

## March 22, 2016 Testimony - Renewable Energy: Water Pollution

### Peggy Barter, Morgan, VT

My name is Peggy Barter (legal name Mary M. Barter). For 15 summers, I have lived in Morgan for about 5 months in our summer dwelling (built on posts, water pipes above ground). Thank you for allotting time for my testimony. For 12 years I have served as a Director of Seymour Lake Association (SLA) and Chair of Seymour Lake Association's Water Quality Committee of 14 members. I have been a strong advocate of Vermont's Lake Shore Protection law and volunteer as a Lake Wise Leader to help citizens learn how to maintain and improve water quality in Vermont's lakes. Last June, my husband and I were jointly awarded the Robert Arnold Lake Protection award by VTANR.

Today, I will try to communicate the confusion and sense of being helpless that results in a community with the present Public Service Board process for siting renewable energy projects I felt this first hand when the Town of Morgan asked for my participation in writing the Town's intervention statement for an industrial solar project proposal for Valley Road in Morgan.

**I am here to ask you to more deeply consider two factors when you work to improve the process for approval of renewable energy projects and their placement on the land.** I will speak primarily about water quality of surface waters, but as you all know the health of fisheries and wildlife depends upon good water quality in wetlands, streams and lakes.

**First, please create a more equitable method of determining the site for solar and wind projects to include the needs of the communities.** I am requesting legislation or directions to the PSB which require a renewable energy project developer to enter discussions with towns regarding their preferences for project sites before proposing a project to the PSB. One way to accomplish this may be to have renewable energy land use developments come under Act 250 review.

**Second, please eliminate the practice which considers solar panels to be pervious surfaces, except for the post supporting the panels.** I've done a little research regarding treating solar panels as pervious. I've learned that the effectiveness of stormwater infiltration into the soil depends upon several factors such as soil type, tilt of the slope, height of vegetation beneath

the panels and severity of rainfall. The photos which follow illustrate what can happen when all factors are not favorable.

The two following photos, which show runoff from the panels, are of Barton Solar. Note that the runoff has not infiltrated into the soil.



The industrial solar panel project in Morgan was submitted to Vermont's PSB by Seymour Lake Solar, LLC. The location, chosen solely by the developer, is located on Valley Road 2,112 feet upstream from Seymour Lake and Route 111. The proposal is for one hundred AllEarth Solar Trackers standing 18 ft. tall to be placed in this proximity to Morgan's most valuable asset, Seymour Lake. This was quite a shock to the community for several reasons. Morgan's Town Plan states that renewable power projects should provide power to Morgan and states that they should be located away from Valley Road, Route 111 and the lake, which are all designated as scenic areas of town. The project further violates the Town Plan because it does not provide an economic benefit to the town and the developer reports that the net metered credits are destined to go to Jay Peak, Inc.

Most shocking to me, as SLA's Water Quality Committee Chair, the land on which the proposed panels would be placed has mostly slow draining soils bounded on one downhill side by the largest tributary of the lake, Sucker Brook. Another downhill boundary is a wetland which protects the Brook from pollutants carried by runoff. Near a third boundary is a small stream which feeds Sucker Brook. The threats of runoff from the 100 solar panels to water quality of the brooks, the wetland and ultimately the lake's water are real. These streams also serve as nurseries for the fishery in the lake as well as provide habitat for wildlife.

Then, I learned that Vermont's PSB defines impervious far differently than US EPA and Vermont's Lake Shore Protection law. Using the conventional definition, the impervious

surface of the panels puts additional stress on the wetland. The 100 panels represent 41,700 square feet of impervious surface where now there is none. During the day, when the panels are at full tilt, this would be approximately 18,500 square feet. These areas are between 13% and 6%, respectively, of the total surface area of the proposed 7 acre project. One inch of rain would result in between 11,532 and 24,992 gallons of water that would be flowing off of these panels onto the substrate. Common sense would dictate that soil erosion could be significant from such a large area of impervious surface. Present practice considers solar panels as pervious!

