

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Docket No. _____

Petition of Addison Solar Farm, LLC, pursuant to)
30 V.S.A. § 248, for a certificate of public good)
authorizing the installation and operation of a one)
MW solar electric generation facility located at)
Route 7 and Monkton Road, Ferrisburgh, Vermont,)
known as the “Ferrisburgh Solar Farm Project”)

PREFILED DIRECT TESTIMONY OF SCOTT MAPES

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

2 Response: My name is Scott Michael Mapes. I am an environmental consultant. My
3 office is located at 89 College Street, Burlington, VT, and I also reside in Burlington.

4

5 **Q. Please describe your background and qualifications.**

6 Response: I have a civil and environmental engineering and environmental law
7 practice. I have provided land use assessments and environmental impact analyses to
8 clients for 25 years. I am a registered Vermont Professional Engineer and I am
9 admitted to the Vermont Bar. My resume is attached as *Exhibit ASF-SMM-1*.

10

11 **Q. Have you previously testified before the Public Service Board or in other
12 judicial or administrative proceedings?**

13 Response: Yes, throughout my 25 year career I have been a fact and expert witness
14 in a number of judicial, state and local administrative proceedings. I have appeared
15 before local review boards, state agencies, District Environmental Commissions and

1 the Natural Resources Board and have appeared in a number of court proceedings as
2 an expert witness. I have not testified before the Public Service Board.

3
4 **Q. What is the purpose of your testimony?**

5 Response: The purpose of my testimony is to describe the work that I have
6 conducted regarding the Addison Solar Farm Project ("Project"), provide further
7 details concerning the project site plan, and provide information regarding the
8 Project's compliance with the section 248 criteria pertaining to environmental issues.

9
10 **Q. What work have you conducted with respect to the Project?**

11 Response: I conducted in the field site observations, I prepared a project site map
12 and plan, I researched state environmental databases, I met with and had telephone
13 and email exchanges with various state agency personnel and I prepared this written
14 testimony.

15

16 **Outstanding Resource Waters -- 30 V.S.A. § 248(b)(5) and (8)**

17 **Q. Is the Project located on or would it affect any segment of any outstanding**
18 **resource waters designated by the Water Resources Board (or Water Resources**
19 **Panel)?**

20 Response: No. A search of the Natural Resource Board's database
21 (<http://www.nrb.state.vt.us/wrp/orw.htm>) shows that there are no Outstanding
22 Resources Waters located on or near the Project.

1 **Q. Will the Project have an undue adverse effect on the natural environment,**
2 **with due consideration being given to the criteria of 10 V.S.A. § 1424a(d) regarding**
3 **the designation of Outstanding Resource Waters?**

4 Response: No. Upon reviewing the criteria of section 1424a(d), it would appear that
5 the un-named tributary of the Otter Creek that is located off the subject project to
6 the south is not likely to support a classification as a highly significant body of water
7 and/or Outstanding Resource Water. Furthermore, as discussed under the Undue
8 Water Pollution section below, the Project will not have an undue adverse effect on
9 the off-site stream, which is located 720' away from the solar array.

10

11 **Air Pollution - 10 V.S.A. § 6086(a)(1)**

12 **Q. Will the Project result in undue air pollution?**

13 Response: No. With respect to construction of the Project, the generation of dust
14 would not appear to be likely given the following factors: (1) there will be a stabilized
15 construction entrance; (2) the access drive will be gravel surface; (3) there will be
16 limited brush and tree clearing; (4) there will be limited soil disturbance resulting
17 from the installation of all solar panels support structures and security fence as they
18 will be pile driven; and, (5) there will be limited temporary soil disturbance associated
19 with shallow trenching for connecting underground conduit and transmission
20 infrastructure. In the event dust becomes problematic during construction, which is
21 not likely, it will be controlled through the application of water as needed. See also
22 the Erosion Prevention Sediment Control ("EPSC Plan") management practices
23 specified to be employed as outlined on *Exhibit ASF-SMM-2*.

1 Installation of the solar farm will take place only during daylight hours, which
2 will minimize the effects of construction-related noise at neighboring properties.
3 During both the construction and operation phase of the project there will be no
4 burning or other emissions.

5 The solar farm will produce no air pollutants during operation.

6 See also the prefiled direct testimony of Pomerleau and Seddon for a
7 discussion of noise and conducted and radiated emissions from the inverters.

