

**STATE OF VERMONT
PUBLIC UTILITY COMMISSION**

Petition of Savage Solar Energy LLC for a	)	
Certificate of Public Good, pursuant to 30	)	
V.S.A. § 248, authorizing the installation	)	
and operation of a 2.75 MW solar electric	)	Case No. 26-____-PET
generation facility off Route 103 in Chester,	)	
Vermont to be known as the “Savage Solar	)	
Energy Project”	)	

PREFILED DIRECT TESTIMONY OF THOMAS HAND

March 23, 2026

Summary: Mr. Hand’s testimony provides an overview of the proposed Savage Solar Energy Project, and compliance with certain of the section 248 criteria including: Need for the Project; System Stability and Reliability; Economic Benefit to the State; Air and Water Pollution; Use of Natural Resources; Traffic; Educational Services; Municipal Services; Public Investments; Public Health and Safety; Greenhouse Gas Impacts; Least-Cost Integrated Resource Plan; Comprehensive Energy Plan; Transmission Facilities; and Setbacks

Exhibits

SSE-TH-1	Resume of Thomas Hand
SSE-TH-2	Site Plans
SSE-TH-3	Equipment Specifications
SSE-TH-4	Decommissioning Plan
SSE-TH-5	Feasibility Study

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

2 A1. My name is Thomas Hand. I am the manager of Savage Solar Energy LLC, and in that
3 capacity I have been developing the proposed project. The business address for Savage
4 Solar Energy LLC (“SSE”) is 170 Bonnet Street, Manchester Center, VT 05255.

6 **Q2. What is the purpose of your testimony?**

7 A2. My testimony supports SSE’s petition for section 248 approval to construct and operate a
8 2.75 megawatt (“MW”) alternating current (“AC”) solar electric generation project, to be
9 known as the Savage Solar Energy Project (“Project”), located off Route 103 in Chester,
10 Vermont. I provide background information about the Project, describe aspects of its
11 construction and operation, and provide testimony on the Project’s compliance with
12 certain of the 30 V.S.A. § 248(b) criteria including: Need for the Project – § 248(b)(2);
13 System Stability and Reliability – § 248(b)(3); Economic Benefit to the State –
14 § 248(b)(4); § 248(b)(5), including Air and Water Pollution; Traffic; Educational
15 Services; Municipal Services; Public Investments; Public Health and Safety; Use of
16 Natural Resources; and Greenhouse Gas Impacts; Least-Cost Integrated Resource Plan –
17 § 248(b)(6); Comprehensive Energy Plan – § 248(b)(7); Transmission Facilities –
18 § 248(b)(10); and Setbacks – § 248(s).

20 **Q3. Please describe your professional background, qualifications and experience.**

21 A3. I grew up in Dorset, VT and graduated from Burr & Burton Academy in Manchester, VT.
22 I attended Middlebury College and studied economics and environmental science before

1 entering the alternative energy & energy efficiency industry. I have over twenty years of
2 experience working in renewable energy and energy efficiency in roles ranging from
3 energy auditor to project finance. In 2010, I began developing and building solar projects
4 in the Manchester area and have completed projects with The Dorset School, Fisher
5 Elementary and Maple Street School. I have developed approximately 50,000 kW of
6 ground mounted projects in Vermont over the past 15+ years. Outside of Vermont I have
7 worked for alternative energy firms in a variety of roles including program management,
8 project finance, and origination. I have direct solar project development experience in
9 Vermont, Minnesota, and California. My resume is attached as ***Exhibit SSE-TH-1.***

10
11 **Q4. Have you previously testified before the Public Utility Commission?**

12 A4. Yes. I have provided testimony to the Commission on behalf of a number of solar
13 projects. Recent projects include Stone House Solar, Case No. 25-1827-PET; Hunt Road
14 Solar, Case No. 23-2420-PET; Barnet Solar, Case No. 23-3381-PET; Furnace Brook
15 Solar, Case No. 23-4028-PET; and Post Road Solar, Case No. 23-4324-PET.

16
17 **Project Description and Overview**

18 **Q5. Please provide an overview of the Project.**

19 A5. The proposed Project is a 2.75 MW AC solar electric generation facility to be located off
20 Route 103 in Chester, Vermont. The proposed Project will occupy approximately 14.18
21 (±) acres of a parcel of land which totals 25.72 (±) acres. SSE has the option to lease the
22 Project's portion of the parcel.

