DECOMMISSIONING PLAN

Mustang Mile Solar Energy Center

Lenawee County, Michigan OCTOBER 29, 2020

PREPARED FOR:



PREPARED BY:



Mustang Mile Solar Energy Center

Lenawee County, Michigan

Decommissioning Plan

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1.0 Decommissioning Plan

1.1 General

The following provisions are intended to ensure that facilities are properly removed after their useful life, abandonment, or termination of use. The plan includes provisions for removal of all structures and foundations, repairs to roads damaged by the solar facility operations and decommissioning, if any, restoration of the land to it's previous as agricultural condition, and a plan ensuring financial resources will be available to fully decommission the site according to the conditions described in Article VII, Section 7.03. The Contractors shall comply with requirements of all permits during the decommissioning process.

The Mustang Mile Solar Energy Center ("Mustang Mile" or the "Project") is a 150 MW new solar photovoltaic generation facility. The Project is being developed by Mustang Mile Solar Energy LLC, which is a wholly owned subsidiary of Invenergy Solar Development North America LLC, an affiliate of Invenergy LLC ("Invenergy"). The facility will use ground mounted, mono-crystalline, photo voltaic panels, located in Lenawee County, Michigan, south and southeast of Macon.

1.2 Decommissioning and Reclamation

Solar panels are expected to have a useful commercial lifespan of around 35 years. At the end of commercial operations, abandonment, or when the facility has not produced electricity for a continuous period of twelve (12) months, the Owner will be responsible for removal of all above ground equipment, underground equipment, and collection system cables shallower than a depth of 48 inches. The Owner will restore and reclaim the site to pre-construction condition, topsoil quality, and to an agricultural ready condition to the extent practical.

Decommissioning includes removing the solar panels, solar panel racking, steel foundation posts, inverters, transformers, overhead and underground cables and lines, equipment skids and foundations, equipment cabinets, and ancillary equipment. The civil facilities, access road, security fence, and any drainage structures are included in the scope. Repair of damage to public roads caused by the decommissioning activities is also included in the scope. Standard decommissioning practices will be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements.

After all equipment is removed, any holes or voids created by poles, piles, and other equipment will be filled in with soil to the surrounding grade and tilled to an agricultural ready condition consistent with the land use prior to construction of the solar facility, or at the direction of the landowner, seeded with seasonal grasses. All access roads and other areas compacted by equipment will be de-compacted to a depth of 18 inches from finished grade prior to fine grading.

1.3 List of Decommissioning Activities

1.3.1 Timeline

Decommissioning is estimated to take approximately 20 weeks to complete and the decommissioning crew(s) will ensure that all equipment and materials are recycled or disposed of properly.

1.3.2 Removal and Disposal of Site Components

The removal and disposal details of the site components are found below.

Modules: Modules will be inspected for physical damage, tested for functionality, and disconnected and removed from racking. Functioning modules will be packed and shipped to an offsite facility for reuse or resale. Non-functioning modules will be packed, palletized and shipped to the manufacturer or a third party for recycling or disposal.

Tracker Arrays: Tracker components will be disassembled and removed from the steel foundation posts, processed to appropriate size, and sent to a metal recycling facility.

Steel Foundation Posts: All structural foundation steel posts will be pulled out to full depth, removed, processed to appropriate size, and shipped to a recycling facility. During decommissioning, the area around the foundation posts may be compacted by equipment and, if compacted, the area will be de-compacted in a manner to adequately restore the topsoil and sub-grade material to a density consistent for vegetation.

Overhead and Underground Cables and Lines: Underground cables and conduits contain no materials known to be harmful to the environment. As part of the decommissioning of the project, all cable and conduit buried deeper than 48 inches, if any, will be left in place and abandoned. Cables which are shallower than 48 inches will be removed. Where underground cables are removed by trenching, topsoil will be segregated and stockpiled for later use prior to any excavation, and the subsurface soils will be staged next to the excavation. The subgrade will be compacted to a density of approximately 90 percent of Standard Proctor density. Topsoil will be redistributed across the disturbed area. Overhead lines will be removed from the project and taken to a recycling facility.

