

REVISED [REDACTED] HILL COMMUNITY SOLAR 1 AND 2 DECOMMISSIONING STATEMENT

Dated November 23, 2021

Reviewed December 19, 2021

The numbers in this Decommissioning Statement may or may not be accurate representations of decommissioning cost for two 5-MW AC nameplate capacity solar power plants each on their own parcel. Each solar power plant consisting of an 8.3-MW DC array and a 9-MWh AC battery storage (two 53 feet long container of lithium ion batteries).

The purpose of this review is to draw attention to questions that should be asked and information that may be omitted.

This review may not be full and/or accurate for the project you may be reviewing. This is simply a guide to help others ask their own town, county and state better questions about the decommissioning utility scale solar + storage facilities.

Ask who wrote the Decom Agreement?
Who reviewed it? Get this in writing.

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two (2) 8.3-MWdc solar energy generation arrays and two (2) 9-MWh ac battery energy storage system (BESS) each on their own parcel 13950 Duanesburg Road and NUMBER Duanesburg Road each with a nameplate capacity of 5-MWac and has own interconnection to National Grid.

1. INTRODUCTION

█████ Hill Solar 1 LLC & █████ Hill Solar 2 LLC (the "Applicant"), New York limited liability companies, hereby submit this plan for the eventual decommissioning of the two proposed approximately 5 MW_{AC} community solar and energy storage electric generation facilities located at 13950 Duanesburg Road, Delanson, NY 12053, in the Town of Duanesburg (the "Town") within Schenectady County in New York State (the "Projects") and the establishment of a decommissioning fund (the "Decommissioning Fund") for review as part of the "Solar Energy Facilities Law" as adopted by the Town of Duanesburg through Resolution NO. 107-2016 (the "Solar Bylaw"), before the planning board of the Town of Duanesburg (the "Board").

A site location plan is provided at Appendix 1 for reference.

2. DECOMMISSIONING ACTIVITIES

either Project or portion thereof

including but not limited to inverters transformers DC-DC couplers switch gear storage containers battery storage

The Projects are anticipated to operate for 25-40 years. At the time the Projects ceases to operate, Applicant will perform decommissioning which shall include removal of all energy facilities, structures and equipment including any subsurface wires and footings from the parcel. Any access roads created for building or maintaining the system shall also be removed and re-planted with vegetation. The solar panels and all other equipment removed from the project site, unless being reused or repurposed for another project, shall be recycled in accordance with all applicable New York State policies and procedures in effect at the time of decommissioning.

recycled and/or dispose of

Further, decommissioning will include restoring the property to its pre-installed condition, including grading and vegetative stabilization to eliminate any negative impacts to surrounding properties. Specifically, such decommissioning shall include, but is not limited to, physical removal of all ground-mounted solar collectors, structures, equipment, security barriers and transmission lines from the site.

3. COST OF DECOMMISSIONING

█████ Hill Solar will contract with National Grid for removal of 6 utility poles at Duanesburg Road.

The fully inclusive cost to decommission the Projects, as defined in Section 2 herein, is estimated at \$372,527.46 for █████ Hill 1 and \$372,296.32 for █████ Hill 2 (the "Estimated Decommissioning Cost"), as detailed in Appendix 2.

The Estimated Decommissioning Cost shall be adjusted annually to account for inflation, based upon the current Consumer Price Index ("CPI") as maintained by the Bureau of Labor Statistics (the "Revised Estimated Decommissioning Cost").

Renewable energy Projects are sold multiple times. Accurate, detailed, descriptions protect the town. If an array fails or a BESS fails and the owner doesn't want to repair or replace that portion of the overall Project then it should be removed immediately. Faulty or failed equipment should not be left on site until the entire Project is decommissioned.

4. ESTABLISHMENT OF DECOMMISSIONING FUND

The Decommissioning Fund will be funded with a surety bond (the "Bond") that is solely for the benefit of the Town. No other entity, including Applicant, shall have the ability to demand payment under the Decommissioning Fund. A decommissioning performance form is attached to this Plan as Appendix 4. Appendix 5: Form of Bond Email Correspondence shows email approval of the form of bond. The approved financial security, shall be in place and filed with the Board upon commencement of construction.

Every five years and for the Project's life, Applicant shall file a report with the Board on the effect of the annual inflation adjustment, as noted above, including a Revised Estimated Decommissioning Cost. If the Revised Estimated Decommissioning Cost exceeds the then current Estimated Decommissioning Cost, Applicant shall create a new or amended Bond (or other appropriate financial security) to be issued to reflect the Revised Estimated Decommissioning Cost. In the event the CPI has a negative value at the time the annual adjustment is calculated, the value of the Bond shall not be reduced.

what does this mean?

At the end of the Project's useful life, and in the event Applicant does not seek Board approval to repower the Project, Applicant will decommission the Project as required under the Board's Solar Bylaw. Upon completion of decommissioning, Applicant shall seek a certification of completion from the Board. The certification will be provided to the issuing bank with instructions to terminate the bond.

The Board shall have the right to draw on the bond to pay the costs of decommissioning in the event that Applicant (or its successor) is unable or unwilling to commence decommissioning due to dissolution, bankruptcy, or otherwise. Prior to the Board drawing on the bond, Applicant shall have a reasonable period of time to commence decommissioning, not to exceed ninety days following issuance of a Board order requiring decommissioning of the Project.

5. DEMOLITION INSTRUCTIONS

The following list is the sequential procedure that should be followed by the town for removal of the system pursuant to this plan:

a. Project Component Removal

All control cabinets, electronic components, and internal cables will be removed along with the panels, racks, energy storage systems, and inverters. These components will be lowered to the ground where they will be transported whole for reconditioning and reuse, or disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components.

Equipment may be cut up on site. How will soil and water be protected? Who is witness on site at time of decom?

b. PV Module Removal

The Project's solar photovoltaic panels are manufactured according to the regulatory toxicity requirements based on the Toxicity Characteristic Leaching Procedure (TCLP). Under these regulations, solar panels are not considered hazardous waste.

The panels used in the Project will contain:

Glass	75%
Polymers	10%
Aluminum	8%
Silicon	5%
Copper	1%
Silver	1%

Solar panels and some components are currently considered hazardous materials. In 20 years the EPA and NYS DEC may classify solar panels, batteries and other equipment hazardous waste. Owner/Operator should follow and pay for laws at time of decom.

All which have recycling or resale value. Modules will be dismantled and packaged per manufacturer, approved recyclers or resellers specifications and shipped to an approved off-site solar panel recycler.