1 The Project site is primarily located on an existing corn field that is located
2 between Route 103 and an existing railroad line. The site is slightly downhill from Route
3 103 but is separated from the road by a stand of trees that substantially screens the site. A
4 very small amount of vegetation clearing will be required for the installation of the access
5 road (approximately 0.05 acres) with an additional 0.01 acres of vegetative management.
6 Access to the Project site will make use of the existing roads within the area, and a new
7 access driveway off of Route 103. The gravel driveway will be approximately 250 feet
8 long and 12-foot-wide. The Project will be set back approximately 162 feet from Route
9 103, the closest traveled way, and approximately 188 feet from the nearest off site
10 residence. *Exh. SSE-TH-2 (Site Plan Set).*

11 The Project will use solar panels mounted on fixed tilt racking oriented due south.
12 At their highest point, the top of the panels will reach a maximum height of
13 approximately 13' from the ground. String inverters will be located as shown on the Site
14 Plan. The solar panels will be connected to the inverters, which will convert the DC
15 electricity to AC. The power from each inverter will be fed to a pad-mounted
16 transformer, with secondary containment, as shown on the Site Plan, to step up the
17 inverters' output voltage to match that of the utility's distribution grid. See *Exh. SSE-*
18 *TH-2.*

20 **Q6. Please further describe the equipment to be used for the Project.**

21 A6. The Project's equipment consists of the following: approximately 7,200, 590-watt solar
22 panels ($\pm$), or the equivalent, mounted on fixed tilt racking; ten (10) CPS inverters rated

1 at 229 kW and two (2) rated at 230 kW (AC) each for a maximum capacity of 2,750 kW
2 AC; one 3,000 kVA pad-mounted transformer; equipment pads and/or racks, and above-
3 and below-ground electrical lines. The transformer and switchgear equipment area will
4 be raised to ensure the bottom of all electrical equipment is at least one foot above the
5 base flood elevation (“BFE”) level. Solar panels, inverters and electrical enclosures will
6 be mounted such that they are at least one foot above the BFE at their bottom edge. The
7 inverter racks will be surrounded by an eight-foot high fence with sound attenuating
8 blankets. Underground power will connect the inverters to the transformer and then run
9 to a new utility pole, where the power will transition to overhead and run across
10 approximately five additional utility poles that will be installed along the access drive off
11 Route 103. The Project will interconnect to the Green Mountain Power (“GMP”)
12 distribution system at the final new utility pole closest to Route 103. *See Exhs. SSE-TH-*
13 *2, and TH-3 (Equipment Specifications).*

14 The transformer will use a non-toxic, biodegradable cooling oil. In addition, the
15 transformer will be equipped with a secondary oil containment pan capable of holding
16 110 percent of the volume of oil plus a minimum of five inches of freeboard. The
17 containment system is shown in *Exhibit SSE-TH-2*.

18 The Project will be enclosed within a fixed knot, game-style perimeter fence that
19 will be a minimum of 7’ high in order to meet the National Electric Safety Code. *See*
20 *Exhs. SSE-TH-2, SSE-TH-3*. The fencing will be secured and kept relatively close to
21 ground level to avoid access by large wildlife and to prevent access to the Project.

1 The specifications shown in *Exh. SSE-TH-3* contains pictures and specifications
2 of representative solar panels, inverters, transformers, and fencing. The final selection of
3 equipment will be made after permitting is complete and equipment vendors are selected.

4
5 **Q7. Will the Project include underground lines owned by the Petitioner outside of the**
6 **Project fence line?**

7 A7. Yes, a small portion of underground line will run beyond the Project fenceline to the
8 closest new utility pole to the Project near the end of the access drive, where the line will
9 then transition to overhead. Petitioner will register with DigSafe and record all
10 underground lines that are owned by the Project that are outside the Project fence line
11 with DigSafe and will comply with the rules of DigSafe for the life of the Project.

12
13 **Q8. Please state the Project's capacity and anticipated energy production.**

14 A8. The Project will have a nameplate capacity of 2.75 MW AC, and is expected to generate
15 5,000 ($\pm$) megawatt hours (MWh) of electricity per year, the equivalent of powering
16 approximately 770 homes, based on an average residential usage of 6,500 kWh per year.

17
18 **Q9. Please describe the property on which the Project will be located.**

19 A9. As noted above, the Project will be sited on a 14.18 ($\pm$) acre portion of a 25.72 ($\pm$) acre
20 parcel of land off Route 103. *Exh. SSE-TH-2*. The parcel is owned by HM Savage &
21 Sons Inc. As noted above, the Project site is currently a corn field. The only vegetative

1 clearing/management required for the Project is approximately 0.06 acres for the
2 installation of the access drive. See *Exh. SSE-TH-2*.

3 The Project is bordered to the northwest by an open field, to the northeast by a
4 railroad and to the east by the Williams River. To the south, the Project is bordered by
5 mature trees, a residence and Route 103. To the west, the Project is bordered by two
6 residential properties.

7
8 **Q10. Please describe the overall site plan and design objectives.**

9 A10. The overall Project configuration was designed to avoid and/or minimize impacts to
10 environmental resources and on the surrounding land uses. The siting of the Project took
11 a number of factors into account:

- 12 1. Minimizing Environmental Impacts: The Project is sited on an existing corn field
13 abutting railroad tracks, and is designed to reduce and limit impacts to sensitive
14 natural resources such as wetlands, streams, and critical wildlife habitat.
- 15 2. Optimal Solar Feasibility: The Project is designed to capture solar energy
16 efficiently without undue shading. The DC and AC electrical wiring has been
17 designed to minimize transmission distances and therefore minimize resistive
18 losses.
- 19 3. Setbacks: All setbacks conform to state minimum standards from highways and
20 bordering property boundaries.
- 21 4. Elevation of Electrical Equipment: The Project has been designed to address flood
22 risks on the site, including elevation of all electrical equipment above the BFE

1 and keeping all infrastructure outside the river corridor, the 100-foot riparian
2 buffer, and the FEMA floodway limits.