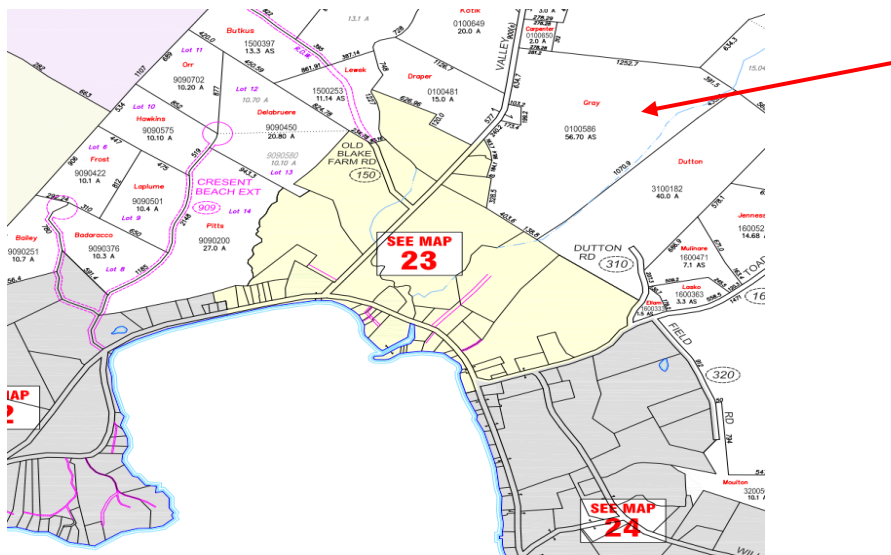
The following may help you understand our frustration regarding defining solar panels as pervious. Some of Vermont's surface waters are classified as impaired (examples are Lake Memphremagog and Lake Champlain). This has resulted in a Shoreland Protection law, energetic programs to educate the public about Low Impact Design (LID) practices and much money appropriated to improve the impaired waters. It appears absurd to the educated public that solar panels are considered by the PSB to be pervious, given that they are a hard, smooth surface. These words, copied directly from Vermont's Shoreland Protection Handbook may help explain the differing understandings regarding runoff from solar panels:

“Impervious areas are those man-made surfaces from which precipitation runs off rather than infiltrates.

Examples of Impervious Surfaces:

- Paved and gravel driveways, parking areas
- Tennis courts
- Structures (house, shed, garage)
- Decks, patios, large retaining walls
- Other compacted, non-vegetated areas”

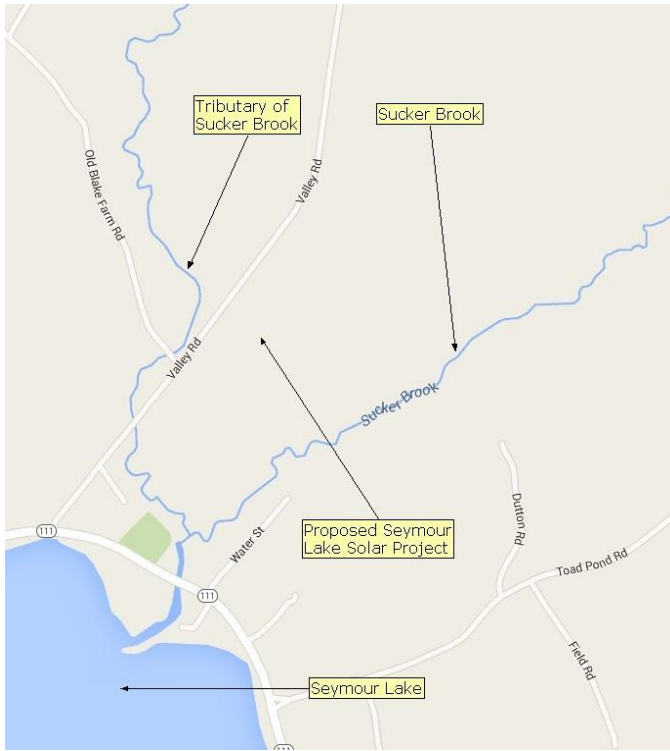
We were alarmed by a threat of additional pollution of the lake and its tributaries by the proposal of Seymour Lake Solar. The map below shows how close the chosen site is to the lake.