8

9 **Water Pollution - 10 V.S.A. § 6086(a)(1)**

10 **Q. Will the Project result in undue water pollution?**

11 Response: No. Further support is provided below under criteria 6086(a)(1)(A) –
12 (a)(1)(G).

13

14 **Headwaters - 10 V.S.A. § 6086(a)(1)(A)**

15 **Q. Is the Project located in a headwater and, if so, will it reduce the quality of**
16 **ground or surface water?**

17 Response: The Project parcel is located within a headwaters area as defined by 10
18 V.S.A. § 6086(a)(1)(A). While the Project parcel is not characterized by steep slopes
19 or shallow soils, is not above 1,500 feet in elevation, is not in a watershed of a public
20 water supply as designated by ANR, and is not in an area supplying significant
21 amounts of recharge water to aquifers, the Project parcel is located in a drainage area
22 of less than 20 square miles. In any event, the Project will meet any health and
23 environmental conservation department regulations regarding the reduction of the

1 quality of ground or surface waters flowing through lands defined as headwater, as
2 discussed below in the stormwater section.

3
4 **Waste Disposal - 10 V.S.A. § 6086(a)(1)(B)**

5 **Q. Will the Project meet any applicable health and department of environmental**
6 **conservation department regulations regarding the disposal of any generated waste?**

7 Response: Yes. The Project does not involve any domestic waste or potable water
8 supply needs and therefore the Project does not require a state Water Supply and
9 Wastewater Disposal Permit.

10 The Project does not involve disposal of wastes or injection of any material
11 into ground water or wells.

12 To install the solar panels there will be limited brush and tree clearing
13 required. This clearing will be limited to a 400 foot section of internal tree
14 line/brush line and a small tree/bush cluster located to the immediate south of the
15 inverter shed. Any solid wastes generated during the construction phase will be
16 processed in accordance with Vermont solid waste management rules. There are
17 expected to be no solid wastes generated during the operational phase of the project.
18 All panels, support structures, conduit and cabling are all made from recyclable
19 materials.

20 Due to its nature and size, the Project does not require a state stormwater
21 discharge operating permit under Chapter 18 of the DEC regulations. The post-
22 construction impervious area resulting from this project is estimated to be 9,000 SF
23 or less than 1/4 acre, and thus less than the one acre permit threshold. This area

1 includes the shed housing the inverters, new gravel access road, and 4 gravel parking
2 spaces. According to ANR policy (email exchange with Matthew Probasco,
3 12/22/09) solar panels do not constitute impervious surface as defined by Chapter
4 18. Given that there will be relatively few permanent changes to the project site and
5 generally no permanent changes to the site's native soils profile, slope and grade or
6 surface vegetation, it is expected that there will be no measurable changes to the site
7 hydrology post development. The stormwater runoff quality and quantity should
8 remain essentially the same as it presently occurs under pre-development conditions.

9 Due to its nature and size, the Project will not require a National Pollutant
10 Discharge Elimination System ("NPDES") stormwater construction permit. It is
11 estimated that there will be 30,000 square feet of earth disturbed during the
12 construction phase and thus less than the one acre permit threshold. Irrespective of
13 the need for a permit, the Project will implement a comprehensive, site specific,
14 EPSC Plan to address any potential impacts associated with earth disturbances. The
15 goals of that plan will assure that the site is stabilized and seeded (native grasses or
16 temporary erosion control matting as necessary) immediately upon completion of all
17 earth disturbing activities. As a result, the construction phase will not result in undue
18 pollution of nearby waters.

19
20 **Water Conservation - 10 V.S.A. § 6086(a)(1)(C)**

21 **Q. Has the design of the Project considered water conservation, incorporated**
22 **multiple use or recycling where technically and economically practical, utilized the**

1 **best available technology for such applications, and provided for continued efficient**
2 **operation of these systems?**

3 Response: Yes, understanding that this criteria has limited applicability to the
4 Project. The Project will not require the use of water during the construction phase
5 (unless required for dust control) or during the operational phase (except for
6 possible occasional cleaning of the solar panels). The water that may be required will
7 be brought to the site on small maintenance vehicles.

8

9 **Floodways - 10 V.S.A. § 6086(a)(1)(D)**

10 **Q. Is the Project within a floodway or floodway fringe? If within a floodway, will**
11 **it restrict or divert the flow of flood waters, and endanger the health, safety and**
12 **welfare of the public or of riparian owners during flooding? If within a floodway**
13 **fringe, will it significantly increase the peak discharge of the river or stream within or**
14 **downstream from the area of development and endanger the health, safety, or welfare**
15 **of the public or riparian owners during flooding?**

16 Response: There are no FEMA maps covering the segment of the un-named
17 tributary of Otter Creek that is closest to the Project. Thus a formal floodway and
18 floodway fringe determination has not been made.