3 5. Site Restoration: When the Project is ultimately decommissioned, the Project's
4 equipment will be dismantled on-site and will then be removed from the Project
5 site and sold, re-used, recycled, and/or disposed of in accordance with the
6 applicable waste laws and regulations that exist at the time of decommissioning.

7 6. Landscape Mitigation Plantings: Landscape mitigation plantings are proposed
8 along the northern and northwestern boundary of the Project parcel to reduce
9 views of the Project from the north and northwest.
10

11 **Q11. How will the Site be accessed and how will the equipment be delivered?**

12 A11. The site will be accessed using existing public roads in the area, specifically Route 103,
13 and a new 250-foot (±) long, 12'-wide (±) access road extended off Route 103. *Exh.*
14 *SSE-TH-2*. Equipment will be transported to the site via Route 103. The solar panels
15 and racking components will be shipped on pallets, typically delivered by standard
16 tractor-trailer trucks. The transformer will be delivered assembled on a standard-width
17 flatbed tractor trailer. Other Project equipment, e.g., inverters, solar panels, racking,
18 wire, cable, conduit, and construction materials, will also be transported on standard-
19 width trucks.

20 On-site heavy construction equipment will be limited to pile-driving or similar
21 equipment for installing the racking; backhoes and the like for conduit excavation and
22 inverter/transformer pad construction; dump trucks, bulldozers, and excavators for the

1 civil construction; cement trucks for delivery of concrete for the foundations under the
2 transformer pad; and a small crane to place the enclosures on these concrete pads.

3
4 **Q12. What is the anticipated sequencing and schedule for Project construction?**

5 A12. Construction of the Project is expected to span approximately 30-40 weeks following
6 receipt of all necessary regulatory approvals due to time of year restrictions proposed for
7 certain construction related activities. The first phase of construction will include
8 installing silt fencing and any other required erosion control measures and then site
9 preparation including brush clearing, tree cutting, grading, and leveling for the
10 installation of the access road.

11 The second phase of construction will involve construction of the solar array
12 support structures, underground trenching, and installation of conduit and cabling
13 between arrays and to the inverter/transformer pad locations.

14 The final phase of construction will involve installing the solar modules to the
15 racking, installation of inverters, wiring to inverters, and installation of the data
16 acquisition system, transformer installation, and completion of the perimeter fence.
17 Following completion of these activities, the system will be tested and commissioned.

18
19 **Q13. What are the operation and maintenance activities for the Project?**

20 A13. The operation of the Project is totally automatic and requires no on-site personnel. The
21 plant will be continually monitored via the internet to confirm proper operation and
22 performance. Energy metering will also be accomplished by remote telemetry.

1 On-site maintenance activities will be limited to periodic vegetative management,
2 snow removal in winter to provide access to the Project as needed, annual equipment and
3 wiring inspections, and maintenance of project equipment on an as-needed basis.

4
5 **Q14. Are you aware of any other solar projects that are existing, proposed, or planned**
6 **that are located on the same parcel as the Project or any parcel of land adjoining the**
7 **Project parcel?**

8 A14. No.

9
10 **Q15. Has the Petitioner provided 45-day notice to the local and regional bodies and**
11 **pursuant to Commission Rule 5.402(A)?**

12 A15. Yes, a 45-day notice letter was mailed to the Town of Chester Selectboard and Planning
13 Commission, and the Mount Ascutney Regional Planning Commission, on July 11, 2025.
14 A copy of the advanced written notice of this application was filed on ePUC on July 11,
15 2025, and assigned Case No. 25-1365-AN.

16 Prior to submitting this Petition, and pursuant to Commission Rule 5.402(B)(3), a
17 list of adjoining landowners was obtained from the Town of Chester using the Vermont
18 Center for Geographical Information maps online as they existed no more than 60 days
19 prior to the date of notice. The list was confirmed accurate by the Chester Town Clerk's
20 Office on July 10, 2025 and re-confirmed on March 11, 2026. Adjoining landowners to
21 the Project parcels will be provided notice of the filing of this Petition by mail within two
22 business days of when the Commission deems the Petition to be complete. A copy of the

1 letter to joiners and the list of recipients is included in the cover materials submitted
2 with the Petition.
3

4 **Q16. Please describe any comments concerning the Project that Savage Solar Energy has**
5 **received to date from the local or regional bodies or others in the local community.**

6 A16. SSE has received the following comments following the 45-day notice letter:

- 7 - The Agency of Agriculture, Food, & Markets (“AAFM”) provided comments
8 to SSE on August 29, 2025, requesting that the Project include a delineation
9 of primary agricultural soils (“PAS”) on the site plan along with the limits of
10 disturbance and any proposed soil stockpiles. AAFM also requested that SSE
11 include standard PAS-related conditions in a proposed CPG, as applicable.
12 SSE has included PAS mapping, impact numbers, and stockpile locations on
13 the site plan (*Exh. SSE-TH-2*) and has further described and addressed the
14 impacts and treatment of PAS consistent with the requirements of AAFM’s
15 Act 250 guidance in the testimony of Seth Goddard.
- 16 - The Agency of Natural Resources (“ANR”) provided preliminary comments
17 on August 22, 2025 requesting that the Project clearly delineate a 100-foot
18 undisturbed, naturally vegetated riparian zone along the Williams River,
19 measured from the top of bank in order to mitigate potential impacts. SSE has
20 included this riparian buffer on the site plan, and no Project infrastructure is
21 located within the buffer area. See *Exh. SSE-TH-2*.

