

June 9, 2021

VIA ELECTRONIC FILING

Mr. Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
Saint Paul, MN 55101-2147

RE: Comments

**In the Matter of the Application of Louise Solar Project, LLC for a Certificate of Need and a Site Permit for the 50 MW Louise Solar Project in Mower County, Minnesota
MPUC Docket Nos. IP7039/CN-20-646 and IP-7039/GS-20-647**

Dear Mr. Seuffert:

Louise Solar Project, LLC (“Louise Solar” or “Applicant”) submits these comments providing additional information regarding its Site Permit Application (“SP Application”) for a 50-megawatt (“MW”) alternating current solar energy generating system in Mower County, Minnesota (“Project”). The purpose of these comments is to provide updates and additional information requested by the Department of Commerce, Energy Environmental Review and Analysis (“DOC-EERA”) Staff.

Point of Interconnection/Prime Farmland Information.

In response to DOC-EERA Staff’s request, Louise Solar is providing additional discussion of its review and elimination of other points of interconnection (“POI”) that made it through the screening exercise described in Louise Solar’s prime farmland analysis.

Three POIs made it through the screening exercise described in the SP Application: the Adams Substation POI, Huntley POI, and Renville POI. Below is summary of Louise Solar’s review and elimination of the Huntley POI and Renville POI.

Louise Solar calculated the overall percentage of prime farmland in Mower County as follows:

Mower County Farmland Classification	%
Prime Farmland (All Categories)	95.6
Farmland of Statewide Importance	0.6
Not Prime Farmland	3.7

Louise Solar also calculated the percentages of prime farmland within a five-mile radius of the three POIs, as shown on **Attachment A** included with these comments and in the table below:

Prime Farmland Classification	Adams Substation POI (%)	Huntley POI (%)	Renville POI (%)
Prime Farmland (All Categories)	96.8	86.1	97.8
Farmland of Statewide Importance	0.3	5.8	1.8
Not Prime Farmland	2.9	8.1	0.4

The Renville POI had the highest percentage of prime farmland within a five-mile radius. While the percentage of prime farmland within five miles of the Huntley POI is lower than the other two POIs, the non-prime farmland areas within five miles of the Huntley POI are closely associated with the Blue Earth River. Additionally, the slopes and woodlands in those areas make the area unsuitable for a solar facility. Accordingly, the Huntley POI and Renville POI do not provide feasible and prudent non-prime farmland alternatives.

In addition to having a lower percentage of prime farmland within a five-mile radius than the Renville POI, Louise Solar identified the Adams Substation POI as having available capacity, low interconnection costs, and interested landowners.

Decommissioning Plan.

DOC-EERA Staff requested that Louise Solar revise the Decommissioning Plan to include information described in DOC-EERA Staff’s comments on the SP application completeness. **Attachment B** includes an updated Decommissioning Plan addressing DOC-EERA Staff’s comments.

Vegetation Management Plan.

Louise Solar is in the process of revising the Vegetation Management Plan. Louise Solar anticipates it will submit the revised plan prior to the hearing, as requested by DOC-EERA Staff.

Mr. Will Seuffert
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Conclusion.