It is important to recognize that solar panels have a minimum 10 year product warranty and a minimum 25 year performance guarantee. Those warranties have a direct impact on the panels' salvage value. The earlier the decommissioning event the higher salvage value.

International Renewable Energy Agency (IRENA) and the International Energy Agency's Photovoltaic Power Systems Programme (IEA-PVPS) published a detailed report titled, "The End-of-Life Management: Solar Photovoltaic Panels" that projects the PV panel waste volumes to 2050 and highlights that recycling or repurposing of solar PV panels at the end of their 30-year lifetime will unlock a large stock of raw materials and valuable components. The report estimates that PV panel waste, comprised could total 78 million tonnes globally by 2050. The value of the recovered material could exceed \$15 billion by 2050. This potential material influx could produce 2 billion new panels or be sold into global commodity markets.

Below is a short list of American companies that already operate in the solar panel recycling or repurposing market.

<http://www.tekoverly.com/>

<http://www.morgenindustries.com/index.html>

<https://echoenvironmental.com/solar-panel-recycling/>

<http://www.glrnow.com/>

<http://www.intercotradingco.com/usa-solar-panel-recycling/>

<https://silrec.com/> Does not recycle solar panels

<http://www.solarsilicon.com/>

Which companies accept 20,000 panels at a time? Are companies focused on small residential arrays? Where will broken and non-functioning panels be disposed of during construction and project infancy when 4% of panels are projected to fail?

Does depth of wires matter? Will ALL wires be removed?

c. Electric Wire Removal

Is wiring for tracking panels included?

The copper and aluminum electric wires have a value for recycling. The DC wiring can be removed manually from the panels to the inverter. Underground wire in the project will be pulled and removed from the ground. Overhead cabling for the interconnection will be removed from poles. All wire will be sent to an approved recycling facility. or disposed of according to laws.

d. Racking and Fencing removal

All racking and fencing material like posts that were driven into the ground will be pulled, broken down into manageable units, removed from the facility and sent to an approved recycler. or disposed of according to laws.

e. Concrete Slab Removal

Concrete slabs used as equipment pads will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site. The excavation will be filled with subgrade material of quality and compacted density comparable to the surrounding area.

f. Access Road

are

The last structure to be removed is the access roads. They will be stripped exposing the geotextile beneath. The geotextile will then be removed and disposed of revealing the original soil surface. The compacted soil beneath the road fill might require ripping with a subsoiler plow to loosen it before it can be returned to crop production. Some of the access road might be retained by the landowner as it will be an improvement for their farm access.

g. Site Restoration Process

is it agricultural? some documents yes. some documents no.

The site consists of 65.2 acres of agricultural land. Following the decommissioning activities, the sub-grade material, and topsoil from affected areas will be de-compacted and restored to a density and depth consistent with the surrounding areas. All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-gradematerial to the proper density consistent and compatible with the surrounding area.

If the subsequent use for the Project site will involve agriculture, a deep till of the project site will be undertaken. The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed. Disturbed areas will be reseeded to promote the re-vegetation of the area unless the area is to be immediately redeveloped. In all areas restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure the establishment of suitable grasses and forbs, and to control noxious weeds and pests. The future use of the land for agricultural purposes would not be prejudiced.

h. Utility Pole Removal

Who Contracts to have the six utility poles removed?

The utility poles connecting the Substation 1 and Substation 2 solar and energy storage projects to the electric grid will be owned by the utility, National Grid. National Grid will be responsible for disposing of these utility poles. Therefore, Appendix 2: Breakdown of Decommissioning Costs does not include the pole disposal costs.

i. Energy Storage Decommissioning

Appendix 6: Battery Energy Storage System-Specific Decommissioning Plan includes a detailed description of the energy storage decommissioning process.

Appendix 1
Site Location Plan



LANDS N/F OF
PAOLA H. ROWING
BOOK 1869 OF DEEDS AT PAGE 461

LANDS N/F OF
SUSAN LISS BIGGS
BOOK 1869 OF DEEDS AT PAGE 147

LANDS N/F OF
SUSAN LISS BIGGS
BOOK 1869 OF DEEDS
AT PAGE 151
(LOT 2 - SEE MAP REF. No. 3)

LANDS N/F OF
LEE S. OTIS AND
LEILA M. OTIS
BOOK 1976 OF DEEDS
AT PAGE 107
(LOT 1 - SEE MAP REF. No. 3)

PROPOSED LIMITS
OF DISTURBANCE
(OAK HILL 2 MAIN = 36.28 AC.)
(OVERALL = 69.75 AC.)

PROPOSED LIMITS
OF DISTURBANCE
(OAK HILL 2 MAIN = 36.28 AC.)
(OVERALL = 69.75 AC.)

PROPOSED LIMITS
OF DISTURBANCE
(OAK HILL 1 = 32.68 AC.)
(OVERALL = 69.75 AC.)

PROPOSED LIMITS
OF DISTURBANCE
(OAK HILL 1 = 32.68 AC.)
(OVERALL = 69.75 AC.)

Why is this parcel shown?
It is a separate parcel. It is not
part of Oak Hill Solar 1, LLC or
Oak Hill Solar 2, LLC.
The inclusion of this unrelated
parcel may mislead and
misrepresent Oak Hill Solar.

It appears that its purpose is to
distract and may limit the scale
so that the Biggs parcel may
be omitted.

Is extra space to permit
additional battery storage
at a later date? Would
Owner be required to
obtain an amendment or
permit from the board?
Can this limitation be
documented in the
Resolution? Condition - no
increase in array or BESS
size or capacity.

Is extra space to permit
additional battery storage
at a later date? Would
Owner be required to
obtain an amendment or
permit from the board?
Can this limitation be
documented in the
Resolution? Condition - no
increase in array or BESS
size or capacity.

Is 100' setback from
property line to fence?
Location of label may be
misleading and may
misrepresent the Project

What are accurate GPS locations of corner fence posts?

Is the south fence 800 feet or
1,500 feet from Duaneburg
Road?

Remove dilapidated house outline.
Explosion and fire March 6, 2020.
Building no longer there.

Treeline may create shade on panels
decreasing production.
South is on right side of sheet.
Sun movement may result in shading
through out the year.
Will owner removed trees? Will it be
removed at a later date?
Possible violation of town solar laws.