1 - The Mount Ascutney Regional Planning Commission (“MARPC”) reached
2 out to SSE noting general concerns regarding flooding risks and landscape
3 screening. These topics are addressed in the Petition materials by Mr.
4 Goddard, who confirms the Project will meet applicable flood hazard
5 requirements (A Flood Hazard Area and River Corridor (“FHARC”) Permit
6 has already been obtained), and Mr. Owens, who confirms that the Project
7 will be screened from public views consistent with the provisions in the
8 Regional Plan.

9 The Town of Chester (“Town”) also reached out to SSE following the 45-day
10 letter and requested a meeting to discuss the Project. SSE attended a meeting with the
11 Chester Planning Commission (“PC”) on August 11, 2025 and answered questions from
12 the PC and residents in attendance. The Town followed up with SSE after the meeting to
13 request that SSE provide a copy of the FHARC permit obtained for the Project, the full
14 aesthetics assessment, an estimate of the tax revenue that the Project will bring to the
15 Town, and a request for good faith efforts to leverage local contractors where feasible
16 and consider soil testing before construction and after decommissioning. In response to
17 this letter, SSE has emailed a copy of the FHARC permit that has been issued by the
18 State to the Town, provided an estimate of the municipal project tax, and addressed
19 engineering design specifications in the testimony of Seth Goddard. SSE has also
20 included an estimate of the municipal tax revenue in the discussion on economic benefits
21 below. SSE anticipates committing to standard soil testing pre-construction and post-
22 decommissioning as part of the requirements of the primary agricultural soil mitigation

1 requirements requested by AAFM, and the full aesthetics analysis has been included with
2 the Petition materials and will be separately emailed to the Town as well.
3

4 **Q17. Please describe SSE's plans to decommission the Project at the end of its useful life.**

5 A17. At the end of the useful life of the Project, a determination will be made whether the
6 Project can be re-powered (after any necessary regulatory approval), or whether it will be
7 decommissioned and the site restored. If decommissioned, the Project equipment will be
8 dismantled and removed from the site and sold, re-used, recycled, and/or disposed of in
9 accordance with applicable waste laws and regulations in existence at that time, and the
10 site will be restored to its condition prior to the installation of the facility to the greatest
11 extent practicable in accordance with the decommissioning plan and cost estimate as
12 provided in *Exh. SSE-TH-4*. The cost estimate includes costs at current rates, and does
13 not take any salvage value into account. A form surety bond comparable to those
14 approved by the Commission in past proceedings is included with the decommissioning
15 plan. Once the Commission issues a CPG for the Project, SSE will file an executed bond
16 using this form prior to beginning site preparation or construction.
17

SECTION 248 CRITERIA

Need for the Project – 30 V.S.A. § 248(b)(2)

Q18. Is the Project required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy efficiency and load management measures?

A18. Yes, the energy from the Project is needed in order for Vermont to meet growing electric demand. The Project will sell its energy output to GMP through a long-term power purchase agreement (“PPA”). The Vermont Comprehensive Energy Plan (“CEP”) highlights that electrification will more than double electricity consumption by 2050 and that cost-effective resources are needed to meet this growing demand.¹ Likewise, GMP’s Load Forecast shows significant growth in retail electric sales beginning in 2022 and continuing until at least 2041, in all scenarios (low, base and high growth). Vermont’s Renewable Energy Standards (“RES”) also require utilities to procure a certain amount of their annual load from renewable energy, including distributed renewable energy facilities. The Project is needed to meet increasing electrical demand and will contribute to GMP’s RES requirements.

The Project will also help to mitigate climate change disruption and to reduce air pollution by generating low carbon energy in the New England region, thus allowing for the displacement of fossil fuel-based energy sources. By selling Renewable Energy

¹ See CEP at 231-232, 259.

1 Credits (“RECs”) from the Project to GMP, the Project will also directly help Vermont
2 achieve renewable energy targets identified in the CEP, such as the goal of obtaining 75
3 percent of the state’s total energy needs from renewable sources by 2032.

4 Finally, the Project is being developed as a merchant plant by SSE, which is not a
5 regulated distribution utility, and as such is not being financed directly or indirectly by
6 Vermont ratepayers. Moreover, because SSE is not a regulated distribution utility, it is
7 not required to, and does not have the ability to, deliver energy efficiency or load
8 management services to retail customers. However, the Project’s selection for a PPA
9 indicates the interconnecting utility’s need for the power that cannot be met more cost
10 effectively through energy conservation programs and measures and energy efficiency
11 and load management measures.