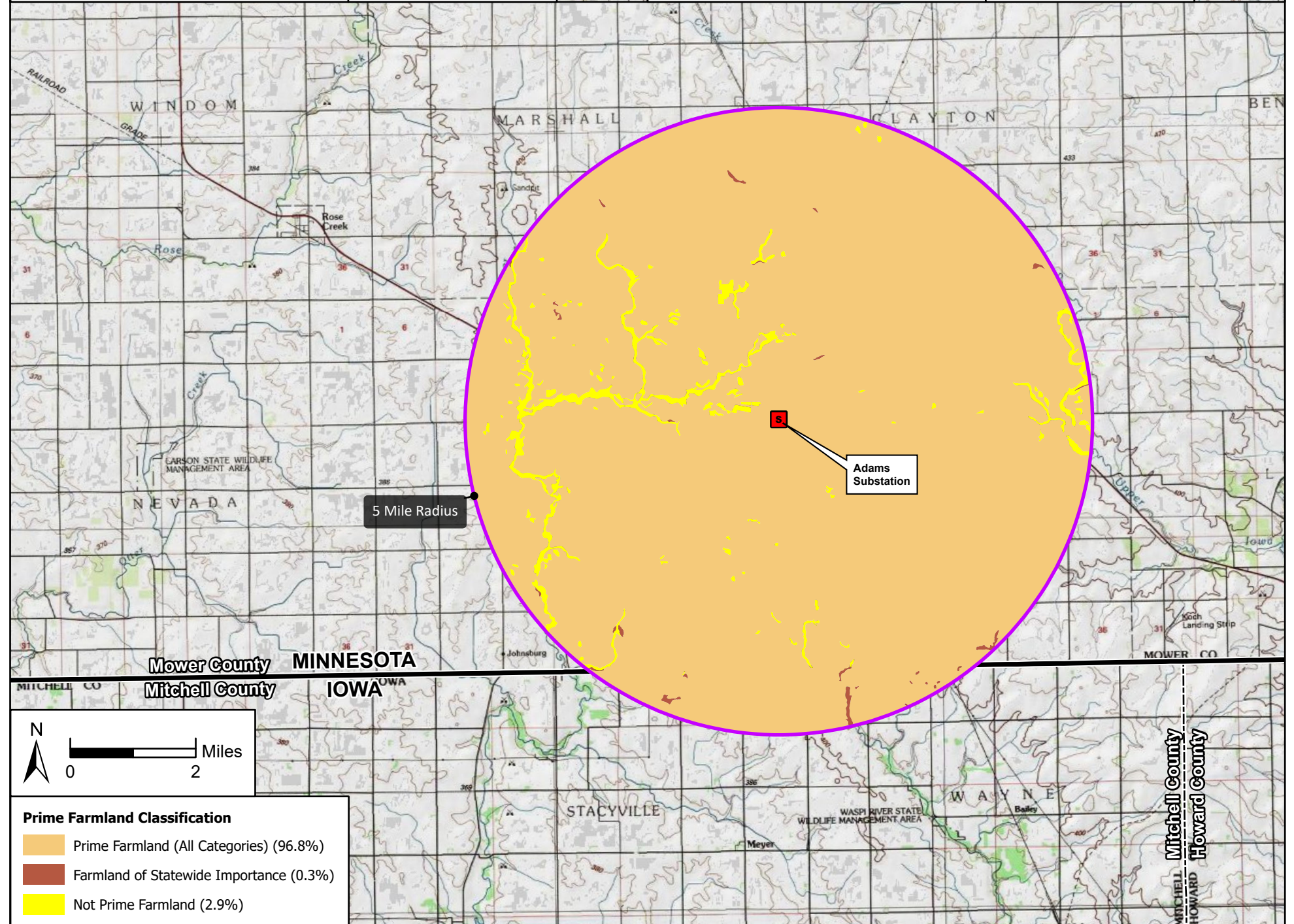
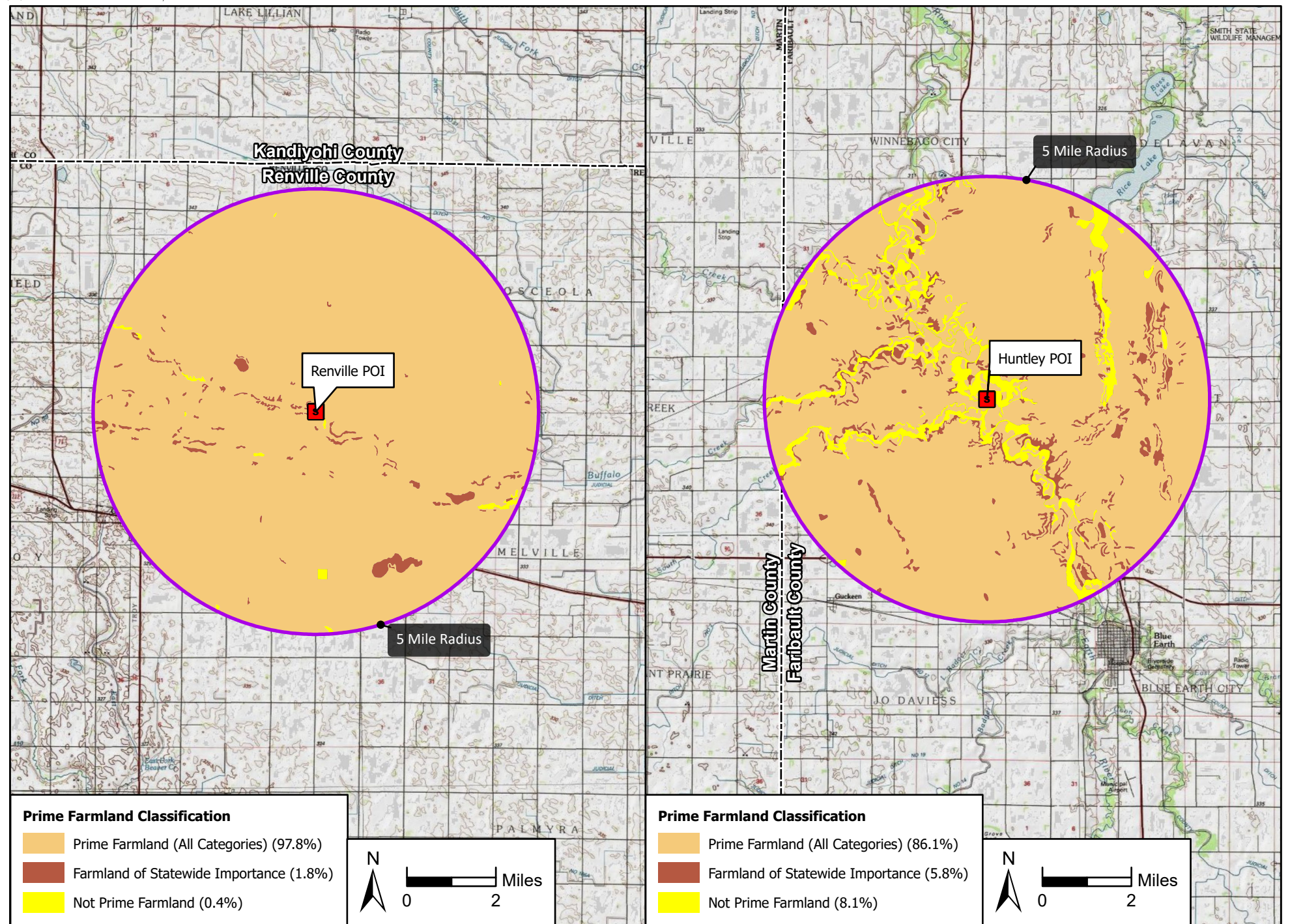
These comments have been e-filed today through www.edockets.state.mn.us. A copy of this filing is also being served upon the persons on the Official Service Lists of record. Please let me know if you have any questions regarding this filing.