19 The Project parcel's property line is roughly 80' away from the un-named
20 tributary of the Otter Creek and the closest solar array is nearly 720' away and some
21 15-20' in elevation above this surface water. Given these factors and the drainage
22 shed's topographic features, it is my professional opinion that the Project will not

1 restrict or divert the flow of flood waters or significantly increase the peak discharge
2 of this stream within or downstream from the area of development or otherwise
3 endanger the health, safety, or welfare of the public or riparian owners during
4 flooding.

5

6 **Streams - 10 V.S.A. § 6086(a)(1)(E)**

7 **Q. Is the Project on or adjacent to the bank of a stream?**

8 Response: No. There are no streams at the Project site. The closest stream to the
9 project parcel is an un-named tributary to the Otter Creek, 720' away from the solar
10 array. Moreover, the Project is not expected to have any undue adverse impacts on
11 this off-site stream or its banks. During construction and during the operation phase
12 it is expected that there will be little to no change in the surface water runoff quality
13 and quantity over existing conditions.

14

15 **Shorelines - 10 V.S.A. § 6086(a)(1)(F)**

16 **Q. Is the Project located on a shoreline?**

17 Response: No. The Project parcel is not on a shoreline of a lake, pond, reservoir or
18 river, as defined in 10 V.S.A. § 6001(17).

19

20 **Wetlands - 10 V.S.A. § 6086(a)(1)(G)**

21 **Q. Will the Project comply with the Water Resources Board rules regarding**
22 **significant (Class 1 or 2) wetlands? Will the Project have an undue adverse impact on**
23 **any non-significant (Class 3) wetlands?**

1 Response: There are no significant wetlands (Class 1 or 2) located on the Project
2 site. The Class 3 wetlands found to exist on the property have been delineated by a
3 qualified wetlands ecologist and a 25' buffer to those wetlands will be maintained.
4 Given the limited site disturbance during construction, the implementation of the
5 project-specific EPSC measures, and the little or no change in the pre-construction
6 runoff characteristics after construction is completed, the Project is not expected to
7 have any undue adverse impact on any wetlands. See *Exhibit ASF-SMM-3*.

8

9 **Sufficiency of Water; Burden on Existing Water Supply - 10 V.S.A. § 6086(a)(2), (3)**

10 **Q. Does the Project have sufficient water available for its reasonably foreseeable**
11 **needs? Will the Project utilize an existing water supply?**

12 Response: The Project will not require the use of water during the construction
13 phase (unless required for dust control) or during the operational phase (except for
14 possible occasional cleaning of the solar panels). If water is required, it will be
15 brought to the site via small maintenance trucks. As a result, the Project will not
16 have any undue adverse impact on any existing water supply at or near the Project.

17

18 **Soil Erosion - 10 V.S.A. § 6086(a)(4)**

19 **Q. Will the Project cause unreasonable soil erosion or the reduction in the**
20 **capacity of the land to hold water so that a dangerous or unhealthy condition may**
21 **result?**

1 Response: No. The Project will not cause unreasonable soil erosion or reduction in
2 the capacity of the land to hold water so that a dangerous or unhealthy condition
3 may result.

4 There are no streams or rivers on the Project site; the closest off-site stream
5 is an un-named tributary to the Otter Creek, 720' downstream from the solar array.
6 There are wetland areas on and off the property. These features will be protected by
7 the implementation of a comprehensive site-specific EPSC plan which will include,
8 at a minimum, silt fencing being installed and maintained down gradient of areas of
9 earth disturbance, and stabilizing all earth disturbances with temporary Best
10 Management Practices and permanent stabilization with native grass seed upon
11 completion of construction activities. Access by construction equipment will be
12 from the existing pasture access driveway, from a single access point off of Monkton
13 Road. This access will be improved and stabilized with stone construction at the
14 entrance to prevent the tracking of sediment off site. Any tracked sediments found
15 on Monkton Road will be routinely swept up.

16 To facilitate the return of native vegetation and to reduce erosion, erosion
17 control matting or similar geo-textile fabric will be placed along the length of each
18 row of solar panels where deemed necessary. The only impervious surfaces created
19 by the Project will be the inverter shed, access drive, and a small gravel parking area.

20

21 **Necessary Wildlife Habitat and Endangered Species - 10 V.S.A. § 6086(a)(8)(A)**

22 **Q. Will the Project destroy or significantly imperil necessary wildlife habitat or**
23 **any endangered species?**

1 Response: No. Based upon consultation with ANR, there are no known listed
2 threatened or endangered species at the Project site, nor is there any necessary
3 wildlife habitat.

4

5 **Q. Will the Project have an undue adverse effect on any rare and irreplaceable**
6 **natural areas?**

7 Response: No. Based upon my consultation with ANR staff, there are no natural
8 communities that would constitute a rare and irreplaceable natural area at the Project
9 site.

10

11 **Q. Does this conclude your testimony at this time?**

12 Response: Yes.