12
13 **System Stability and Reliability - 30 V.S.A. § 248(b)(3)**

14 **Q19. Please describe the status of the interconnection application under PUC Rule 5.500.**

15 A19. An interconnection application for the Project was submitted to GMP, and GMP prepared
16 a feasibility interconnection study, *Exh. SSE-TH-5*, dated April 12th, 2023, and provided
17 it to MHG Solar LLC. MHG Solar intends to assign the Generator Interconnection
18 Agreement, to Savage Solar Energy LLC.

19
20 **Q20. Please describe the results of the interconnection study.**

21 A20. The study reviewed the Project’s compliance with the Fast Track Screening Criteria and
22 concluded that the Project can move forward without a System Impact Study. The study

1 further identified that GMP's distribution circuit will require some minor upgrades, and
2 the implementation of other requirements, in order to allow the Project to operate on the
3 grid. These include the following:

- 4 • Approximately 579' of existing distribution line along Route 103 to be upgraded
5 and 250' of line extension from Route 103 into the Project site.
- 6 • Installation of a pole mounted recloser and a metering package at the project PCC.
- 7 • Installation by GMP of a recloser block scheme for the CH-G11 circuit at the
8 substation.

9 See *Exh. SSE-TH-5*. The study also set certain requirements for the Project inverters,
10 which the proposed equipment satisfies.

11 With respect to the 579' of existing line upgrades that were identified in the
12 Feasibility Study, GMP has since informed the Project that it plans to upgrade this
13 distribution line to address system reliability concerns as part of a separate Zero Outage
14 Initiative project (#179250) that SSE understands is happening regardless of whether this
15 Project goes forward. This upgrade is scheduled to be completed in the coming months,
16 prior to the issuance of a CPG for this Project. The 250' line extension from Route 103
17 into the project site will remain the responsibility of the Project along with a single span
18 of new wire.

19 Except for the existing line upgrades, SSE will be responsible for the costs to
20 complete all other required system improvements to interconnect the Project, and these
21 improvements will be completed prior to interconnection.

1 **Q21. Will the Project adversely affect system stability and reliability?**

2 A21. No. Given that the interconnection study concludes that a system impact study is not
3 required, the Project can be safely interconnected following the implementation of the
4 above-referenced upgrades. As SSE will be required to implement and/or pay for the
5 required upgrades prior to interconnection, there will be no adverse impact to system
6 stability and reliability as a result of the Project. See *Exhibit SSE-TH-5*.

7
8 **Economic Benefit to the State – 30 V.S.A. § 248(b)(4)**

9 **Q22. Please describe the economic benefits of the Project to the State and its residents.**

10 A22. The Project will provide a range of economic benefits for the State and its residents.

11 First, during the development and construction phases, SSE will retain (directly or
12 through contractors) Vermont-based firms and individuals to work on engineering,
13 environmental, aesthetic, legal/permitting, and construction-related tasks when
14 commercially feasible. During the operations phase, several individuals employed by
15 SSE and its contractors will be involved in operating, maintaining, and monitoring the
16 Project. SSE will also pay state and municipal property taxes for the Project. State taxes
17 (the Uniform Capacity Tax) are expected to be \$11,000 (\$4/kW) per year, which over the
18 course of the 25-year PPA period will amount to at least \$275,000 in state tax revenue.
19 The Project will also pay municipal taxes on the facility in addition to the property tax
20 paid on the underlying land by the landowner. Vermont law (32 V.S.A. §3481(1)(D))
21 requires that solar plants be valued using the discounted cash flow method using the
22 Department of Tax's valuation model. While the final determination of the appraisal

1 value of the Project will depend on the final equipment and approved Project design,
2 Petitioner estimates that based on the Town's current municipal property tax rate, the
3 Project will pay approximately \$18,000 per year in municipal taxes on the facility itself.
4 Over the 25-year PPA period, this would amount to an estimated \$450,000 in additional
5 municipal tax revenue from the Project.

6 Additionally, the Project will be economically beneficial to Vermont by
7 generating renewable energy for GMP customers at a stabilized price through a long-term
8 power purchase agreement between SSE and GMP.² A report prepared in December
9 2020 by Synapse Energy Economics showed that behind-the-meter³ solar reduced
10 wholesale market costs in New England by \$1.1 billion between 2014 and 2019. In
11 addition, the report found that behind-the-meter solar created \$87 million in public health
12 benefits and \$515 million in climate benefits in New England over this period by
13 displacing fossil fuel-fired generation, thereby lowering greenhouse gas pollution and
14 criteria pollutants.⁴ By selling energy at or below avoided costs, the Project thus
15 provides climate and health benefits with no additional cost to Vermont taxpayers.

16 The Project will therefore provide an economic benefit to the State and its
17 residents.

² "Avoided Cost" means the incremental cost to the Interconnecting Utility of electric energy or capacity or both, which, but for the purchase from the Qualifying Facility, the Interconnecting Utility would generate itself or purchase from another source. PUC Rule 4.103.

³ The Project would be considered "behind-the-meter" because it is less than 5 MW and thus not subject to ISO-New England interconnection requirements.

⁴ See https://www.synapse-energy.com/sites/default/files/Solar_Savings_in_New_England_20-082.pdf.