No.	Date	Revision
A	08/19/21	INITIAL ISSUE
B	08/27/21	ISSUED FOR CONSTRUCTION
C	09/27/21	REVISED PER TOWN ENGINEER COMMENTS
D	10/01/21	REVISED PER TOWN ENGINEER COMMENTS
E	11/12/21	REVISED PER TOWN ENGINEER COMMENTS

Applicant uploaded two
construction plans "Version
E" both are dated
November 12, 2021. Which
Version is this. Which one
is correct?

NOTE: NEW YORK STATE ENGINEERING LAW ARTICLE 145
ENGINEERING SECTION 2209(2) IT IS A VIOLATION FOR
ANY PERSON UNLESS ACTING UNDER THE DIRECTION OF
A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS
DOCUMENT.

ISSUED FOR CONSTRUCTION

Project Name:
1&2

Project Number:
1&2

Title: 1" = 120'
Date: MAY 2021
Drawing Description:
OVERALL SITE PLAN

Property Owner:
Matthew D. Ganster and Rose Ganster
(Parcel One)

Landowner died August 2021
Should landowner be corrected
to reflect current owner?

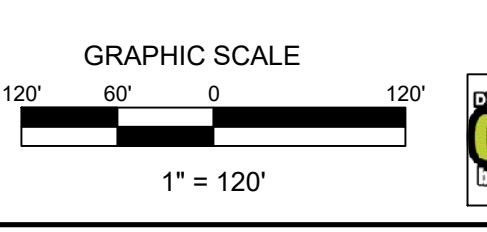
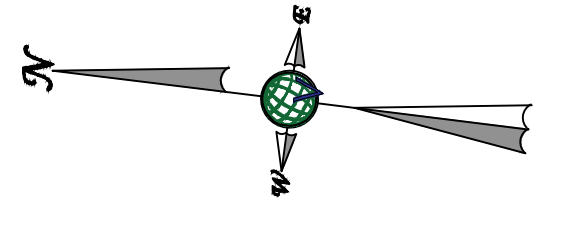
Project Name:
1&2

Project Number:
1&2

Title: 1" = 120'
Date: MAY 2021
Drawing Description:
OVERALL SITE PLAN

Drawing Number:
C2.00

Sheet Number:
8 of 29



Revised Appendix 2 – 11/11/2021
Breakdown of Decommissioning Costs

Applicant submits this breakdown of the Estimated Decommissioning Cost to support the proposed decommissioning fund of \$744,823.78 in aggregate for both projects based on 2021 cost of work estimates following the NYSERDA guidance which is based on the estimating practices followed by the State of Massachusetts and New York Southeast scrap value prices. The Estimated Decommissioning Cost estimates include labor, transport and machinery costs for every line item.

An estimate for the cost of decommissioning the energy storage system was provided by Verdanterra. The estimate is included as a line item in each project’s Estimated Decommissioning Cost. A detailed breakdown of this energy storage decommissioning estimate and a description of the energy storage decommissioning process is included in Appendix 6: Battery Energy Storage System-Specific Decommissioning Plan

It should be further noted that while the Decommissioning Fund is established in the amount equal to the gross decommissioning costs of \$372,527.46 for Car Hill 1 and \$372,296.32 for Car Hill 2, there will likely be significant salvage value that could lower the net system decommissioning cost. The salvage value is provided as a reference and does not impact the proposed decommissioning amount.

Recycling costs are speculation and should not be considered by the Town.

To better explain the potential salvage value for this project we have completed a more detailed analysis of the current value of the main project components: solar panels, racking system aluminum/steel content and the electric cabling copper/aluminum content. The current published values for these materials can have a fairly large spread. For each item we choose the use the most conservative pricing available to assume current worst case scenario.

Car Hill 1

Estimated Decommissioning Cost				
	Type	Quantity	Cost Per Item	Total
Fence Removal with Gate (fence cost divided between sites)	LF	4,150	\$4.50	\$18,675.00
Remove Transformers & Concrete Pads	Each	2	\$5,000.00	\$10,000.00
Remove Major Switch Gear & Concrete Pad	Each	1	\$5,000.00	\$5,000.00
Remove Modules and Racking	\$/MWac	5	\$9,000.00	\$45,000.00
Removal of Posts	Each	1,512	\$20.00	\$30,240.00
Remove & Dispose of Central Inverters	Each	2	\$7,500.00	\$15,000.00
Storage Decommissioning and Recycling Cost - per Verdanterra estimate	N/A	N/A	N/A	\$177,049.50
Removal of Underground Wires and Conduits and Backfill	LF	2,400	\$10.00	\$24,000.00
Site Restoration, Grade and Seed	Acre	10	\$900.00	\$9,000.00
Removal of Gravel Access Road (road cost divided between sites)	Cubic Yards	825	\$25.00	\$20,612.50
Current Total				\$354,577.00
Revised Total based on Prime AE requested escalation				\$372,527.46
Total after 25 years of inflation (2.5% inflation rate)				\$657,365.94
Single Project Detailed Salvage Value	Solar Panels	21,728	\$6.60	\$143,404.80
	Racking Steel (lbs.)	584,050	\$0.05	\$29,202.50
	Racking Aluminum (lbs.)	880,000	\$0.15	\$132,000.00
	Project Cabling (lbs.)	37,966	\$0.73	\$27,714.82
Total Salvage Value				\$332,322.12
Proposed decommissioning fund				\$372,527.46

Salvage Value is unknown and should not be considered

Hill 2

Estimated Decommissioning Cost				
	Type	Quantity	Cost Per Item	Total
Fence Removal with Gate (fence cost divided between sites)	LF	4,150	\$4.50	\$18,675.00
Remove Transformers & Concrete Pads	Each	2	\$5,000.00	\$10,000.00
Remove Major Switch Gear & Concrete Pad	Each	1	\$5,000.00	\$5,000.00
Remove Modules and Racking	\$/MWac	5	\$9,000.00	\$45,000.00
Removal of Posts	Each	1,501	\$20.00	\$30,020.00
Remove & Dispose of Central Inverter	Each	2	\$7,500.00	\$15,000.00
Storage Decommissioning and Recycling Cost - per Verdanterra estimate	N/A	N/A	N/A	\$177,049.50
Removal of Underground Wires and Conduits and Backfill	LF	2,400	\$10.00	\$24,000.00
Site Restoration, Grade and Seed	Acre	10	\$900.00	\$9,000.00
Removal of Gravel Access Road (road cost divided between sites)	Cubic Yards	825	\$25.00	\$20,612.50
Current Total				\$354,357.00
Revised Total based on Prime AE requested escalation				\$372,296.32
Total after 25 years of inflation (2.5% inflation rate)				\$656,958.07
Detailed Salvage Value	Solar Panels	21,728	\$6.60	\$143,404.80
	Racking Steel (lbs.)	584,050	\$0.05	\$29,202.50
	Racking Aluminum (lbs.)	880,000	\$0.15	\$132,000.00
	Project Cabling (lbs.)	37,966	\$0.73	\$27,714.82
Total Salvage Value				\$332,322.12
Proposed decommissioning fund				\$372,296.32

To meet load requirements for emergency vehicles the access road is specified at 10" deep of gravel. Is 825 cubic yard adequate?