Sincerely,

/s/ Christina K. Brusven

Christina K. Brusven
Direct Dial: 612.492.7412
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Attachment A



Data Source(s): Westwood (2021); NRCS SSURGO (2021); US Census Bureau (2019); Esri USGS Topo Basemap (Accessed 2021).

Legend

- Existing Substation
- County Boundary
- Existing Substation 5 Mile Buffer
- State Boundary

Westwood

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Westwood Professional Services, Inc.

Louise Solar Project

Mower County, Minnesota

Prime Farmland

April 27, 2021

Attachment B

Louise Solar Project

Mower County, Minnesota

Decommissioning Plan

Prepared for:

EDF Renewables
10 Second Street NE, Suite 400
Minneapolis, MN 55413

Prepared by:

Westwood Professional Services
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343

May 21, 2021

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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. The plan includes provisions for removal of all structures, foundations, underground cables, unused transformers and foundations; restoration of soil and vegetation; and a plan ensuring financial resources will be available to fully decommission the site according to the conditions described in Section 9 of the Site Permit issued by the Minnesota Public Utilities Commission. The Contractors will comply with requirements of all permits during the decommissioning process, and disposal of structures and foundations will comply with the provisions of the County Solid Waste Ordinance.

The Louise Solar Project (the “Project”) is a proposed 50 Megawatt alternating current (50 MW-ac) solar electric generating facility operated by Louise Solar / EDF Renewables (the “Owner”) using ground mounted photo voltaic panels, located on approximately 323 acres of land in Mower County, Minnesota. The facilities will be located in a fenced area of approximately 314 acres.

1.2 Decommissioning and Reclamation

Solar panels are expected to have a useful commercial lifespan of around 35 years. The Project shall be decommissioned upon expiration of the Site Permit or upon termination of operation of the Project. The Owner will be responsible for removal of all above ground equipment and underground equipment within the Project area. The owner will restore and reclaim the site to pre-construction topography and topsoil quality to the extent practical.

Decommissioning includes removing the solar panels, solar panel racking, steel foundation posts and beams, inverters, transformers, overhead and underground cables and lines, equipment pads and foundations, equipment cabinets, and ancillary equipment. The civil facilities, access road, security fence, and drainage structures and sedimentation basins are included in the scope. Standard decommissioning practices would 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, concrete pads and other equipment will be filled in with soil to the surrounding grade and seeded with a previously approved seed mix consistent with recommendations of the USDA Native Habitat Development for Pollinators (327) Biology Jobsheet #16, as maybe amended. 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 and tilling or seeding. This may include seeding as farmland or re-development of the land for other beneficial uses, based on consultation with the landowner.

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 Notice to Parties

Within ninety (90) days of the start of the decommissioning, a notice will be sent to landowners and local units of government. Permits will be obtained prior to the start of any work

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1.3.3 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.

Racking: Racking and racking 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: All underground cables and conduits will be removed to full depth. 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 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.

Equipment Foundation and Ancillary Foundations: The ancillary foundation for Louise Solar are pile foundations for both equipment skids and met stations. As with the solar array steel foundation posts, the foundation piles will be pulled out completely. Duct banks will be excavated to full depth. 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 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 posts can be pulled out using skid-steer loaders or other light equipment. 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 geotextile fabric and eight 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

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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.

1.3.4 Restoration/Reclamation of Site

The Owner will restore and reclaim the site to approximately the pre-construction condition consistent with the site lease agreement. The Owner assumes that most of the site will be returned to farmland and/or pasture after decommissioning, and will implement appropriate measures to facilitate such uses. If no specific use is identified, the Owner will vegetate the site with a seed mix approved by the local soil and water conservation district or similar agency. 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 all access roads up to full depth, 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 use 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 and chemical releases prior to completion of decommissioning.

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

1.4 Permitting and Post-Restoration Monitoring

It is anticipated that the following permits may be needed prior to or during decommissioning:

- U.S. Army Corps of Engineers (USACE): Section 404 Permit
- U.S. Environmental Protection Agency (EPA): Spill Prevention, Control, and Countermeasures Plan (SPCC)
- Minnesota Pollution Control Agency (PCA): Section 401 Water Quality Certification
- Minnesota Pollution Control Agency (PCA): National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS)
- Minnesota Pollution Control Agency (PCA): Stormwater Pollution Prevention Plan (SWPPP)

Decommissioning of the site will comply with permits listed above if grading activities are necessary and exceed applicable permit thresholds. Decommissioning may include post-restoration monitoring as required by the NPDES/SDS CSW Permit and SWPPP and other applicable requirements. In addition, the Owner's Field Representative assigned to decommissioning monitoring will stay in contact with the landowner, including onsite check-ins until the NPDES/ SDS CSW permit is closed.