Environmental Considerations – 30 V.S.A. § 248(b)(5)

Air Pollution – 10 V.S.A. § 6086(a)(1)

Q23. Will the Project cause undue air pollution?

A23. No. Construction of the Project would result in temporary emission of minimal levels of air pollutants. These emissions would primarily be generated by typical construction equipment and would not result in any permanent increase in hydrocarbon emissions from those generated during a typical construction project or be out of character with the surrounding area. The proposed operation of the Project would only result in infrequent and minimal emissions associated with maintenance operations (e.g., periodic field mowing of grass). These temporary and infrequent emissions will not cause undue air pollution.

Operation of the Project will not emit any air pollutants, other than de minimis levels associated with maintenance vehicles periodically traveling to the site, mowing if needed, and the like.

The prefiled testimony of Seth Goddard addresses potential air pollution in the context of Project sound levels and concludes that the Project will not have an undue adverse impact.

Water Pollution and Water Purity – 10 V.S.A. § 6086(a)(1)

Q24. Will the Project have an undue adverse effect on water purity or cause undue water pollution?

A24. No, the Project will not have an undue adverse impact on water purity or cause undue water pollution. As further discussed in the prefiled direct testimony of Michael Lew-

1 Smith, the Project is designed so that it will not have an undue adverse effect on water-
2 related natural resources. While the Project is located within a Special Flood Hazard
3 Area (Zone AE), the Project has taken steps to mitigate by raising all electrical equipment
4 and the bottom of the panels to at least one foot above BFE and has obtained a FHARC
5 permit from the State, as further detailed in the testimony of Seth Goddard. Oil-
6 containing transformers will be equipped with a secondary containment system to protect
7 against any spill in the unlikely event of an oil leak. Furthermore, the Project will not
8 require the use of water for its construction or operation phases (other than water that
9 might be used for dust suppression, which will be brought to the site if needed), and will
10 not result in water disposal. For these reasons, the Project will not have an undue adverse
11 impact on water purity or cause water pollution.

12
13 **Transportation Systems – 10 V.S.A. § 6086(a)(5)**

14 **Q25. Will the Project cause unreasonable congestion or unsafe conditions with respect to**
15 **transportation systems?**

16 A25. No, the Project will not cause unreasonable congestion or unsafe conditions with respect
17 to transportation systems. Access to the site will be off Route 103 using a new driveway
18 into the Project site. During construction, approximately 30 (±) tractor trailers will
19 deliver modules, racking, and inverters to the site, over the entire multi-month
20 construction period. Following initial delivery, construction-related traffic will be limited
21 to more infrequent deliveries for smaller, necessary electrical supplies and workers

1 entering and exiting the site. No oversize or overweight loads requiring special permits
2 are expected.

3 During operation of the Project, entry to the Project will be limited to
4 maintenance and repairs, and therefore there will be only occasional Project-related
5 traffic that will not cause unreasonable traffic or unsafe conditions.

6
7 **Educational Services – 10 V.S.A. § 6086(a)(6)**

8 **Q26. Will the Project cause an unreasonable burden on the Town of Chester to provide**
9 **educational services?**

10 A26. The Project will not create any full-time, permanent jobs, and thus no new school-aged
11 children would enter the system in the town.

12
13 **Municipal Services – 10 V.S.A. § 6086(a)(7)**

14 **Q27. Will the Project cause an unreasonable burden on the Town of Chester to provide**
15 **municipal services?**

16 A27. No, the Project will not cause an unreasonable burden on the Town to provide municipal
17 services. It will not require any municipal water or sewer, nor any unique fire, police, or
18 rescue services.

19
20 **Historic Sites – 10 V.S.A. § 6086(a)(8)**

21 **Q28. Please describe the Project's potential impacts to Historic Sites, either on-site**
22 **archaeological resources or above-ground structures (on or off site).**

1 A28. SSE requested that the Vermont Division for Historic Preservation (“VDHP”) review the
2 Project site and VDHP conducted a review of the Project parcel. Based upon that review,
3 VDHP notified SSE the site is potentially archeologically-sensitive. SSE will conduct
4 fieldwork to confirm any archeological sensitivity and will ensure that such fieldwork is
5 done in coordination with VDHP and that any impacts to below-ground archaeological
6 resources are avoided or sufficiently mitigated to avoid any undue adverse impacts.
7 Specifically, Petitioner commits to taking the following steps:

- 8 1. Petitioner will conduct these archaeological investigation(s) and prepare related
9 reports to identify, evaluate, and mitigate, if necessary, any further potential
10 impacts to archaeological sites within the Project area. Petitioner’s archaeological
11 consultant will submit any scope of work to VDHP for review and approval
12 before commencing the work.
- 13 2. Prior to the completion of all relevant archaeological investigations, the
14 Petitioner, in consultation with the VDHP, will identify the Project area as a not-
15 to-be-disturbed archaeological buffer zone. Topsoil removal, grading, scraping,
16 cutting, filling, stockpiling, logging or any other type of ground disturbance will
17 be prohibited within the archaeological buffer zones until all necessary
18 archaeological work is completed. Agricultural cultivation consistent with past
19 practices to facilitate the archaeological review will not constitute ground
20 disturbance.
- 21 3. All relevant archaeological studies to identify, evaluate, or mitigate impacts to
22 archaeological sites will be carried out by a qualified consulting archaeologist. All

1 such studies and associated reports will follow the VDHP *Guidelines for*
2 *Conducting Archaeological Studies in Vermont* (2017). A digital copy of the final
3 report will be submitted to the VDHP. Any archaeological reports submitted to
4 the Public Utility Commission will have specific archaeological site locational
5 information redacted in accordance with 22 V.S.A. § 761(b) and 1 V.S.A. §
6 317(c) (20).