Inverters, Transformers, and Ancillary Equipment: All electrical equipment will be disconnected and disassembled. All parts will removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards.

Equipment Foundation and Ancillary Foundations: The ancillary foundation for Mustang Mile Solar are pile foundations for both equipment skids and met towers. As with the solar array steel foundation posts, the foundation piles will be pulled out completely. Duct banks will be excavated to a depth sufficient to remove all conduits, cables, etc. to a depth of 48 inches below grade, depending on land use. The remaining excavation will be filled with clean subgrade materials of quality comparable to the immediate surrounding area. All unexcavated areas compacted by equipment used in decommissioning will be de-compacted in a manner to adequately restore the topsoil and sub-grade material to a density of approximately 90 percent of Standard Proctor density. All materials will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at the owner's sole discretion, consistent with applicable regulations and industry standards.

Fence: All fence parts and foundations will be removed from the site and sold as scrap, recycled, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards. The surrounding areas will be restored to pre-construction conditions to extent feasible.

Access Roads: Facility access roads will be used for decommissioning purposes, after which removal of roads will be discussed with the Landowner, using the following process:

1) After final clean-up, roads may be left intact through mutual agreement of the landowner and the owner unless otherwise restricted by federal, state, or local regulations.

2) If a road is to be removed, aggregate will be removed and shipped from the site to be reused, sold, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards. Clean aggregate can often be used as "daily cover" at landfills for no disposal cost. All internal service roads are constructed with six inches of aggregate over compacted subgrade. Any ditch crossing connecting access road to public roads will be removed unless the landowner requests it remain. The subgrade will be de-compacted to a depth of approximately 18 inches using a chisel plow or other appropriate subsoiling equipment. All rocks larger than four inches will be removed. Topsoil that was stockpiled during the original construction will be distributed across the open area. The access roads and adjacent areas that are compacted by equipment will be de-compacted.

Public Roads: Damage to public roads will be repaired using a procedure similar to that used to determine the pre-decommissioning and post-decommissioning road conditions used prior to construction of the solar facility.

1.3.3 Restoration/Reclamation of Site

The Owner will restore and reclaim the site to approximately the pre-construction condition consistent with the site lease agreement, and in accordance with the current draft Ordinance to amend the Macon Township Zoning Code to facilitate Solar Energy Facilities. The Owner assumes that most of the site will be returned to agricultural land and/or pasture after decommissioning, and will implement appropriate measures to facilitate such uses. If no specific use is identified, the Owner will till the site to an agricultural ready condition. The goal of restoration will be to restore natural hydrology and plant communities to the greatest extent practicable while minimizing new disturbance and removal of native vegetation. The decommissioning effort will implement best management practices (BMP's) to minimize erosion and to contain sediment on the Project to the extent practicable with the intent of meeting this goal include:

1. Minimize new disturbance and removal of native vegetation to the greatest extent practicable.

2. Removal of solar equipment and access roads up to four (4) feet below surrounding grade, backfill with subgrade material and cover with suitable topsoil to allow adequate root penetration for plants, and so that subsurface structures do not substantially disrupt ground water movements.

3. Any topsoil that is removed from the surface for decommissioning will be stockpiled to be reused when restoring plant communities. Once decommissioning activity is complete, topsoil will be re-spread to assist in establishing and maintaining plant communities.

4. Stabilize soils and returning them to agricultural ready condition according to the landowner direction.

5. During and after decommissioning activities, install erosion and sediment control measures, such as silt fences, bio-rolls, and ditch checks in all disturbance areas where potential for erosion and sediment transport exists, consistent with storm water management objectives and requirements.

6. Remediate any petroleum product leaks, chemical releases, or any other environmental contamination caused by the project prior to completion of decommissioning.

7. Minimize and repair any damage to existing drain tile.

8. Remove concrete foundations.

Decommissioning and restoration activities at each site will be completed within 12 months after the end of commercial operations or abandonment.