Does this include all of the wires required for the tracking motors?

What is waste disposal cost? What if the batteries can not be recycled?
 What are current legislation and regulations to dispose of lithium ion batteries?

Appendix 3
NYSERDA Fact Sheet

Include the NYSERDA BESS Guide

<https://www.nyserdera.ny.gov/Energy-Storage-Guidebook>

Decommissioning Solar Panel Systems

Information for local governments and landowners on the decommissioning of large-scale solar panel systems.

Oak Hill is Solar + Storage

Has developer omitted information?

Request NYSERDA's BESS Guidelines from developer.



NYSERDA

Solar Guidebook for Local Governments
NYSERDA 17 Columbia Circle Albany, NY 12203

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Overview

We provide information for local governments and landowners on the decommissioning of large-scale solar panel systems through the topics of decommissioning plans and costs and financial and non-financial mechanisms in land-lease agreements.

As local governments develop solar regulations and landowners negotiate land leases, it is important to understand the options for decommissioning solar panel systems and restoring project sites to their original status.

From a land use perspective, solar panel systems are generally considered large-scale when they constitute the primary use of the land and can range from less than one acre in urban areas to 10 or more acres in rural areas. Depending on where they are sited, large-scale solar projects can have habitat, farmland, and aesthetic impacts. As a result, large-scale systems must often adhere to specific development standards.

1. Abandonment and Decommissioning

Abandonment occurs when a solar array is inactive for a certain period of time.

- Abandonment requires that solar panel systems be removed after a specified period of time if they are no longer in use. Local governments establish timeframes for the removal of abandoned systems based on aesthetics, system size and complexity, and location. For example, the Town of Geneva, NY, defines a solar panel system as abandoned if construction has not started within 18 months of site plan approval, or if the completed system has been nonoperational for more than one year.²²
- Once a local government determines a solar panel system is abandoned and has provided thirty (30) days prior written notice to the owner it can take enforcement actions, including imposing civil penalties/fines, and removing the system and imposing a lien on the property to recover associated costs.

Decommissioning is the process for removing an abandoned solar panel system and remediating the land.

- When describing requirements for decommissioning sites, it is possible to specifically require the removal of infrastructure, disposal of any components, and the stabilization and re-vegetation of the site.

1.1 Decommissioning Plans

Local governments may require having a plan in place to remove solar panel systems at the end of their lifecycle, which is typically 20-40 years. A decommissioning plan outlines required steps to remove the system, dispose of or recycle its components, and restore the land to its original state. Plans may also include an estimated cost schedule and a form of decommissioning security (see Table 1).

²² Town of Geneva, N.Y. CODE § 130-4(D)(5) (2016):

1.2 Estimated Cost of Decommissioning

Given the potential costs of decommissioning and land reclamation, it is reasonable for landowners and local governments to proactively consider system removal guarantees. A licensed professional engineer, preferably with solar development experience, can estimate decommissioning costs, which vary across the United States. Decommissioning costs will vary depending upon project size, location, and complexity. Table 1 provides an estimate of potential decommissioning costs for a ground-mounted 2-MW solar panel system. Figures are based on estimates from the Massachusetts solar market. Decommissioning costs for a New York solar installation may differ. Some materials from solar installations may be recycled, reused, or even sold resulting in no costs or compensation. Consider allowing a periodic reevaluation of decommissioning costs during the project’s lifetime by a licensed professional engineer, as costs could decrease, and the required payment should be reduced accordingly.

Table 1: Sample list of decommissioning tasks and estimated costs

Tasks	Estimated Cost (\$)
Remove Rack Wiring	\$2,459
Remove Panels	\$2,450
Dismantle Racks	\$12,350
Remove Electrical Equipment	\$1,850
Breakup and Remove Concrete Pads or Ballasts	\$1,500
Remove Racks	\$7,800
Remove Cable	\$6,500
Remove Ground Screws and Power Poles	\$13,850
Remove Fence	\$4,950
Grading	\$4,000
Seed Disturbed Areas	\$250
Truck to Recycling Center	\$2,250
Current Total	\$60,200
Total After 20 Years (2.5% inflation rate)	\$98,900

This may be from 2017.
It may be misleading.
This is does not include storage.

2. Ensuring Decommissioning

Landowners and local governments can ensure appropriate decommissioning and reclamation by using financial and regulatory mechanisms. However, these mechanisms come with tradeoffs. Including decommissioning costs in the upfront price of solar projects increases overall project costs, which could discourage solar development. As a result, solar developers are sometimes hesitant to provide or require financial surety for decommissioning costs.

It is also important to note that many local governments choose to require a financial mechanism for decommissioning. Although similar to telecommunications installations, there is no specific authority to do so as part of a land use approval for solar projects (see Table 2). Therefore, a local government should consult their municipal attorney when evaluating financial mechanisms.

The various financial and regulatory mechanisms to decommission projects are detailed below.

Table 2: Relevant Provisions of General City, Town, and Village Laws Relating to Municipal Authority to Require Conditions, Waivers, and Financial Mechanisms

Site Plan Review	General City Law	Town Law	Village
Conditions	27-a (4)	274-a (4)	7-725-a (4)
Waivers	27-a (5)	274-a (5)	7-725-a (5)
Performance bond or other security	27-a (7)	274-a (7)	7-725-a (7)
Subdivision	General City Law	Town Law	Village Law
Waivers	33 (7)	277 (7)	7-730 (7)
Performance bond or other security	33 (8)	277 (9)	7-730 (9)
Special	General City Law	Town Law	Village Law
Conditions	27-b (4)	274-b (4)	7-725-b (4)
Waivers	27-b (5)	274-b (5)	7-725-b (5)

Source: Referenced citations may be viewed using the NYS Laws of New York Online

Excerpts from these statutes are also contained within the “Guide to Planning and Zoning Laws of New York State,” New York State Division of Local Governments Services, June 2011: https://www.dos.ny.gov/lg/publications/Guide_to_planning_and_zoning_laws.pdf

2.1 Financial mechanisms

Decommissioning Provisions in Land-Lease Agreements. If a decommission plan is required, public or private landowners should make sure a decommissioning clause is included in the land-lease agreement. This clause may depend on the decommissioning preferences of the landowner and the developer. The clause could require the solar project developer to remove all equipment and restore the land to its original condition after the end of the contract, or after generation drops below a certain level, or it could offer an option for the landowner to buy-out and continue to use the equipment to generate electricity. The decommissioning clause should also address abandonment and the possible failure of the developer to comply with the decommissioning plan. This clause could allow for the landowner to pay for removal of the system or pass the costs to the developer.