- 7 4. The archaeological investigations will be scheduled so that mitigation measures,
8 if any are determined to be necessary, can be satisfactorily planned and
9 accomplished prior to site preparation and construction of the Project. Any
10 archaeological sites within the Project area will not be impacted until mitigation
11 measures have been completed. Proposed mitigation measures will be approved
12 by the VDHP prior to implementation. Mitigation may include but is not limited
13 to further site evaluation, data recovery, or modification of the buffer zone
14 boundaries or the specific conditions that refer to the same.

15 These steps will ensure that reasonable mitigation measures that are necessary to
16 address any resources that may be found in an investigation, if any, are implemented
17 prior to construction of the Project. If any such mitigation measures involve substantial
18 changes to the Project, Petitioner will comply with applicable Commission Rule 5.400
19 requirements for such changes. With these steps, the Project will not result in undue
20 adverse impact to archaeological historic sites. SSE further expects to enter into a
21 memorandum of understanding with VDHP following the petition filing that will contain
22 the same commitments set forth above.

1 With respect to above-ground historic resources, there are no above-ground
2 historic resources on the Project parcel. See *Exh. SSE-TH-2*. Furthermore, as confirmed
3 by Mr. Owens in his aesthetics report, there is generally limited visibility of the Project
4 site due to intervening vegetation, which will be further mitigated with proposed
5 landscape plantings. VDHP also confirmed to SSE that due to distance and intervening
6 vegetation, it was unlikely that the Project would have any impact of concern on any
7 historic structures near the Project. Therefore, the Project will not have an undue adverse
8 impact on historic or potentially historic above-ground resources in the surrounding area.
9 See *Exh. SSE-JO-2*.

10
11 **Public Investments – 10 V.S.A. § 6086(a)(9)(K)**

12 **Q29. Will the Project unnecessarily or unreasonably endanger the public or quasi-public**
13 **investment in adjacent lands, services, or facilities, or materially jeopardize or**
14 **interfere with the public’s use and enjoyment of those lands, services, or facilities?**

15 A29. No. The closest public investment to the Project site is Route 103, located approximately
16 162 feet to the west of the Project. The Project will not impact or create any adverse
17 burdens on this public investment given the limited and temporary use of the road during
18 construction and operation. Therefore, the Project will not endanger or interfere with the
19 public’s use or enjoyment of this public investment.

20

Public Health & Safety – 30 V.S.A. § 248(b)(5)

Q30. Will the Project conform to applicable electrical, safety, power quality, and interconnection requirements established by the National Electrical Safety Code and the National Electric Code?

A30. Yes, the Project will be designed to meet the applicable requirements set forth in the National Electrical Safety Code and the National Electric Code, including the proposed fence as shown in the representative equipment specification sheets submitted as *Exh. SSE-TH-3*.

Q31. Will the Project have an undue adverse effect on public health and safety?

A31. No. The Project does not present any unique risks to the public and it will not pose an undue adverse effect to public health and safety. Specifically:

- As noted above, the Project will be installed to meet the applicable electric code safety standards and utility interconnection standards for safe and reliable operation of solar electric plants.
- All switchgear equipment will be inside a locked, UL-listed, code-approved electrical enclosure.
- The electrical lines that connect the inverters and transformer to the GMP transmission system will be either buried or located at an adequate height above ground.
- Petitioner will register all underground buried electric lines owned by the Project that are outside the fenceline with DigSafe.

- 1 • A perimeter fence with a minimum height of 7' will prevent vandals and
- 2 trespassers from accessing the Project array. The fence will be posted with
- 3 appropriate electrical warning signs.
- 4 • The solar panels are designed to absorb rather than reflect the sun's energy, which
- 5 will prevent undue glare.
- 6 • The transformers will be installed with a secondary containment structure capable
- 7 of holding 110 percent of the volume of oil in each transformer plus a minimum
- 8 of five inches of freeboard so that the surrounding land and water resources would
- 9 be protected in the unlikely event that any transformer fluid leaks from the
- 10 transformer. Additionally, the transformer will use a non-toxic, biodegradable
- 11 cooling oil.

