

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Petition of Claire Solar Partners, LLC for a)
Certificate of Public Good, pursuant to)
30 V.S.A. Section 248, authorizing the) Docket No. _____
installation and operation of a 2.2 MW)
solar electric generation facility located at)
1545 Hinesburg Road, South Burlington, Vermont)

1 **PREFILED TESTIMONY OF PATRICK MICHAEL**

2 **Q: Please state your name, occupation, and business address.**

3 A: My name is Patrick Michael, and I am the Project Manager of the Claire Solar
4 Partners, LLC (“Claire Solar”) proposed project in South Burlington (“Project”).
5 My business mailing address is P.O. Box 9444, South Burlington, Vermont 05407
6 and Claire Solar’s principal place of business is 23 Pinnacle Drive, South
7 Burlington, Vermont 05403.

8

9 **Q: What is the purpose of your testimony?**

10 A: The purpose of my testimony is to support the petition for the proposed project of
11 Claire Solar Partners, LLC, to be located at 1545 Hinesburg Road in South
12 Burlington. My testimony provides an overview of the project and testimony on
13 compliance with certain Section 248 criteria.

14

15 **Q: Please describe your professional background, qualifications, and experience.**

16 A: I have been involved in business development in Vermont and New Hampshire
17 since 1994. In 2006, I entered the field of energy development in Vermont,

1 starting in energy efficiency and demand side management, then moving to
2 alternative and renewable generation. I co-founded VESCO, LLC in 2008 with
3 the purpose of developing commercial generating projects. With VESCO, I work
4 as Project Manager of Chittenden County Solar Partners, LLC to develop the
5 South Burlington Solar Farm (Docket 7611), which received a Certificate of
6 Public Good in 2010 and began operating in the summer of 2011. I also work as
7 Project Manager of VESCO, LLC and of St. Albans Solar Partners, LLC to
8 develop the St. Albans Solar Farm (Docket 7871), which received a Certificate of
9 Public Good in late 2012 and is currently preparing for construction.

10
11 **Q: Have you previously testified before the Public Service Board?**

12 A: Yes, in the two cases mentioned above. I testified as the Project Manager in
13 Public Service Board Docket 7611 (Chittenden County Solar Partners, LLC's
14 South Burlington Solar Farm) and Docket 7871 (St. Albans Solar Partners, LLC's
15 St. Albans Solar Farm).

16
17 **Project Description and Overview**

18 **Q: Please provide an overview of the Project.**

19 A: Claire Solar is a proposed 2.2 megawatt (MW) solar electric generation project to
20 be located on approximately 21.3 acres of an approximately 32.7-acre parcel of
21 land on the west side of Hinesburg Road in South Burlington, Vermont. The
22 Project Site Plan and Site Location Map, as well as the testimony of Doug

1 McDonald and Skip McClellan, provide additional details about the Project. *See*
2 *Exhibits CSP-SM-2 and 3.*

3
4 The Project is being developed under the SPEED "Standard Offer" program,
5 which encourages in-state renewable electric generation projects, pursuant to a
6 Standard Offer contract between landowner and the SPEED Facilitator executed
7 on May 3, 2012. That contract was later assigned to Claire Solar Partners, LLC,
8 and Claire Solar sent a letter to the Public Service Board dated January 8, 2013,
9 requesting SPEED certification of this proposed Project. Claire Solar will
10 supplement this petition with the SPEED certification when it receives a response
11 from the Board.

12
13 **Q: Please summarize the benefits the Project will provide to Vermont.**

14 A: Claire Solar will contribute positively to the local and State economy by payment
15 of municipal, education and other taxes, by employing Vermont consultants for
16 the development work, and, where commercially feasible, purchasing the Project
17 equipment from and/or employing Vermont businesses for construction and
18 installation work.

19
20 Claire Solar will also help Vermont to meet its electric energy needs with a clean,
21 low carbon, renewable source of in-state power. By using renewable energy,
22 Claire Solar would also contribute to the State meeting its energy and

1 sustainability goals. The more energy produced by solar during the daytime
2 (which generally is the highest demand period), the less energy will be needed
3 from polluting fossil fuel plants and dangerous nuclear plants. The Project will
4 help to reduce global warming, acid rain, ozone depletion, soil and water
5 contamination, and the negative public health effects associated with fossil fuel
6 and nuclear energy production. In addition, because solar energy projects have no
7 ongoing fuel costs, they can be stably priced over the long term and thus benefit
8 the entire region by making electricity prices less dependent on volatile fossil fuel
9 market prices.

10

11 **Q: Please state the Project's capacity and anticipated energy production.**

12 A: The nameplate capacity of the Project will be 2.2 megawatts (AC). Claire Solar
13 estimates that the Project will produce approximately 3,000,000 kWh of electric
14 energy per year, or enough to serve the energy needs of over 400 Vermont
15 households.