1.4 Post-Restoration Monitoring

Decommissioning of the site will comply with permits for NPDES Construction General Permit for stormwater discharge, Spill Containment and Countermeasure (SPCC) Plan, and SWPPP, if grading activities are necessary and exceed applicable permit thresholds. Decommissioning may include post-restoration monitoring as required by the NPDES Permit and SWPPP and other applicable requirements

1.5 Estimated Net Decommissioning Costs

The decommissioning costs are calculated using current pricing. In keeping with the requirements of many jurisdictions the estimate of net costs should be updated periodically to recognize price trends for both decommissioning costs and the salvage and resale values of the components. This estimate is based on the first five years of operation. Subsequent revisions to the decommissioning plan and cost estimate may

be required based on changes in construction techniques and technology, and changing material scrap or resale values.

There are currently active markets for scrap steel, aluminum, copper, used transformers and electrical equipment, and used solar panels. Scrap metal prices have been discounted from posted spot prices found on www.scrapmonster.com. Pricing for used panels has been discounted from prices received from We Recycle Solar for a similar project. The pricing of the used panels has incorporated the degradation from five years of use as warrantied by the manufacturer (not more than 0.5 percent per year).

The estimated cost for decommissioning is approximately \$14,477,000. Salvage and resale value is estimated as approximately \$11,275,000, resulting in a net cost of approximately \$3,202,000.

For additional detail on the assumptions made see Section 1.6.

Cost estimate on next page:

Mustang Mile Solar Project

	Quantity	Unit	Unit Cost	Total Cost
Mobilization/Demobilization	1	Lump Sum	\$848,400.00	\$848,400
Mobilization was estimated to be approximately 7% of total cost of ot	her items.			
Permitting				
State Dermite	1	Lancer Sur	¢10,000,00	¢10.000
Subtotal Dormitting	1	Lump Sum	\$10,000.00	\$10,000
Decommissioning will require a SWPPP and SPCC plan, cost is an estin	anto of the r	ormit proportion		\$10,000
becommissioning win require a swere and seccipian, cost is an estin	nate of the p	bermit preparation	LUSI	
Civil Infrastructure				
Removal Gravel Surfacing from Road	18,313	Cubic Yards (BV)	\$3.88	\$70,974
Haul Gravel Removed from Road (Adrian, MI)	22,892	Cubic Yards (LV)	\$5.32	\$121,785
Disposal of Gravel Removal from Road	29,668	Tons	\$0.00	\$0
Remove and Load Culvert from Beneath Access Roads	6	Each	\$448.00	\$2,688
Haul Culvert Removed from Access Roads	2	Tons	\$5.32	\$13
Disposal of Culverts (Adrian, MI)	2	Tons	\$74.00	\$178
Grade Road Corridor (Re-spread Topsoil)	61,808	Linear Feet	\$1.56	\$96,702
Decompaction on Road Area	34.05	Acres	\$418.71	\$14,259
Removal of Security Fence	134,174	Linear Feet	\$6.00	\$805,044
Subtotal Civil Infrastructure				\$1,111,643
Structural Infrastructure				
Removal Array Steel Foundation Posts	74,863	Each	\$12.91	\$966,269
Haul Array Steel Post (Adrian, MI)	5,433	Tons	\$7.00	\$38,033
Haul Drive Motor Posts	594	Tons	\$7.00	\$4,161
Removal of Tracker Row Racking	6,192	Each	\$184.65	\$1,143,300
Haul Tracker Row Racking (Adrian, MI)	13,318	Ton	\$7.00	\$93,225
Subtotal Structural Infrastructure			-	\$2,244,988
Hauling calculations are based on the locations of metals recyclers.				
Electrical Collection/Transmission System				
Removal of PV Panels	439,318	Each	\$5.27	\$2,315,573
Haul PV 95% of Panels to Reseller (Westchester County, NY)	16,562	Tons	\$182.70	\$3,025,824
Haul 5% of PV Panels for Disposal (Adrian, MI)	872	Tons	\$74.00	\$64,503
Removal of Combiner Boxes	516	Each	\$60.00	\$30,960
Removal of Equipment Skids	43	Each	\$4,000.00	\$172,000
Haul Equipment Skids to Recycler (Westland, MI)	639	Tons	\$12.04	\$7,688
Removal of Scada Equipment	1	Each	\$5,000.00	\$5,000
Removal of DC Collector System Cables (copper)	193.3	PerMW	\$3,000.00	\$579,900
Removal of Underground (AC) Collector System Cables	193.3	Per MW	\$5,000.00	\$966,500
Load and Haul Cables for Recycling	417.5	Ton	\$9.00	\$3,758
Removal of Fiber Optic Cable	193.3	Per MW	\$1,000.00	\$193,300
Subtotal Electrical Collection/Transmission System			-	\$7,365,006