12

13 **Greenhouse Gas Impacts – 30 V.S.A. § 248(b)(5)**

14 **Q32. Will the Project have an undue adverse impact with respect to greenhouse gases?**

15 A32. No, it will not. The Project's solar panels will annually produce an estimated 5,000 (±)

16 megawatt hours of electricity without creating any greenhouse gas emissions during its

17 operation. To the contrary, the Project will have the effect of reducing GHG emissions

18 within the ISO-New England regional grid, by replacing power that would otherwise be

19 produced by fossil fuels. A December 2020 report prepared by Synapse Energy

20 Economics, Inc. found that from 2014 to 2019, behind-the-meter solar in New England

21 avoided 4.6 million metric tons of climate-damaging carbon dioxide that would have

22 been emitted by natural gas-fired power plants and other power plants fueled by fossil

1 fuels.⁵ Furthermore, “94 percent of the generation avoided [by energy produced by solar
2 power plants] came from natural gas-fired power plants, while an additional 6 percent
3 came from power plants fueled by oil, coal, or other resources.” Put another way, every
4 100 kWh of power produced by solar power plants displaced 94 kWh of natural gas fired
5 generation. In addition, I understand the PUC has previously found that solar projects of
6 this type do not have undue adverse greenhouse gas impacts. See, e.g., *Petition of*
7 *Wallingford Solar, LLC*, Docket No. 18-3082-PET, findings ¶¶ 32, 34-38 (04/1/19) (2.2
8 MW solar project).

9
10 **Least-Cost Integrated Resource Plan – 30 V.S.A. §248(b)(6)**

11 **Q33. Is the Project consistent with the principles for resource selection expressed in an**
12 **approved least cost integrated plan?**

13 A33. The Commission has previously ruled that this provision does not apply to projects
14 sponsored by private developers, such as SSE.

15
16 **Comprehensive Energy Plan – 30 V.S.A. § 248(b)(7)**

17 **Q34. Does the Project comply with the Vermont Comprehensive Electric Plan?**

18 A34. The Comprehensive Energy Plan (“CEP”) covers electricity, heating and process fuels,
19 and energy in transportation and land use decisions. Broadly, the CEP seeks to mitigate
20 climate change disruption and to reduce air pollution.⁶ As discussed above, the Project

⁵ See https://www.synapse-energy.com/sites/default/files/Solar_Savings_in_New_England_20-082.pdf.

⁶ See, e.g., CEP at 29.

1 will help advance these goals by generating low carbon energy in the New England
2 region, thus allowing for the displacement of fossil fuel-based energy sources.⁷

3 In addition, the CEP highlights that electrification will more than double
4 electricity consumption by 2050, and that cost-effective resources are needed to meet this
5 growing demand.⁸ Vermont's need for affordable energy is also echoed in statutory goals
6 that are embodied in the CEP.⁹ By providing energy at or below avoided costs, the
7 Project will help to meet these goals.

8 The CEP sets ambitious goals of obtaining 75 percent of the state's total energy
9 needs from renewable sources by 2032, and 90 percent of the state's total energy needs
10 from renewable sources by mid-century. With respect to the electric sector, the 2022
11 CEP establishes the goal of meeting 100% of energy needs from carbon-free resources by
12 2032, with at least 75% from renewable energy. The Project will help to achieve these
13 ambitious targets by selling Project RECs to GMP.

14 The Project's siting also furthers the CEP's siting goals of minimizing conversion
15 of natural lands while seeking to maintain the lands' ecological functions.¹⁰ The Project
16 is located on existing fields, whose prime agricultural soils will be preserved. Vegetative
17 clearing/management that will be necessary for the array and for site access will be very

⁷ See also., ISO New England, "2021 ISO-NE Electric Generator Air Emissions Analysis: Draft Report" (February 16, 2023), https://www.iso-ne.com/static-assets/documents/2023/02/draft_2021_emissions_report_presentation.pdf, Slide 30, showing in 2021 fossil fuel generators were the marginal unit each month nearly 100% time on a load-weighted basis, and that emissions rates exceeded 800lbs/MW every month of the year

⁸ See CEP at 231-232, 259.

⁹ See CEP at 26-29.

¹⁰ See CEP at 271.

1 minimal (0.06 acres) and will not cause any undue environmental impacts, as reported in
2 the testimony of Mr. Lew-Smith.

3
4 **Transmission Facilities – 30 V.S.A. § 248(b)(10)**

5 **Q35. Can the Project be served economically by existing or planned transmission**
6 **facilities without an undue adverse effect on Vermont utilities or customers?**

7 A35. Yes, the Project can be served economically by existing or planned transmission facilities
8 without an undue adverse effect on Vermont utilities or customers. As described above
9 under System Stability and Reliability, the Project will interconnect with GMP's
10 distribution line located along Route 103. Moreover, the costs of any electrical system
11 modifications required to interconnect the Project to the GMP distribution system will be
12 borne by SSE. See *Exhibit SSE-TH-5*.

13
14 **Setbacks – 30 V.S.A. § 248(s)**

15 **Q36. Does the Project comply with the minimum setbacks set forth in 30 V.S.A. § 248(s)?**

16 A36. Yes, the Project complies with Vermont's statutory setback requirements. The nearest
17 solar panels/support structures are set back 50 feet from all property lines and
18 approximately 162 feet from the edge of Route 103, which is the nearest traveled way.

19
20 **Q37. Does this conclude your testimony at this time?**

21 A37. Yes, it does.