**A red arrow points to Applicant's proposed solar panel site is on the east side of Valley Road and 2,112 feet from Seymour Lake.**

Seymour Lake has a very small watershed (12, 920 acres) in relation to the size of the lake (1,769 acres). By comparison, near-by Echo Lake's watershed (15,186 acres) is larger than Seymour Lake's, but the lake is much smaller (550 acres). This means that every tributary of Seymour Lake plays a big role as a corridor supplying sediment and other pollutants to the lake. It also means that many lakes, such as Echo Lake, turn over the entire water contents of the lake several times a summer. Seymour Lake turns over the entire contents of the lake once every four years, meaning pollutants have a long time to build up in the lake. All of Seymour Lake's tributaries are relatively small, with Sucker Brook (which abuts the proposed solar development) being the largest. Therefore any disturbance or development on land draining into Sucker Brook has the potential to have an adverse impact on Seymour Lake's water quality.

During rain storms, Sucker Brook already contributes large amounts of silt to the lake. The Town, SLA and Northwoods Stewardship Center are all working to improve the buffers along the lake's tributaries. Sucker Brook enters the lake at the Access provided by Vermont Fish and Wildlife to serve the public of Vermont to whom the waters belong. The accumulated silt in the water around the Access ramps threatens the ability of fishermen and other boaters to use the lake. Any additional silt load to this brook is a threat to the public's right to access the lake.



The problems with this proposed site would could have been avoided had the Town and Developer collaborated during the planning (especially site selection) and if the definition of impervious used by US EPA and VT ANR been followed. Hence my two requests to your committee.

We take our responsibilities to maintain high water quality in our streams and lakes very seriously. Not only has the town of Morgan done its homework in developing the town plan, but Seymour Lake Association has worked with the town and its citizens to accomplish the following to protect Seymour Lake's water quality and its wildlife and fishery:

- Increased the hours and training of Greeters for Greeter program at the lake's access. Greeters help lake users keep invasive species such as Eurasian watermilfoil and zebra mussels out of the lake. Plans are in the works to install a boat wash, which is particularly effective in preventing zebra mussels and spiny waterflea from becoming established in a lake. The Town, SLA and grants from the state share in funding these programs.

- A team of about 25 lake shore owners survey the perimeter of the lake by kayak or snorkeling at least twice yearly to search for invasive species. Many volunteers take more frequent surveys.
- SLA sends newsletters to all residents in the watershed and sends email blasts to its email list of members. Both direct attention to a renovated web site which provides information to lake shore owners as to how to reduce phosphorus pollution from runoff into the lake.
- Some Morgan farmers have increased their stream buffers and added fencing on portions of the lake's tributaries which run through their land. Morgan farmers have improved their manure management practices to better protect Morgan's streams and Seymour Lake.
- SLA, private road associations around the lake and the Town of Morgan have applied for and implemented Vermont's Better Back Roads grants to improve protection of the lake by lessening runoff/silt from roads into the lake. Silt brings phosphorus into the lake.
- SLA, under the supervision of Vermont Department of Conservation (VTDEC), conducted a three year study of water samples from the five major tributaries of Seymour Lake. The sampling showed that the pollutants coming from tributaries did not at that time contribute enough phosphorus to account for the rapid increase over the years 1996 to 2004. That conclusion taught SLA that heavy development of land near the lake which caused the removal of natural vegetation and increased impervious surfaces on the lake shore was a major cause of the increased pollution of the lake. This caused SLA to mount an energetic program to educate lake shore owners regarding the need to restore natural vegetation to the lake shore and implement runoff prevention measures such as water bars in driveways and infiltration steps to the waterfront.
- SLA became active in the Memphremagog Watershed Association and the Federation of Vermont Lakes and Ponds (FOVLAP) to join in the efforts to encourage Vermont to enact lake protection legislation to limit impervious surfaces and removal of natural vegetation on lake shores.
- About 50 lake shore residents have participated in Lake Wise, a voluntary program of VTDEC which provides an evaluation of a lake shore property for exemplary lake shore