Electrical removal costs of PV Panels and Combiner Boxes were based industry standards on installation

rates of a two man work crew. PCU Station, MV Equipment and Scada Equipment removal cost are based on removal of equipment, concrete pads, and conduits using a truck mounted crane and contractor provided information on installation rates.

Substation				
Disassembly and Removal of Main Power Transformer(s)	1	Each	\$4,500.00	\$4,500
Freight Transformer(s) Offsite	1	Each	\$2,580.00	\$2,580
Disposal of Transformer (Including Oil)	1	Each	\$0.00	\$0
Excavate Around Transformer Foundation(s)	1	Each	\$1,946.00	\$1,946
Remove Transformer and ancillary Foundations	1	Each	\$14,300.00	\$14,300
Backfill Excavation Area from Transformer Foundation Removal	1	Each	\$568.50	\$569
Haul Concrete (Transformer, Switch Gear, etc. Foundations)	340	Tons	\$5.32	\$1,809
Disposal of Concrete from Transformer Foundation	340	Tons	\$74.00	\$25,160
Demolish Substation Site Improvements (fences, etc)	1	LS	\$3,500.00	\$3,500
Demolish Control Building and Foundation	1	LS	\$12,000.00	\$12,000
Remove Medium/High Voltage Equipment	1	LS	\$3,500.00	\$3,500
Remove Structural Steel Substation Frame	1	LS	\$3,500.00	\$3,500
Haul - Demolition Materials, Removed Equipment & Structural Steel	80	Tons	\$5.32	\$426
Disposal of Demolition Materials, Removed Equipment & Structural Stl.	80	Tons	\$74.00	\$5,920
Remove and Load Gravel Surfacing from Substation Site	73,778	Cubic Yards (BV)	\$3.88	\$285,926
Haul Gravel Removed from Substation Site	9 2,222	Cubic Yards (LV)	\$5.32	\$490,622
Disposal of Gravel from Substation Site	119,520	Tons	\$0.00	\$0
Grade Substation Site	273,900	SF	\$0.07	\$17,856
Decompact Substation Site (Subsoiling)	6.29	Acres	\$418.71	\$2,633
Topsoil and Revegetation at Substation Site	6.29	Acres	\$8,445.60	\$53,105
Subtotal Substation			_	\$929,850
O&M Building - Assume resale of building				
Demolish O&M Building and Foundation	1	Lump Sum	\$35,000.00	\$35,000
Demolish O&M Site Improvements (fences, etc)	1	Lump Sum	\$3,000.00	\$3,000
Haul Concrete (O&M Building Foundation)	164	, Cubic Yards	\$5.32	\$875
Disposal of Concrete from O&M Building Foundation	334	Tons	\$75.00	\$25,037
Cap and Abandon Well	1	Lump Sum	\$2,000.00	\$2,000
Remove & Restore Septic and Drainfield area	1	Lump Sum	\$3,000.00	\$3,000
Disposal of O&M Building Demolition and Removed Site Improvements	1	Lump Sum	\$2,500.00	\$2,500
Remove and Load Gravel Surfacing of O&M Site	2,202	Cubic Yards (BV)	\$3.88	\$8,535
Haul Gravel Removed from O&M Site	2,753	Cubic Yards (LV)	\$5.32	\$14,645
Disposal of Gravel from O&M Site	3,568	Tons	\$0.00	\$0
Decompact O&M Building Site	2.73	Acres	\$418.71	\$1,143
Grade O&M Building Site	118,919	SF	\$0.07	\$7,752
Topsoil and Turf Establishment at O&M Building Site	2.73	Acres	\$8,445.60	\$23,056
Subtotal O&M Building			_	\$126,543