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1.5 Estimated Net Decommissioning Costs

The decommissioning costs are calculated using current pricing. In keeping with the EERA recommendations 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. The cost estimate uses current pricing for removal of components based on five years of degradation and depreciation of the solar modules. 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, and 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 warranted by the manufacturer (not more than 0.5 percent per year).

The estimated cost for decommissioning is approximately \$5,597,000. Salvage and resale value is estimated as approximately \$5,415,000, resulting in a net cost of approximately \$182,000 for the initial period of operation. The resale and salvage values are necessary for the Owner to account for the long-term assets and liabilities, and value as a going concern. Under the requirements of the EERA recommendations a Financial Assurance is not required during the first ten (10) years of operation. A bond will be posted no earlier than the 10th anniversary from the date of Operation with the County. The cost of decommissioning will be updated every five years after the tenth year of operation in accordance with the EERA recommendations.

For additional detail on the assumptions made see Section 1.6.

Cost Estimate on next page.

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Cost estimate:

Louise Solar Project				
Project Size	65.28	MW-DC	50.00	MW-AC
	Quantity	Unit	Unit Cost	Total Cost
Mobilization/Demobilization	1	Lump Sum	\$336,200.00	\$336,200
Mobilization was estimated to be approximately 7% of total cost of other items.				
Permitting				
State Permits	1	Lump Sum	\$10,000.00	\$10,000
Subtotal Permitting				\$10,000
Decommissioning will require a SWPPP and SPCC plan, cost is an estimate of the permit preparation cost				
Civil Infrastructure				
Removal Gravel Surfacing from Road	6,053	Cubic Yards (BV)	\$3.97	\$24,014
Haul Gravel Removed from Road (Austin, MN)	7,566	Cubic Yards (LV)	\$11.80	\$89,298
Disposal of Gravel Removal from Road	9,805	Tons	\$0.00	\$0
Removal Geotextile Fabric from Road Area	40,856	Square Yards	\$1.40	\$57,198
Haul Geotech Fabric Removed from Beneath Access Roads	11	Tons	\$6.44	\$72
Disposal of Geotech Fabric Removed from Beneath Access Roads	11	Tons	\$74.00	\$831
Remove and Load Culvert from Beneath Access Roads	8	Each	\$448.00	\$3,584
Haul Culvert Removed from Access Roads	2	Tons	\$6.44	\$15
Disposal of Culverts (Austin, MN)	2	Tons	\$74.00	\$178
Remove Low Water Crossing from Access Roads	10	Each	\$3,400.00	\$34,000
Haul Low Water Crossing Materials Removed from Access Roads	10	Each	\$257.60	\$2,576
Disposal of Low Water Crossing Materials	10	Each	\$2,960.00	\$29,600
Grade Road Corridor (Re-spread Topsoil)	20,428	Linear Feet	\$1.03	\$21,107
Grade Retention Ponds and respread Topsoil	17	Each	\$3,363.58	\$57,181
Decompaction on Road Area	11.26	Acres	\$418.71	\$4,713
Removal of Security Fence	41,933	Linear Feet	\$8.17	\$342,593
Subtotal Civil Infrastructure				\$666,960
Structural Infrastructure				
Removal Array Steel Foundation Posts	74,863	Each	\$12.91	\$966,269
Haul Array Steel Post (Austin, MN)	1,658	Tons	\$6.44	\$10,675
Haul Drive Motor Posts	181	Tons	\$6.44	\$1,168
Removal of Tracker Row Racking	1,889	Each	\$253.65	\$479,155
Haul Tracker Row Racking (Austin, MN)	3,783	Ton	\$6.44	\$24,361
Subtotal Structural Infrastructure				\$1,481,629
Electrical Collection/Transmission System				
Removal of PV Panels	146,692	Each	\$5.27	\$773,189
Haul PV 95% of Panels to Reseller (Westchester County, NY)	4,363	Tons	\$345.10	\$1,505,543
Haul 5% of PV Panels for Disposal (Austin, MN)	230	Tons	\$6.44	\$1,479
Removal of Combiner Boxes	168	Each	\$60.00	\$10,080
Removal of Equipment Skids	14	Each	\$4,000.00	\$56,000
Haul Equipment Skids to Recycler (Prairie Du Chien, WI)	177	Tons	\$33.60	\$5,951
Removal of Scada Equipment	1	Each	\$5,000.00	\$5,000
Removal of DC Collector System Cables (copper)	141,728.0	Linear Feet	\$0.68	\$96,318
Removal of Underground (AC) Collector System Cables	26,694.0	Linear Feet	\$2.10	\$56,047
Load and Haul Cables for Recycling	141.0	Ton	\$8.44	\$1,190
Removal of Fiber Optic Cable	17,425.0	Linear Feet	\$2.10	\$36,586
Subtotal Electrical Collection/Transmission System				\$2,547,382