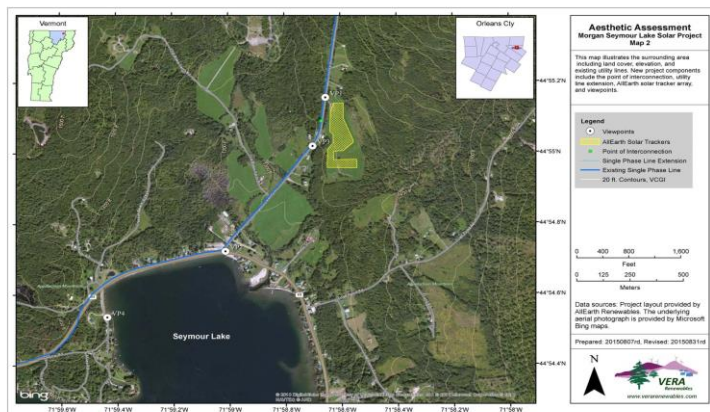
management practices to protect the lake from pollution. Eleven of these properties received the award, some earned certificates and many others are making improvements to qualify for the Lake Wise Award.

- About 30 lake shore owners have participated in Northwoods Stewardship Center’s grant funded, cost-sharing, Lake Shore Buffering Program. Another 20 have participated in FOVLAP’s Blueberry Buffer program, another grant funded, cost sharing program. And 8 lake shore owners have participated in another similar program, FOVLAP’s LakeScaping Program to install a lake shore buffers, infiltration steps or water bars.
- SLA has held workshops to help lake shore owners learn how to care for septic systems, how water’s edge ecology affects water quality, how to replant a natural buffer and other similar topics.

Notable is that Morgan’s experience is not an isolated instance of solar energy proposals choosing sites adjacent to Vermont’s already threatened or impaired lakes. The following site maps show the Morgan project, two proposals near Lake Champlain which is classified as an impaired lake and a third proposal located on the shores of Lake Memphremagog, another impaired lake. Both the federal and state governments are spending large amounts of money to reverse the degradation of the two impaired lakes. Seymour Lake is not yet considered impaired, but it is considered one of the most threatened lakes in Vermont due to the heavy development on its shores.