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DECOMMISSIONING PLAN

Site Restoration				
Stabilized Construction Entrance	9	Each	\$2,000.00	\$18,000
Perimeter Controls (Erosion and Sediment Control)	13,000	Linear Feet	\$1.71	\$22,230
Till to Farmable Condition on area within Removed Array	1,229	Acres	\$236.80	\$291,027
Subtotal Site Restoration				\$331,257
Project Management				
Project Manager	20	Weeks	\$3,800.00	\$76,000
Superintendent	20	Weeks	\$3,525.00	\$70,500
Field Engineer	20	Weeks	\$2,325.00	\$46,500
Clerk	20	Weeks	\$750.00	\$15,000
Subtotal Project Management			•	\$193,000
Standard industry weekly rates from RS Means. 20 week schedule us	sed			
Subtotal Demolition/Removals			•	\$13,160,687
Contingency (10%)				\$1,316,069
Total Demolition/Removals				\$14,476,756
Salvage				
Fencing	671	Tons	\$153.75	\$103,146
Steel Posts	6,028	Tons	\$153.75	\$926,749
Module Racking	13,318	Tons	\$153.75	\$2,047,629
PV Modules	417,352	Each	\$16.81	\$7,014,857
Transfomers and Inverters	1,277,100	Pounds	\$0.25	\$316,082
Substation Transformers (Metals)	200,000	Pounds	\$0.25	\$49,500
Transformers (Oil)	25,735	Gallons	\$0.70	\$18,015
DC Collection Lines	584,539	Pounds	\$1.13	\$661,991
AC Collection Lines	250,517	Pounds	\$0.55	\$137,158
Salvage values are a combination of the following factors; current m	narket metal sal	vage prices, curre	nt secondary m	arket
for solar panel module recycling, discussions with national compani	es that speciali:	ze in recycling and	d reselling elec	trical
transformers and inverters, and the assumption that care is taken to	prevent any da	image or breakag	e of equipment	t.

Subtotal Salvage	\$11,275,127
Total Demolition Minus Salvage	\$3,201,629

Notes:

1. Prices used in analysis are estimated based on research of current average costs and salvage values.

2. Prices provided are estimates and may fluctuate over the life of the project.

3. Contractor means and methods may vary and price will be affected by these.

1.6 Decommissioning Assumptions

To develop a cost estimate for the decommissioning of the Mustang Mile Solar Project, Westwood engineers made the following assumptions and used the following pricing references: Costs were estimated based on current pricing, technology, and regulatory requirements. The assumptions are listed in order from top to bottom of the estimate spreadsheet. We developed time and material based estimates considering composition of work crews and equipment and material required using RS Means data. When materials have a salvage value at the end of the project life, the construction activity costs and from the hauling/freight cost are separated from the disposal costs or salvage value to make revisions to salvage values more transparent.