16

17 **Q: Please discuss the anticipated Project construction schedule.**

18 A: Construction of the solar project is expected to take approximately 12-16 weeks
19 following receipt of the necessary approvals. The first phase of construction will
20 be to conduct site work and improvement of the existing access drive as needed,
21 then to install the tracker anchors, the underground conduit and the underground
22 vaults for the transformers. The second phase of construction will involve

1 installation of the tracker masts, frames, and solar panels, and transformers. The
2 final phase of the construction will involve securing the solar modules, wiring to
3 the inverter enclosure, and installation of the data acquisition system. Following
4 completion of these activities, the system will be tested and commissioned for
5 continuous operation.

6

7 **Q: Please discuss the operation and maintenance activities for the Project.**

8 A: The operation and maintenance will be set on a regular and as-needed basis. The
9 system will be monitored remotely in real time, with an online system designed
10 by AllEarth Renewables. The system will inform management about, for
11 example, a sudden drop in power output, or an unusual output amount from one
12 tracker to the next. Site visits will be conducted on an as-needed basis.

13

14 **Q: Please identify who will pay for the Project's costs of interconnection.**

15 A: Claire Solar will pay for all required interconnection costs.

16

17 **Q: Has the Petitioner provided 45-day notice to the City of South Burlington**
18 **City Council and Planning Commission, and Chittenden County Regional**
19 **Planning Commission?**

20 A: Yes, Claire Solar has provided the South Burlington City Council and Planning
21 Commission, and the Chittenden County Regional Planning Commission with a
22 45-day notice dated August 15, 2012. A copy of the 45-day notice is attached to

1 my testimony. *See Exhibit CSP-PM-1.* Furthermore, notice of this petition is
2 being sent to all adjoining landowners as of the date of this Petitioner. *See*
3 *Exhibit CSP-PM-2.*

4

5 Q: **Please describe the comments received to date at the local level, and Claire**
6 **Solar's response.**

7 A: Claire Solar has not received any comments from the South Burlington City
8 Council or the Chittenden County Regional Planning Commission.

9

10 Claire Solar did receive a letter from the South Burlington Planning Commission
11 dated September 20, 2012, as well as comments from some members of the City's
12 Natural Resource Committee and the South Burlington Land Trust, expressing
13 concerns about the Project. *See Exhibit CSP-PM-3.* These comments largely
14 focus on the project's proximity to an identified wildlife corridor.

15

16 After considering these comments carefully, Claire Solar has revised its project
17 plans to address the concerns about the wildlife corridor. We discussed the
18 Project with the Vermont Audubon Society. We asked Mike Buscher of T. J.
19 Boyle to develop a robust plan of native vegetative plantings to augment the
20 functionality of the wildlife corridor, which is discussed further in his testimony.
21 We then asked wildlife expert Jeff Parsons of Arrowwood Environmental, who
22 actually performed the research for South Burlington about those same wildlife

1 corridors, to review the plans for the Project, including Mr. Buscher's planting
2 plan. Mr. Parsons did so and concluded that the Project would not adversely
3 impact the wildlife corridor for a number of reasons: that the wildlife corridor is
4 not thickly vegetated at present and the increased vegetation plantings will
5 provide additional cover for wildlife movement; that after installation the land
6 under the array will not be mowed but will be allowed to revegetate naturally; that
7 after installation human presence at the project will be only as needed to address
8 problems (routine monitoring will be conducted remotely); that the access route
9 largely already exists; and that at night the Project will be quiet and thus not
10 disturb wildlife sensitive to noise. Claire Solar sent a letter to the City about these
11 revisions to the City on January 31, 2013, and included Mr. Parsons'
12 memorandum. *See Exhibit CSP-PM-6.*

13
14 **Q. Please describe Claire Solar's plans to decommission the Project at the end of**
15 **its useful life.**

16 A. The Standard Offer Contract has a term of twenty-five years. At the end of that
17 period, Claire Solar will assess whether: (i) it is financially viable to continue to
18 operate the Project as is; or (ii) a section 248 amendment should be filed to
19 repower the Project with new solar panels, or (iii) the Project will be
20 decommissioned. If decommissioned, the solar panels would be sold for reuse or
21 be returned to the manufacturer for recycling. The solar panel support structures,
22 underground electrical wiring, inverters, transformers, enclosures, and any other

1 on-site project equipment, will be removed from the site. The soil will be tilled
2 and made suitable for agricultural use. This will effectively restore the site to pre-
3 development conditions. A Decommissioning Plan and Cost Estimate, consistent
4 with past Board decisions regarding Standard Offer solar projects, are attached to
5 my testimony. *See Exhibit CSP-PM-4.*

6
7
8 **SECTION 248 CRITERIA**

9 **30 V.S.A. § 248(b)(1) – Orderly Development of the Region**

10 **Q: Will the Project unduly interfere with the orderly development of the region?**

11 A: No, the Project will not unduly interfere with the orderly development of the
12 region, and will not cause an direct impact on the capacity of the region to
13 develop. The Project will not cause undue impact on the public roadways, other
14 types of municipal or state services or infrastructure, or on resources specifically
15 contemplated for other forms of development. Michael Buscher provides
16 additional testimony about the Project in relation to the municipal and regional
17 plans.