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Substation				
Disassembly and Removal of Main Power Transformer(s)	1	Each	\$4,500.00	\$4,500
Freight Transformer(s) Offsite	1	Each	\$3,600.00	\$3,600
Disposal of Transformer (Including Oil)	1	Each	\$0.00	\$0
Excavate Around Transformer Foundation(s)	1	Each	\$1,946.00	\$1,946
Remove Complete Transformer Foundation(s)	1	Each	\$3,850.00	\$3,850
Backfill Excavation Area from Transformer Foundation Removal	1	Each	\$766.00	\$766
Haul Concrete Foundations for Transformer, Switch Gear, etc.	340	Tons	\$6.44	\$2,190
Disposal of Concrete from Transformer Foundation	340	Tons	\$75.00	\$25,500
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	10	Tons	\$32.20	\$322
Disposal of Demolition Materials, Removed Equipment & Struct. Stl.	1	LS	\$350.00	\$350
Remove and Load Gravel Surfacing from Substation Site	6,497	Cubic Yards (BV)	\$3.97	\$25,777
Haul Gravel Removed from Substation Site	8,121	Cubic Yards (LV)	\$11.80	\$95,852
Disposal of Gravel from Substation Site	10,525	Tons	\$0.00	\$0
Grade Substation Site	263,129	SF	\$0.06	\$16,992
Erosion and Sediment Control at Substation Site	150	LF	\$1.92	\$288
Decompact Substation Site (Subsoiling)	6.04	Acres	\$418.71	\$2,529
Topsoil and Revegetation at Substation Site	6.04	Acres	\$9,628.80	\$58,164
Subtotal Substation				\$265,126.07
Site Restoration				
Stabilized Construction Entrance	0	Each	\$2,000.00	\$0
Perimeter Controls (Erosion and Sediment Control)	11,650	Linear Feet	\$1.92	\$22,368
Till to Farmable Condition at Array Areas	314	Acres	\$236.80	\$74,355
Subtotal Site Restoration				\$96,723
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. 40 week schedule used				
Subtotal Demolition/Removals				\$5,597,020

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Salvage				
Fencing	210	Tons	\$153.75	\$32,236
Steel Posts	1,839	Tons	\$153.75	\$282,743
Module Racking	3,783	Tons	\$153.75	\$581,606
PV Modules	139,357	Each	\$29.59	\$4,123,934
Transformers and Inverters	354,200	Pounds	\$0.26	\$90,321
Substation Transformers (Metals)	100,000	Pounds	\$0.26	\$25,500
Transformers (Oil)	7,420	Gallons	\$0.70	\$5,194
DC Collection Lines	197,400	Pounds	\$1.15	\$226,517
AC Collection Lines	84,600	Pounds	\$0.56	\$46,953
Salvage values are a combination of the following factors; current market metal salvage prices, current secondary market for solar panel module recycling, discussions with national companies that specialize in recycling and reselling electrical transformers and inverters, and the assumption that care is taken to prevent any damage or breakage of equipment.				
Subtotal Salvage				\$5,415,005
Total Demolition Minus Salvage				\$182,016
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 Louise 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 preliminary plans dated 10/30/20 and data provided by EDF.
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.
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. 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