Decommissioning Trusts or Escrow Accounts. Solar developers can establish a cash account or trust fund for decommissioning purposes. The developer makes a series of payments during the project’s lifecycle until the fund reaches the estimated cost of decommissioning. Landowners or third-party financial institutions can manage these accounts. Terms on individual payment amounts and frequency can be included in the land lease.

Removal or Surety Bonds. Solar developers can provide decommissioning security in the form of bonds to guarantee the availability of funds for system removal. The bond amount equals the decommissioning and reclamation costs for the entire system. The bond must remain valid until the decommissioning obligations have been met. Therefore, the bond must be renewed or replaced if necessary to account for any changes in the total decommissioning cost.

Letters of credit. A letter of credit is a document issued by a bank that assures landowners a payment up to a specified amount, given that certain conditions have been met. In the case that the project developer fails to remove the system, the landowner can claim the specified amount to cover decommissioning costs. A letter of credit should clearly state the conditions for payment, supporting documentation landowners must provide, and an expiration date. The document must be continuously renewed or replaced to remain effective until obligations under the decommissioning plan are met.

2.2 Nonfinancial mechanisms

Local governments can establish nonfinancial decommissioning requirements as part of the law. Provisions for decommissioning large-scale solar panel systems are similar to those regulating telecommunications installations, such as cellular towers and antennas. The following options may be used separately or together.

- **Abandonment and Removal Clause.** Local governments can include in their zoning code an abandonment and removal clause for solar panel systems. These cases effectively become zoning enforcement matters where project owners can be mandated to remove the equipment via the imposition of civil penalties and fines, and/or by imposing a lien on the property to recover the associated costs. To be most effective, these regulations should be very specific about the length of time that constitutes abandonment. Establishing a timeframe for the removal of a solar panel system can be based on system aesthetics, size, location, and complexity. Local governments should include a high degree of specificity when defining “removal” to avoid ambiguity and potential conflicts
- **Special Permit Application.** A local government may also mandate through its zoning code that a decommissioning plan be submitted by the solar developer as part of a site plan or special permit application. Having such a plan in place allows the local government, in cases of noncompliance, to place a lien on the property to pay for the costs of removal and remediation.
- **Temporary Variance/Special Permit Process.** As an alternative to requiring a financial mechanism as part of a land use approval, local governments could employ a temporary variance/special permit process (effectively a re-licensing system). Under this system, the locality would issue a special permit or variance for the facility for a term of 20 or more years; once expired (and if not renewed), the site would no longer be in compliance with local zoning, and the locality could then use their regular zoning enforcement authority to require the removal of the facility.

2.3 Examples of abandonment and decommissioning provisions

The New York State Model Solar Energy Law provides model language for abandonment and decommissioning provisions in the Model Law section of this Guidebook.

The following provide further examples that are intended to be illustrative and do not confer an endorsement of content:

- Town of Geneva, N.Y., § 130-4(D): ecode360.com/28823382
- Town of Olean, N.Y., § 10.25.5: <https://www.cityofolean.org/council/minutes/ccmin2015-04-14.pdf>

2.4 Checklist for Decommissioning Plans

The following items are often addressed in decommissioning plans requirements:

- Defined conditions upon which decommissioning will be initiated (i.e., end of land lease, no operation for 12 months, prior written notice to facility owner, etc.).
- Removal of all nonutility owned equipment, conduit, structures, fencing, roads, and foundations.
- Restoration of property to condition prior to solar development.
- The timeframe for completion of decommissioning activities.
- Description of any agreement (e.g., lease) with landowner regarding decommissioning.
- The party responsible for decommissioning.
- Plans for updating the decommissioning plan.
- Before final electrical inspection, provide evidence that the decommissioning plan was recorded with the Register of Deeds.

Questions?

If you have any questions regarding the decommissioning of solar panels, please email questions to cleanenergyhelp@nyscrda.ny.gov or request free technical assistance at nyscrda.ny.gov/SolarGuidebook. The NYSERDA team looks forward to partnering with communities across the state to help them meet their solar energy goals.

Appendix 4

DECOMMISSIONING PERFORMANCE BOND



Decommissioning Bond for Oak Hill Solar November 12, 2021

Bond No. _____

Where is surety bond mentioned in EMERGENCY Decom Plan for Battery Storage?

Know All by These Presents,

That we, _____
("Principal"), as Principal, and Endurance Assurance Corporation, a New York corporation ("Surety"), as Surety, are held and firmly bound unto _____ ("Obligee"), in the maximum penal sum of _____ (\$ _____) (Maximum Penal Sum) for the payment of which we, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

WHEREAS, the Principal has entered into a certain agreement known as the _____ ("Agreement") with the Obligee, dated the _____ day of _____, 20__, for the decommissioning of a _____ facility in _____, which is hereby referred to and made a part hereof as if fully set forth herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal shall well and truly keep, do and perform each and every, all and singular, the matters and things in said Agreement set forth and specified to be by said Principal kept, done and performed, at the times and in the manner in said Agreement specified, or shall pay over, make good and reimburse to the above named Obligee, all loss and damage which said Obligee may sustain by reason of failure or default on the part of said Principal so to do, then this obligation shall be null and void; otherwise shall remain in full force and effect, subject, however, to the following conditions:

- 1) In the event the Principal, fails to undertake and complete Decommissioning as defined in the Agreement and the attached decommissioning plans, the Obligee may make a claim against this bond.
- 2) In no event, shall the liability of the Surety exceed the Maximum Penal Sum to the Obligee, regardless of the number of years this bond is extended or renewed.
- 3) The Surety's obligation under this bond shall arise after the Principal fails to complete Decommissioning as defined in the Agreement and the attached decommissioning plans. Upon notice of the Principal's default under the Agreement the Surety may take one of the following actions:
 - a) With the consent of the obligee, Arrange for the Principal's performance under the Agreement; or,
 - b) Undertake and perform decommissioning itself, or through its agents or its experienced, qualified and independent contractors, in accordance with the terms and conditions of the Agreement and the attached decommissioning plans; or,
 - c) Waive its right to perform and complete decommissioning under the Agreement, and after investigation, determine the amount for which it may be liable to the Obligee, as the case may be, and as soon as practicable after the amount is determined and agreed to by Obligee, tender payment therefore to the Obligee, as the case may be.