18
19 **Noise - 10 V.S.A. § 6086(a)(1), (8)**

20 **Q. Please summarize your assessment of noise related to the Project.**

21 A. The Project will not result in undue adverse impacts due to noise. Operational
22 noise will be produced by three sources: the tracker motors, inverters, and

1 transformers. The movement of the trackers will be staggered, such that only
2 eight tracker motors across the site will be operating simultaneously at any one
3 time. The Project will produce noise only during the day.

4
5 The sound levels generated by this equipment are as follows (at a distance of 10
6 feet): trackers 50 dBA; inverters 36 dBA, and transformers 51 dBA. The western
7 residential property line (the eastern edge of the Cider Mill development, not yet
8 built) is approximately 166 feet away from the closest inverters and tracker
9 motors. The nearest transformer to that property line is 557 feet away.

10
11 In estimating noise levels at a receptor from multiple sound sources, there are two
12 basic factors to consider. First, combining two sound sources results in an
13 increase of 0-3 dBA over the louder of the two sources. So, for example, two
14 sources of 50 dBA and 50 dBA will combine for a total level of 53 dBA. Two
15 sources of 36 dBA and 50 dBA will combine for a level of 50.2 dBA. See
16 <http://www.sengpielaudio.com/calculator-spl.htm>. Second, sound attenuates at
17 the rate of 6 dBA for every doubling of the distance between the source and the
18 receptor. For example, a source of 50 dBA at 10 feet will attenuate to
19 approximately 44 dBA at 20 feet. See
20 http://www.engineeringpage.com/calculators/noise/distance_dB%28A%29.html.

21

1 As applied here, this Project will produce a noise level at the nearest property line
2 of less than 32 dBA. This level would be well within the residential noise
3 guidelines established by the U.S. Environmental Protection Agency of 55 dBA
4 Ldn (day-night average), which is equivalent to a continuous noise limit of 48.6
5 dBA. See http://www.engineeringtoolbox.com/sound-level-d_719.html. It is also
6 my understanding that this sound level is comparable to sound levels at other
7 commercial solar projects permitted in Vermont.

8

9

Transportation - 10 V.S.A. § 6086(a)(5)

10 Q: **Will the Project cause unreasonable congestion or unsafe conditions with**
11 **respect to transportation systems?**

12 A: The Project will not cause unreasonable congestion or unsafe conditions with
13 respect to transportation systems. During system operation, access to the site will
14 be limited to periodical visits. During the installation phase of the project,
15 construction-related vehicle traffic will include equipment deliveries and
16 passenger vehicle trips of the construction and installation crews. We estimate
17 that equipment delivery will necessitate approximately 80 truck trips over
18 approximately 12-16 weeks. At its heaviest, we expect to see 2-3 delivery trips
19 per day. Additional passenger vehicle traffic due to construction crews and other
20 personnel who will be present during construction is expected to be
21 approximately 16 trips per day. Skip McClellan provides additional testimony
22 about the Project's impact on transportation systems.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

Municipal Services - 10 V.S.A. § 6086(a)(7)

Q. Will the Project cause an unreasonable burden on the City of South Burlington to provide municipal services?

A: The Project will not cause an unreasonable burden on municipal services. *See Exhibit CSP-PM-5.*

Public Investments - 10 V.S.A. § 6086(a)(9)(K)

Q: Will the Project unnecessarily or unreasonably endanger the public or quasi-public investment in adjacent lands, services or facilities, or materially jeopardize or interfere with the public's use enjoyment of those lands, services or facilities?

A: The public investments adjacent to the Project include Hinesburg Road and the Green Mountain Power utility line. The Project site is located entirely outside the utility and road rights-of-way. The Project will not adversely impact the utility line or the public road.

Public Health and Safety - 10 V.S.A. § 6086(a)(9)(K)

Q: Will the Project pose an undue adverse effect to public health and safety?
A: No, the Project will not present any risks to the public and it will not pose an undue adverse effect to public health and safety. Specifically:

- 1 • The array will be posted with appropriate electrical warning signs and/or
2 placards.
- 3 • Inverter and switchgear equipment will be UL listed and meet National
4 Electric Code safety requirements.
- 5 • The solar modules have an anti-reflective coating that will prevent undue
6 glare from passing cars.

7

8 Q: **Does this conclude your testimony at this time?**

9 A: Yes, it does.

10

11 4813-6828-9554, v. 9