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- 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 along road reflects the cost of silt fence on the downhill side of the road and surrounding all on-site wetlands.
 10. Topsoil is required to be stockpiled on site during construction, therefore this top soil is available on site to replace the road aggregate, once removed. Subsoiling cost to decompact roadway areas is estimated as \$418.71 per acre (based on state DOT bid prices), and revegetation on removed substation area, which includes seed, fertilizer, lime, and care until vegetation is established is \$9,628 per acre. Tilling to an agriculture ready condition is estimated as \$236 per acre (based on state DOT bid prices for Soil Bed Preparation). The majority of the Project area is tilled to agriculture ready condition since the decommissioning activities are not expected to eliminate the existing grasses and vegetation under the arrays or heavily compact the soils. Array areas left as pasture will require little restoration effort since the arrays will have been planted with prairie, pollinator seed mixes, and the soils will have been rejuvenated by being planted as prairie and removed from intense farming.
 11. Fence removal includes loading, hauling, and recycling or disposal. Fence and posts weigh approximately 10 pounds per foot.
 12. Array support posts are generally 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 \$13.00.
 13. A metal recycling facility (S & K Environmental) is located in Austin, MN is 23 miles from the Project site. Pricing was acquired from www.scrapmonster.com. 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 S & K Environmental’s margin.
 14. Based on the review of a manufacturer’s details of the array support structures the structures weigh approximately one pound per square foot. The facility has 146,692 modules, for a total module weight of 3,638 tons. The fixed arrays are made of light weight steel and aluminum angles, 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 30 arrays per person four man crew per day based on RS Means cost data.
 15. Hauling the steel to Austin, MN at \$0.28 per ton mile costs about \$7.00 per ton.
 16. The solar panels rated at 445 watts measure approximately 3.44 feet by 6.99 feet and weigh 62.6 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. Based on preliminary design information that 4200 kVA inverters will be used on this Project. Pad mounted Inverters are modular medium sized enclosures (9’-2” long, 7’-7” tall, and 5’-3” deep (SC 4200 UP-US 4200 kVA US 1500 V) that are mounted on a concrete slab. They weigh 8,800 pounds each, and can be disconnected by a crew of electricians. They must be lifted by a truck mounted crane for transport to the recycler. They contain copper or aluminum windings.
 18. Transformers for this Project will likely be mounted on the same concrete pads as the inverters. The transformers and associated cabinets weigh approximately 15,000 pounds and contain either copper, or more commonly, aluminum windings that have significant salvage value. They are

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- typically oil filled, but most transformer recyclers will accept the transformers with oil. The estimated costs include removal of the concrete pads and conduits feeding the equipment.
19. Medium voltage (MV) equipment and SCADA equipment are mounted on the same concrete pad as the transformer and enclosed in weather proof cabinets. Their size requires light equipment to remove them. The costs shown include the removal of the concrete pads.
 20. The underground collector system cables are placed in trenches, inside of PVC conduits, with a minimum of 3 feet of cover.
 21. To reduce tracking of sediment off-site by trucks removing materials, we have included a rock construction entrance priced based on state DOT bid prices.
 22. 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.
 23. No topsoil will be removed from the landowner's property or used on other landowners' property during decommissioning. Most of the site will not have been compacted by heavy truck or equipment traffic so no top soil will need to be imported, and very few areas will need to be decompacted.
 24. Metal salvage prices (steel, aluminum, copper) are based on quotes from www.scrapmonster.com for the U.S. Midwest in October 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.
 25. The steel posts and array racking are priced based on 75 percent of the HMS (high melt steel) 80/20 the price listed on www.scrapmonster.com in July, 2020. (\$205 per ton)
 26. Solar module degradation is approximately 0.50% per year, or 96% of capacity remaining after 5 years, and 82% capacity remaining 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 96 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 80 percent of the \$0.0875 per watt price quoted by We Recycle Solar for a similar project within the last two months. The price is based on the buyer transporting panels placed on pallets from the Project site.
 27. 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 July 2020, for used transformer scrap at a price of \$0.34 per pound.
 28. 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 July 2020, which is \$1.53 per pound. For the salvage value we have assumed 75 percent of the published price.