NOTWITHSTANDING ANYTHING CONTAINED IN THE AGREEMENT TO THE CONTRARY, THE LIABILITY OF THE PRINCIPAL AND SURETY UNDER THIS BOND IS LIMITED TO THE TERM BEGINNING THE _____ DAY OF _____, 20__, AND ENDING THE _____ DAY OF _____, 20__, AND ANY EXTENSIONS OR RENEWALS OF THE REFERENCED AGREEMENT SHALL BE COVERED UNDER THIS BOND ONLY WHEN CONSENTED TO IN WRITING BY THE SURETY. IT IS FURTHER AGREED THAT REFUSAL BY THE SURETY TO EXTEND THE TERM OF THIS BOND SHALL NOT CONSTITUTE A DEFAULT BY THE PRINCIPAL, AND SHALL NOT GIVE RISE TO A CLAIM OR DEMAND AGAINST THE SURETY UNDER THIS BOND. IN THE EVENT THE SURETY ELECTS NOT TO RENEW THIS BOND, THE SURETY SHALL PROVIDE THE OBLIGEE WITH AT LEAST SIXTY (60) DAYS WRITTEN NOTICE PRIOR TO ANY ANNUAL RENEWAL OF THE SURETY'S INTENT TO TERMINATE THIS BOND.

Such termination or cancellation shall not affect any liability incurred or accrued under this bond prior to the effective date of such termination or cancellation.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Obligee named herein, as the case may be, or their heirs, executors, administrators or successors of the Obligee, as the case may be.

By: _____

Endurance Assurance Corporation

By: _____

_____, Attorney-in-Fact

Appendix 5
FORM OF BOND EMAIL CORRESPONDENCE

Attorney Emails



Appendix 6

BATTERY ENERGY STORAGE SYSTEM-SPECIFIC DECOMMISSIONING PLAN

Provide NYSERDA Battery Energy Guidelines

BATTERY ENERGY STORAGE SYSTEM-SPECIFIC
DECOMMISSIONING PLAN

[REDACTED] HILL SOLAR 1 LLC & [REDACTED] HILL SOLAR 2 LLC

Legal Street Address for BOTH projects

[REDACTED] DUANESBURG ROAD

TOWN OF DUANESBURG

SCHENECTADY COUNTY, NEW YORK

JULY 2021

REVISED NOVEMBER 2021

Month Day, Year

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APPENDIX

Appendix 1 – Site Location Map

Appendix 2 – BESS Specific Breakdown of Decommissioning Costs

Footnote every page with Month Day Year Revision Number

“two proposed 5 MWac community solar electric generating facilities” this is used in 2019. Battery Energy Storage was not disclosed in the 2019 Application for Oak Hill Solar.

1.0 Introduction

This description, paragraph, should match the 1st paragraph of the decom agreement in this 34 page document.

Oak Hill Solar 1 LLC Oak Hill Solar 2 LLC (the “Applicant”), a New York limited liability company, hereby submits this plan for the eventual decommissioning of the Battery Energy Storage System (BESS) specific materials within two proposed 5 MWac community solar electric generation facilities located at 10000 Duanesburg Road, Delanson, NY 12053, in the Town of Duanesburg (the “Town”) within Schenectady County in New York State (the “Projects”) and the establishment of a decommissioning fund (the “Decommissioning Fund”) for review as part of the “Solar Energy Facilities Law” as adopted by the Town of Duanesburg through Resolution NO. 107-2016 (the “Solar Bylaw”), before the planning board of the Town of Duanesburg (the “Board”).

Can arrays be removed and only storage remain?

Can storage be removed and only arrays remain?

A site location plan is provided in Appendix 1 for reference.

2.0 Decommissioning Activities

Four containers that are in excess of 50 feet in length containing battery energy storage systems. If the Owner/Operator adds any battery storage beyond the agreed upon four (4) containers the Owner/Operator must file a Ammedment with the Board prior to installation.

The Projects are anticipated to operate for 25-40 years. At the time the Projects cease to operate, Applicant will perform full site decommissioning which shall include removal of all energy facilities, structures and equipment including any subsurface wires and footings from the parcel. Any access roads created for building or maintaining the system shall also be removed from the project site, unless being reused or repurposed for another project, shall be recycled in accordance with all applicable New York State policies and procedures in effect at the time of decommissioning.

storage

or disposed of

Further, decommissioning will include restoring the property to its pre-installed condition, including grading and vegetative stabilization to eliminate any negative impacts to surrounding properties. Specifically, such decommissioning shall include, but is not limited to, physical removal of all ground-mounted solar collectors, structures, equipment, security barriers and transmission lines from the site.

This proposal is “baterly storage specific”. If BESS fails will the arrays, transformers, fence , ect also be removed? Site decommissioning activities are included in a separate decommissioning plan. Decommissioning activities specific to this decommissioning plan includes removal and recycling of the BESS containers and associated DC-DC converters, removal of their concrete pads, and restoration of the ground area impacted by these specific items. Each Project contains two BESS areas that will need to be decommissioned.

3.0 Cost of Decommissioning

\$177,049.50 to decom each 9-MWh of BESS

Review Flint Mine and KCE storage projects

The inclusive cost to decommission the BESS areas within both Projects, as defined in Section 2 as specific to this decommissioning plan herein, is estimated at \$354,099 (the “Estimated Decommissioning Cost”) as detailed in Appendix 2.

Is this adequate?

4.0 Establishment of Decommissioning Fund

The Decommissioning Fund will be funded with a surety bond that is solely for the benefit of the Town. No other entity, including Applicant, shall have the ability to demand payment under the

NYSERDA has four (4) contracts with Oak Hill Solar. Should there be a Decom Agreement for each array and a decom for each battery storage? Can they be sold separately? Is there a possibility of multiple owners?

Is Applicant attempting to leave infrastructure on site claiming another Applicants power plant may be installed and use the old infrastrcuture ?

Would new power plant require new Special Use Permit?

Should all infrastruture be removed and new Special Use Permit Application be submitted?