- 1. Decommissioning year is based on a 5 year initial period for the financial security. The projected life of the project is 35 years.
- 2. This Cost Estimate is based on the Site Plan dated 10/16/20.
- 3. A project of this size and complexity requires a full time project manager or support staff.
- 4. Common labor will be used for the majority of the tasks except for heavy equipment operation. Since DOT unit prices are used, where possible, the labor rates will reflect union labor rates, including the rates determined from RS Means data.
- 5. Mobilization was estimated at approximately 7% of total cost of other items.
- 6. Permit applications required include the preparation of a Storm Water Pollution Protection Plan (SWPPP) and a Spill Prevention Control and Countermeasure (SPCC) Plan.
- 7. Road gravel removal was estimated on a time and material basis using a 16 foot width and an 8 inch thickness for the access roads. Substation aggregate is included in the substation quantities, and O&M facility gravel is included in the O&M facility. Since the material will not remain on site, a hauling cost is added to the removal cost. Road aggregate can often be disposed of by giving to landowners for use on driveways and parking areas. Many landfills will accept clean aggregate for use as "daily cover" and do not charge for the disposal.
- 8. Grade Road Corridor reflects the cost of mobilizing and operating light equipment to spread and smooth the topsoil stockpiled on site to replace the aggregate removed from the road.
- 9. Erosion and sediment control for road removal is included in the costs for erosion and sediment control for the site.
- 10. Topsoil is required to be stockpiled on site during construction, therefore this top soil is available on site to replace the road aggregate removed. Subsoiling cost to decompact roadway, areas is estimated as \$418 per acre (based on state DOT bid prices for Subsoiling). The majority of the project area is tilled to an agricultural ready condition since the decommissioning activities are not expected to eliminate the existing grasses and vegetation under the arrays or heavily compact the soils. The cost for tilling to an agricultural ready condition is included in Site Restoration.
- 11. Fence removal includes loading, hauling, and recycling or disposal. Fence and posts weigh approximately 10 pounds per foot.
- 12. Array support posts are lightweight "I" beam sections installed with a piece of specialized tracked equipment. Crew productivity is approximately 240 posts per day, and the same crew and equipment should have a similar productivity removing the posts, resulting in a per post cost of approximately \$12.91.
- 13. A metal recycling facility (R & M Recycling) is located in Adrian, MI is 25 miles from the project site. Pricing was acquired from <u>www.scrapmonster.com</u>. The posts weigh approximately 150 pounds each, and we estimate the hauling costs at approximately \$0.28 per ton mile. The pricing from Scrapmonster is adjusted to 75 percent of the published price to reflect the processing required for the posts to fit recycling requirements and R & M Recycling's margin.
- 14. Based on the review of a manufacturer's details of the array support structures the structures weigh approximately 15 pound per linear foot. The facility has 439,318 modules, for a total module weight of 17,433 tons. The tracker arrays are made of steel pipes, mounted on the foundation piles, which the panels are bolted to. So a crew with hand tools can disassemble and cut the pieces to sizes for recycling at a rate of about one array per person two man crew per hour based on RS Means cost data.
- 15. Hauling the steel to Adrian, MI at \$0.28 per ton mile costs about \$7.00 per ton.
- 16. The solar panels rated at 425 watts measure approximately 3.29 feet by 6.58 feet and weigh 49.6 pounds so they can easily be disconnected, removed, and packed by a three person crew at a rate we estimate at 12 panels per hour.