Appendix A - Map of Viewpoints

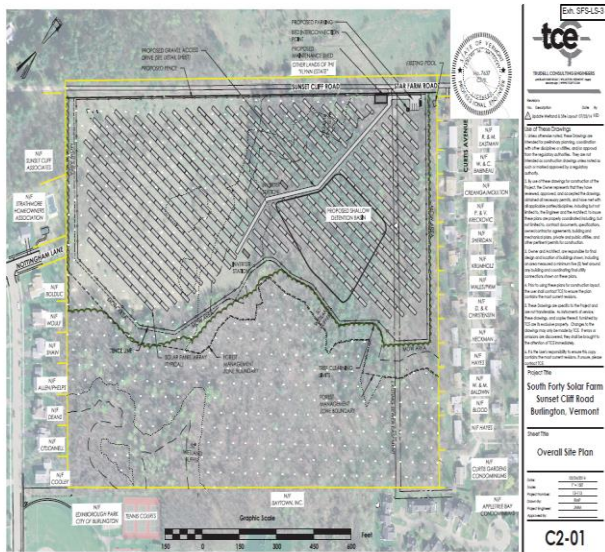
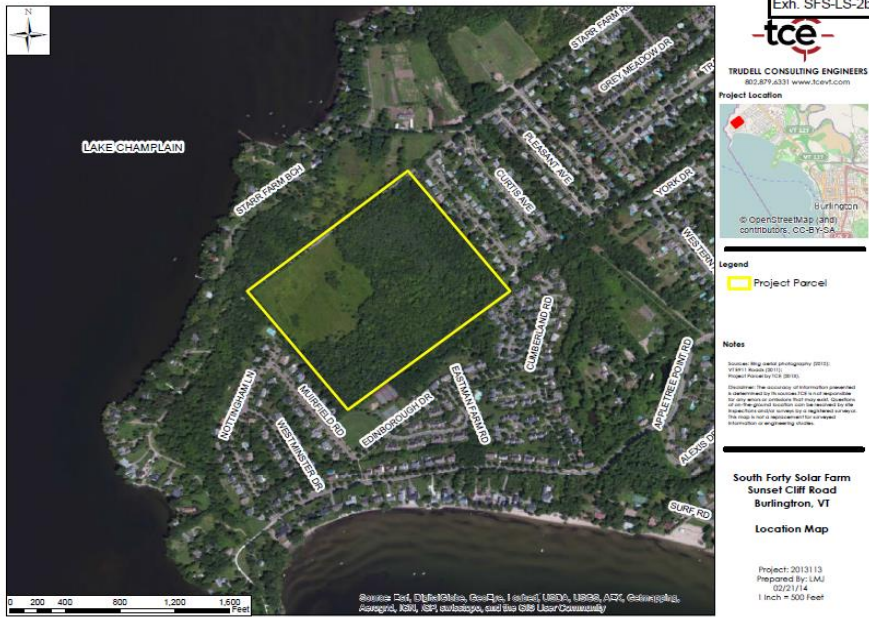
Exhibit 9L5-0  
Seymour Lake Facility



Morgan’s proposed site is highlighted in yellow green, 2,112 feet from Seymour Lake.



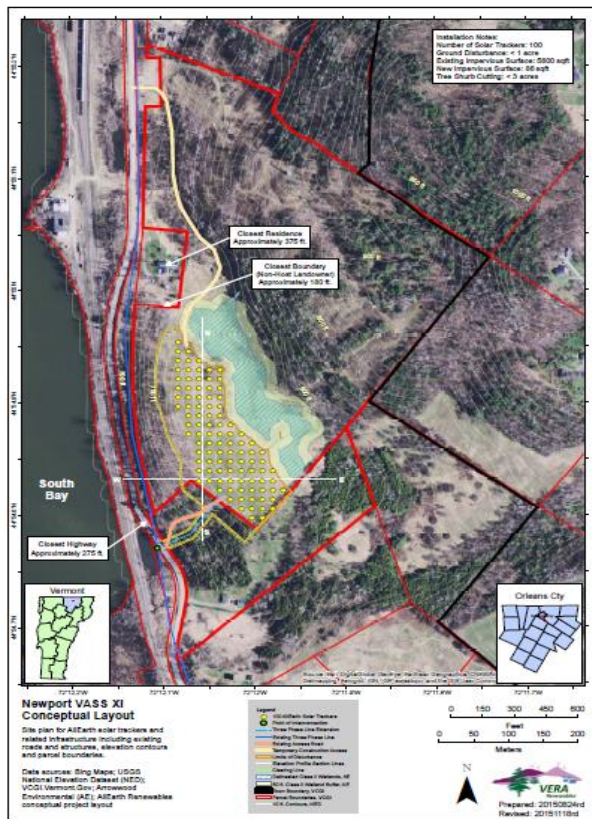
Below are the proposed sites of two solar projects in close proximity to Lake Champlain.



South Forty proposed project is located on a class 2 wetland and half of this site requires cutting half of the forest and is just upland of Lake Champlain.



The solar project site shown below is located close to Lake Memphremagog.



In conclusion, I ask you to protect Vermont's surface waters by:

1. Creating a more equitable method of determining the site for solar and wind projects to include the needs of the communities and consider using Act 250 review to do so.
2. Eliminating the practice which considers solar panels to be pervious surfaces, except for the post supporting the panels, by taking into consideration factors such as slope, soil type and the increasing amount of heavy rainfall we have experienced in recent years.

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