the overall footprint by removing panels from the southern-most

section of the Project, which is closest portion to the Cemetery and the Manning and Sullivan residences. See Revised Site Plan, ***Exhibit NS-TH-2 (Rev.)***. The footprint of the Project has been reduced by over 5 acres from 26.977 acres to 21.88 acres, which is nearly a 20% reduction in size. Notably, this change in project footprint also leaves more than 40% of the currently open field acreage outside of the Project footprint. In order to remove these rows and reduce the array size, the Project has had to move to a fixed tilt panel design, rather than single axis trackers. An equipment specification sheet for the fixed tilt racking is attached as ***Exhibit NS-TH-3 (Rev.)***. The panels will face south and run in an east to west direction. A Comparison Plan showing the changes from the original site plan (indicated in red) is also attached as ***Exhibit NS-TH-2a.*** Finally, in conjunction with this solar array size reduction, Northland Solar is also updating the type and location of mitigation plantings while also incorporating evergreen trees with a taller initial height to increase the mitigation effects during leaf-off seasons. The location of the proposed plantings have been updated to reflect the change in the array design to maximize their screening effect in relation to the new solar array position. Mr. Owens has provided a revised landscape mitigation plan in ***Exhibit NS-JO-2 App. C (Rev.)***, and the location of the mitigation plantings are also shown on the revised site plans, ***Exhibit NS-TH-2 (Rev.)***.

Q16. What are the impacts of the revised design and additional plantings you are introducing?

A16. Mr. Owens describes in more detail the impact of these additional mitigation measures on specific views, but in general, the Project will be located farther away from the Cemetery and also farther from the Sullivan and Manning residences than initially proposed. The revised layout and type of plantings will further buffer views from these areas. The distance from the property

line of the Cemetery to the closest panel is now approximately 497 feet away (previously +/- 375 feet), the Sullivan residence is now approximately 335 feet away from the closest panel (previously +/-191 feet), and the Manning residence is now approximately 297 feet away from the closest panel (previously +/-240 feet). Additionally, the Project has been moved out of the direct sight line and will take up less of the field when viewed from the deck of the Manning Residence with the additional plantings along the southeastern edge of the Project to help further mitigate views from this residence. Mr. Owens has created simulation views of the Project with these changes incorporated for comparison to the prior simulations submitted by the Department of Public Service. See ***Exhibit NS-JO-3(a-c).***

Q17. Why did Northland Solar not incorporate these changes to the design from the beginning?

A17. We did make changes to the design prior to submitting the Petition to move the Project further back from Route 100 and increase the distance from the Lowell Graded School and Town Offices. Our focus was on reducing views from public vantages where they would be experienced by the most people. We also proposed a design that would maximize the energy that could be produced by the facility in order to make the most use of the site and provide the most energy and RECs to VEC towards their Renewable Energy Standard obligations. This design included proposing single-axis trackers, which would produce more energy for VEC on the site than a fixed-tilt design. With the changes we are proposing in response to the other parties, the Project will be less efficient and the energy output will be reduced somewhat because the Project will now have fixed-tilt panels in order to reduce the footprint and increase the setbacks;

however, we are making this change now so that visibility of the Project from private residences will be substantially reduced, as explained above and in the testimony of Mr. Owens.

Q18. Did Northland Solar consider undergrounding the overhead interconnection line between the Project and the substation? If so, why did Northland Solar decide not to propose this?

A18. Yes. However, undergrounding the interconnection line (referred to as the "gen-tie" line by the Department's witness) would add substantial expense to the Project, without any substantial benefit given the existing electrical infrastructure in the area already. This change would merely increase Project costs. There are existing transmission and distribution lines running through and in front of the parcel along Route 100 and the use of overhead distribution lines to interconnect, not just ground-mounted solar projects but commercial and residential structures of all kinds, is standard in Vermont. Therefore, we did not feel that undergrounding the line was necessary and would not materially improve the harmony of the Project with the surroundings, while it would add substantial costs.

Q19. Will the Project result in any direct benefits to the Town? If so, please describe.

A19. Yes. In addition to our offer of several acres of land at no cost to the Town for its future use as recreational, agricultural, conservation, or development land, the Project will pay municipal taxes on the solar infrastructure to the Town. These taxes are in addition to the taxes on the land, which the Project plans to purchase and pay property taxes on. At present, the land is assessed at $94,000 and it is our expectation that the assessed value of the land will increase after the sale to Petitioner, which assuming the Town's tax rate remains unchanged, would result in an increase

in property tax revenue on the land under the solar array. Petitioner will also pay additional property tax payments to the Town based on the final value of the facility. Additionally, the Project will hire locally, if possible, to provide maintenance services such as vegetation management services (mowing, trimming, etc.) and plowing the access drive when necessary. We have found that these maintenance activities are often well suited to local contractors. The construction of the Project will also provide an opportunity for local contractors and it is likely that workers will spend money on fuel, lodging and food and supplies in the local area. Finally, the residents of Lowell are VEC customers, and will benefit indirectly through VEC's procurement of the Project power, which will add a cost-effective and stable-priced source of power to VEC that takes advantage of expiring tax credits. This will help maintain affordability of electricity for VEC customers.

Q20. What other benefits will the Project have more broadly?

A20. In addition to the benefits above that are specific to the Town of Lowell, there are broader economic benefits to the State through Northland Solar's hiring of Vermont businesses to support development of the Project and through state tax payments. The Project will also pay the Uniform Capacity Tax, which will result in an annual payment of just under $20,000 a year. Over a 25-year expected lifetime, the Project will generate just under $500,000 of additional tax income for the State education fund through this tax. Finally, as explained above, the Project will help VEC meet its obligations under the RES, and add a new renewable energy generation resource to the State of Vermont.

Q21. Will these benefits outweigh the potential impacts of the Project?

A21. Yes. It is a reality that most development results in change, which some people are averse to. However, Vermont needs new distributed generation projects to be developed in order to meet its renewable energy goals and the increasing demand for electricity. The visual impacts from the Project on the public are limited, and the impacts to a few private residences are well-mitigated and should not outweigh the broader social good from the development of renewable energy. Northland Solar has taken significant measures to try to address and minimize impacts to the few individuals who have direct views of portions of the parcel. The Project will result in economic and social benefits to both the local area, the interconnecting utility, and the State that outweigh its impacts, and will promote the general good of the State.

Q22. Are there any corrections you wish to make to your prior testimony and exhibits?

A22. Yes. On page 18, line 17 of my direct testimony, I inadvertently referred to the Town of Pittsford when it should read the Town of Lowell.

Q23. Does this conclude your testimony at this time?

A23. Yes, it does.

I, Thomas Hand, declare that the testimony and exhibits that I have sponsored are true and accurate to the best of my knowledge and belief and were prepared by me or under my direct supervision. I understand that if the above statement is false, I may be subject to sanctions by the Commission pursuant to 30 V.S.A. § 30.

Dated at Portland, Oregon on the 20th day of May, 2026.

Thomas Hand

Thomas Hand