- 17. For the estimate we have assumed that inverters similar to 4.MW TMEIC inverters will be used on this project. Pad mounted Inverters are modular medium sized enclosures (3'-4" long, 6'-3" tall, and 3'-4") deep that are mounted on a steel frame (skid), usually five or six on the same skid. They weigh 2,200 pounds, and can be disconnected by a crew of electricians. They would be lifted by a truck mounted crane while still attached to the skid for transport to the recycler. They contain copper or aluminum windings.
- 18. Transformers for this project will be mounted on the same equipment skids as the inverters. The transformers and associated cabinets weigh approximately 15,000 pounds and contain either copper, or aluminum windings that have significant salvage value. They are typically oil filled, but most transformer recyclers will accept the transformers with oil. The estimated costs include removal of the equipment skids and conduits feeding the equipment.
- 19. Medium voltage (MV) equipment and SCADA equipment are mounted on the same equipment skids as the transformer and enclosed in weather proof cabinets. They can be removed as part of the equipment skids.
- 20. The substation and O&M facility are assumed to be revegetated in case the sites are not suitable for immediate use for agriculture. Revegetation cost is based on RS Means unit prices for applying lime, fertilizer, seed, and mulch at the price of \$8,445.60 per acre for substation and operations and maintenance facility areas. Costs are also included for decompacting these areas.
- 21. The underground collector system cables are placed in trenches, inside of PVC conduits, with a minimum of four feet of cover.
- 22. To reduce tracking of sediment off-site by trucks removing materials, we have included a rock construction entrances where the access roads are on paved public roads. Price is based on state DOT bid prices.
- 23. Perimeter control pricing is based on a sediment fence placed on the downgrade side of the work area perimeters, and protecting wetlands and drainage swales within the project area. Pricing is based on RS Means unit prices for silt fence.
- 24. No topsoil is planned to be removed from the site during decommissioning and most of the site will not have been compacted by heavy truck or equipment traffic and the pre-construction use for the majority of the site was for agriculture with almost all of the land planted with crops, so the restoration will be as cropland. Areas within the array will be tilled to an agricultural ready condition priced at \$236.80 per acre based on state DOT average bid prices for soil bed preparation.
- 25. Metal salvage prices (steel, aluminum, copper) are based on quotes from www.scrapmonster .com for the U.S. Midwest in July 2020. These prices are based on delivery to the recycling facility with the material prepared to meet size, thickness, cleanliness and other specifications. A reduction of 25% has been taken from this price to reflect the difficulty of realizing the full spot prices posted. The prices are three months old at the time they are displayed on the website.
- 26. The steel posts and array racking are priced based on 75 percent of the HMS (high melt steel) 80/20 the price listed on <u>www.scrapmonster.com</u> in October, 2020. (\$205per ton)
- 27. The output of solar modules are warrantied to degrade less than 0.50% per year, so modules maintain 97.5% of rated capacity after 5 years, and 82.5% capacity after 35 years. The manufacturer guarantees that panels will have 98 percent the rated capacity when new, so combining the guaranteed capacity and the degradation, the estimate uses 95 percent capacity after five years. There is currently a robust market for used solar panels and pricing can be found on, Solar Biz, eBay and other sites. New entrants in the market include, We Recycle Solar, which markets used panels in Asia, Africa, and South America. We have assumed that as long as the modules are producing power they will have economic value. To avoid unconservative pricing for

the used modules we used a pricing of approximately 50 percent of the \$0.0875 per Watt price quoted by We Recycle Solar for a similar, recent project. This estimate uses \$0.04 per Watt for undamaged modules which we are assuming are 95 percent of the modules. The price is based on the seller transporting panels placed on pallets from the project site to the recycling facility in Westchester County, New York.

- 28. There is an active market for reselling and recycling electrical transformers and inverters with several national companies specializing in recycling. We have assumed that the electrical equipment will be obsolete at the time of decommissioning so we have based the pricing on a percentage of the weight that reflects the aluminum windings that can be salvaged. Pricing was obtained from scrapmonster.com in October 2020 for copper transformer scrap.
- 29. The collection lines are priced assuming copper conductor wire for the DC circuits, which is typical. The prices used reflect a reduced yield of the copper resulting from the insulation and other materials that must be stripped from the wire so that the copper can be recycled. The estimate uses the Midwest price of #2 copper wire with an 85 percent recovery rate as found on www.scrapmonster.com in October 2020, which is \$1.51 per pound. For the salvage value we have assumed 75 percent of the published price.
- 30. The underground collection lines are assumed to be aluminum conductor. The majority of the length of the collection lines will be buried deep enough so that it does not have to be removed. Those sections coming up out of the ground at junction boxes, or otherwise, can be salvaged. The salvage value is based on the Midwest price of E.C. Aluminum Wire as found on www.scrapmonster.com in October 2020, which is \$0.73 per pound. We have reduced the price to 75 percent of the quoted price to reflect the complications of stripping insulation and separating the materials.
- 31. Care to prevent damage and breakage of equipment, PV modules, inverters, and capacitors must be exercised, but removal assumes electricians for the removal of electrical equipment.
- 32. All salvage is based on the weights of bulk material or equipment.