Decommissioning Fund. A decommissioning performance is attached to this plan as Appendix 4. The approved financial security shall be in place and filed with the Board upon commencement of construction.

Every five years and for the Project's life, Applicant shall file a report with the Board on the effect of the annual inflation adjustment, as noted above, including a Revised Estimated Decommissioning Cost. If the Revised Estimated Decommissioning Cost exceeds the then current Estimated Decommissioning Cost, Applicant shall create a new or amended Bond (or other appropriate financial security) to be issued to reflect the Revised Estimated Decommissioning Cost. In the event the CPI has a negative value at the time the annual adjustment is calculated, the value of the Bond (or other appropriate financial security) shall not be reduced.

What is "useful life"? Is Can I still required to address the Board in 20 years? 40 years?

At the end of the Project's useful life, and in the event the Applicant does not seek Board approval to repower the Project, Applicant will decommission the Project as required under the Board's Solar Bylaw. Upon completion of decommissioning, Applicant shall seek a certification of completion from the Board. The certification will be provided to the issuing bank with instruction to terminate the Bond (or another appropriate financial security).

Solar Bylaw at time of decommissioning or Bylaw at time of Decomm?

The Board shall have the right to draw on the Bond (or other appropriate financial security) to pay the costs of decommissioning in the event that Applicant (or its successor) is unable or unwilling to commence decommissioning due to dissolution, bankruptcy, or otherwise, Prior to the Board drawing on the Bond (or other appropriate financial security), Applicant shall have a reasonable period of time to commence decommissioning, not to exceed ninety days following issuance of a Board order requiring decommissioning of the Project.

What happens if Decom Funds are insufficient? Can town hold owner responsible?

The decommissioning fund described in this decommissioning plan is for the BESS specific items and does not include the site decommissioning. A site-specific decommissioning fund will be established.

How does Town learn of dissolution or bankruptcy?

5.0 Demolition Instructions

solar array and site decomm.

The following is the sequential procedure that should be followed by the Town for removal of the BESS specific items pursuant to this plan. Note that site decommissioning demolition instructions are established in the site decommissioning plan.

5.1 Project Component Removal

The DC-DC converters will be removed from their concrete pads. Their electronic components and internal cables will be removed. These components will be lowered to the ground where they will be transported whole for reconditioning and reuse or disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components.

How are soil and ground waters protected if equipment is cut up on site?

Will battery container have all batteries inside and intact in the container?

The BESS containers will be removed from their concrete pads. The BESS containers will be removed by crane and set on tractor trailers for transport. The containers will be transported to their manufacturing facility where they will be recycled. The battery recycling estimate is based

What is weight of container with stacks of batteries? How many batteries? Is weight of container acceptable to DOT? Can batteries be transported in the container? Are batteries removed and transported in a different manner than the container? Has anyone called DOT to learn the facts?

on an estimate provided by the battery system integrator.

What and where is battery system integrator?

5.2 Concrete Slab Removal

Concrete slabs used for the DC-DC converters and BESS containers will be broken and removed to a depth of two feet below grade. Clean concrete will be crushed and disposed of off-site and/or recycled and reused either on or off-site. The excavation will be filled with subgrade material found on-site of quality and compacted density comparable to the surrounding area.

Concrete can be left on site - what if there is contamination?

5.3 Site Restoration Process

The site consists of 65.2 acres of agricultural land. The area containing BESS specific equipment is approximately 5,000 square feet (0.11 acres). Following the decommissioning activities, the subgrade material, and topsoil from affected areas will be de-compacted and restored to a density and depth consistent with the surrounding areas. All unexcavated areas compacted by used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and subgrade material to the proper density consistent and compatible with the surrounding area.

Is soil and water tested at time of decommissioning? On site, at neighbors at wells?
How does town verify no contamination from Oak Hill Solar?

If the subsequent use for the Project site will involve agriculture, a deep till of the Project site will be undertaken. The affected areas will be inspected, thoroughly cleaned, and all construction related debris removed. Disturbed areas will be reseeded to promote the revegetation of the area unless the area is to be immediately redeveloped. In all areas restoration shall include, as reasonably required, levelling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure the establishment of suitable grasses and forbs, and to control noxious weeds and pests. The future use of the land for agricultural purposes would not be prejudiced.

Herbicides and Pesticides are permitted. Should limitations be established to protect soil, ground water and neighbors?

6.0 Emergency BESS Decommissioning

according to NYS laws

In the event of a BESS failure that requires emergency removal (such as a BESS container fire) the Applicant will be responsible for proper removal and disposal of the BESS system and any damaged equipment surrounding the BESS. The BESS equipment will be replaced in kind or equivalent at the Applicant's expense. If an equivalent BESS system is used as replacement the Town will be notified of the equivalent replacement. Additional training for the equivalent BESS system will be required and provided by the Applicant. The decommissioning fund does not include decommissioning costs and salvage value for emergency BESS decommissioning. The emergency decommissioning dollar value would be covered by the standard decommissioning surety. A revised surety will be posted prior to providing any new/replacement equipment under a post emergency event.

What does this "surety" mean? Explain like I'm five years old. Where is this document?