DECOMMISSIONING PLAN

29. 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 July 2020, which is \$0.74 per pound. We have reduced the price to 50 percent of the quoted price to reflect the complications of stripping insulation and separating the materials.
30. Care to prevent damage and breakage of equipment, PV modules, inverters, capacitors, and SCADA must be exercised, but removal assumes unskilled common labor under supervision.
31. All salvage is based on the weights of bulk material or equipment.

In the Matter of the Application of Louise Solar Project, LLC for a Certificate of Need and a Site Permit for the 50 MW Louise Solar Project in Mower County, Minnesota

**MPUC Docket Nos. IP7039/CN-20-646
and IP-7039/GS-20-647**

CERTIFICATE OF SERVICE

Erin E. Daniels certifies that on the 9th day of June 2021, she e-filed the true and correct copy of Louise Solar Project, LLC's Comments regarding its Site Permit Application via edockets (www.edockets.state.mn.us). Said document was also served as designated on the Official Service Lists on file with the Minnesota Public Utilities Commission and as attached hereto.

/s/ Erin E. Daniels

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_20-646_Official Service List 20-646
Bridget	Duffus	bduffus@fredlaw.com	Fredrikson & Byron, P.A.	200 South Sixth Street Suite 4000 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Kate	Fairman	kate.frantz@state.mn.us	Department of Natural Resources	Box 32 500 Lafayette Rd St. Paul, MN 551554032	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Annie	Felix Gerth	annie.felix-gerth@state.mn.us		Board of Water & Soil Resources 520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Lucas	Franco	lfranco@liunagro.com	LIUNA	81 Little Canada Rd E Little Canada, MN 55117	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Kari	Howe	kari.howe@state.mn.us	DEED	332 Minnesota St, #E200 1ST National Bank Bldg St. Paul, MN 55101	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Karen	Kromar	karen.kromar@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_20-646_Official Service List 20-646

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Stephan	Roos	stephan.roos@state.mn.us	MN Department of Agriculture	625 Robert St N Saint Paul, MN 55155-2538	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Jacob	Salisbury	Jacob.Salisbury@edf-re.com	EDF Renewables	10 NE 2nd St Ste 400 Minneapolis, MN 55413	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th PI E Ste 350 Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_20-646_Official Service List 20-646
Adam	Sokolski	adam.sokolski@edf-re.com	EDF Renewable Energy	10 Second Street NE Ste 400 Minneapolis, MN 55410	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Cynthia	Warzecha	cynthia.warzecha@state.mn.us	Minnesota Department of Natural Resources	500 Lafayette Road Box 25 St. Paul, Minnesota 55155-4040	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
David	Weetman	david.weetman@westwoods.com	Westwood Professional Services	12701 Whitewater Dr Ste 300 Minnetonka, MN 55343	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646
Scott	Wentzell	scott.wentzell@edf-re.com	EDF Renewables	10 NE 2nd St Ste 400 Minneapolis, MN 55413	Electronic Service	No	OFF_SL_20-646_Official Service List 20-646

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Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_20-647_Official Service List 20-647
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_20-647_Official Service List 20-647
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_20-647_Official Service List 20-647
Lucas	Franco	lfranco@liunagroc.com	LIUNA	81 Little Canada Rd E Little Canada, MN 55117	Electronic Service	No	OFF_SL_20-647_Official Service List 20-647
Breann	Jurek	bjurek@fredlaw.com	Fredrikson & Byron PA	200 South Sixth St Ste 400 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_20-647_Official Service List 20-647
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Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_20-647_Official Service List 20-647
Cynthia	Warzecha	cynthia.warzecha@state.mn.us	Minnesota Department of Natural Resources	500 Lafayette Road Box 25 St. Paul, Minnesota 55155-4040	Electronic Service	No	OFF_SL_20-647_Official Service List 20-647