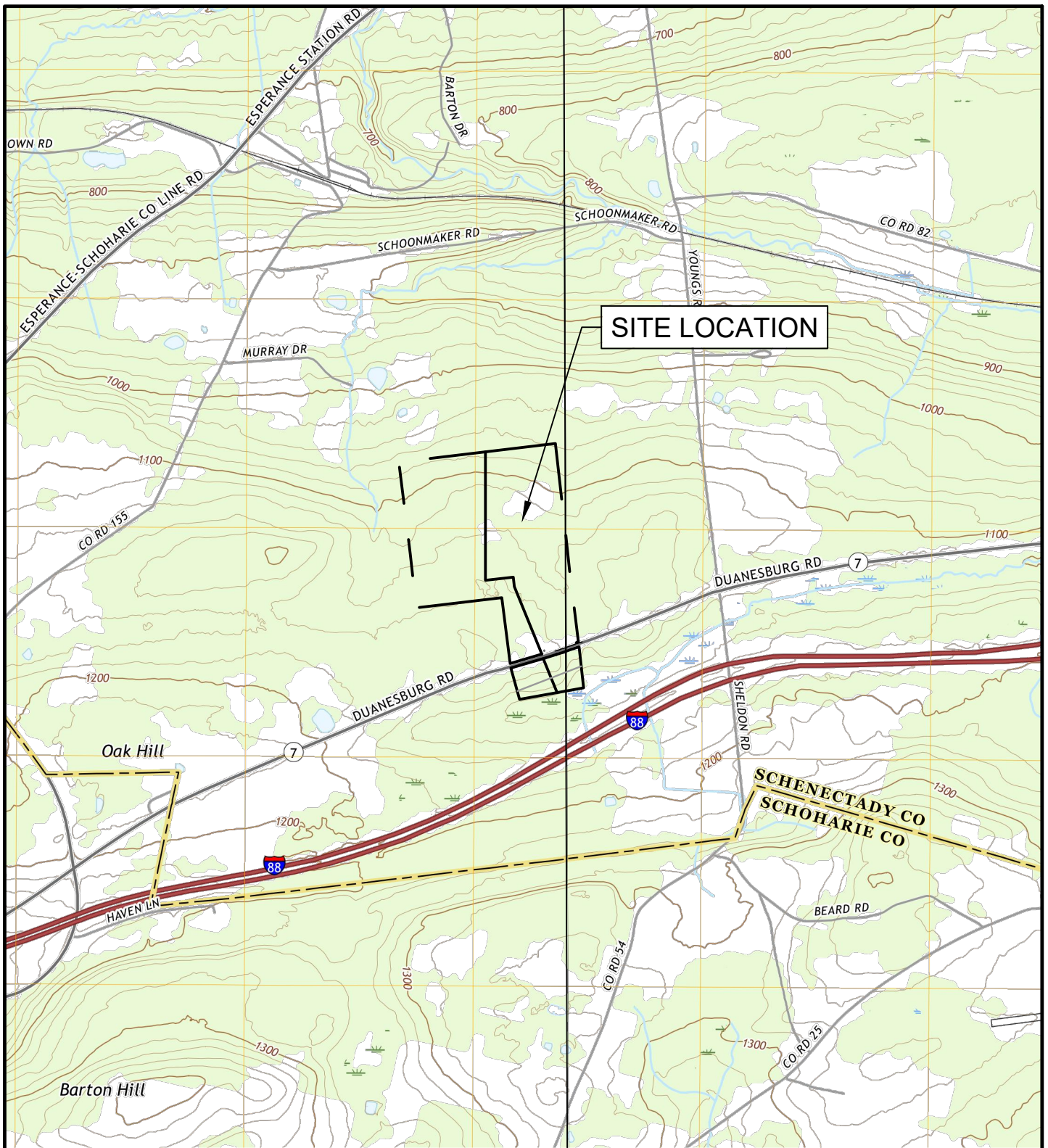
Is Oak Hill Solar required to obtain a NEW Special Use Permit if there is an emergency decommissioning?

Does Board review the new BESS prior to installation? Is there quality, health and safety control? Batteries may be replaced every 10 years.

Does the Board review the type, quality of new batteries installed at time of replacement?

How does this fit in with the two October 19, 2021 \$14,300,000 mortgages from CIT Bank?
Is the Town confident they have protected the residents from a toxic waste dump?

Appendix 1
Site Location Plan





Map Data Source: U.S. Geological Survey (USGS; <http://www.usgs.gov>)



SCALE: 1" = 2000'



Engineer 	Project Title  HILL 1 & 2 SOLAR FARM	USGS Quadrangle: GALLUPVILLE, NY SCHOHARIE, NY
	Drawing Description LOCATION MAP	Project Number: 05221002 Drawn By: THR Checked By: CWC Scale: 1" = 2000' Sheet Number:
		FIGURE 1

Will Powin Battery still be operating in 20 years In 40 years?

Appendix 2

BESS Specific Breakdown of Decommissioning Costs

Applicant submits this breakdown of the Estimated Decommissioning Cost to support the proposed decommissioning fund of \$354,099 for the BESS specific decommissioning for both Projects based on 2021 cost of work estimates following the NYSEDA guidance which is based on the estimated practices by the State of Massachusetts and New York Southeast scrap value prices.

Scrap value is speculation and should not be considered. The cost of disposal should be provided.

It should be further noted that while the Decommissioning Fund is established in the amount equal to the gross decommissioning costs of \$354,099, there will likely be significant salvage value that would make the net system decommissioning cost (site and BESS specific decommissioning) lower than the proposed Decommissioning Fund amount.

Towns do not understand the specialized field of scrap values, policies and procedures. Full value of disposal should be provided.

To better explain the potential salvage value for this Project we have completed a more detailed analysis of the current value of the BESS specific project components: DC-DC converter/steel content. Note that the BESS containers will be recycled by the manufacturing company and are not included in potential salvage value. The current published values for these materials can have a fairly large spread. For each item we chose the most conservative pricing available to assume current worst-case scenario. As you can see the current salvage value is less than the proposed decommissioning bond for the BESS specific work.

One Project or Two Projects?

Is Waste Disposal covered or just recycling?

Estimated Decommissioning Cost - BESS Specific					
Description	Type	Quantity	Cost Per Item	Total	Total after 25 Years of Inflation (2.5% rate)
Remove DC-DC Converters & Concrete Pads	Each	20	\$ 300.00	\$ 6,000.00	\$ 11,123.66
Remove BESS Containers & Concrete Pads	Each	4	\$ 5,000.00	\$ 20,000.00	\$ 37,078.88
Transport BESS Containers to Manufacturer For Recycling	Each	4	\$ 2,500.00	\$ 10,000.00	\$ 18,539.44
Site Restoration, Grade and Seed	Acre	0.11	\$ 900.00	\$ 99.00	\$ 183.54
..... Battery Recycling Estimate (per project)*	Each	2	\$ 159,000.00	\$ 318,000.00	\$ 589,554.22
Total Decommissioning Cost				\$ 354,099.00	\$ 656,479.75
Detailed Salvage Value					
DC-DC Converter Panels / Steel	Lbs	40684	\$ 0.08	\$ 3,254.73	
Total Salvage Value				\$ 3,254.73	
Proposed Decommissioning Fund				\$ 354,099.00	

* = The battery recycling estimate is based on an estimate provided by the battery system integrator.

What about waste disposal?

Are containers empty or full of batteries?

How many Dynapower DC-DC Couplers at each equipment pad?
Are there a combined total of 20 or 40 DC-DC Converters?

At no time should batteries be stored in Spare Parts Containers. If batteries are found in the spare parts containers the Permit is revoked and the Projects are immediately decommissioned.

How much do batteries weigh, what is distance from Duanesburg to Powin Headquarters in Oregon? Is \$2,500 per 53 feet long BESS container adequate?

Is container empty? If so how are batteries transported. Please review DPT regulations for transporting lithium-ion batteries.