



Appendix G

Decommissioning Plan

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Decommissioning Plan

Birch Coulee Solar Project

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Prepared for
Birch Coulee Solar LLC



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Decommissioning Plan, Birch Coulee Solar LLC

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1 Introduction

1.1 Project Description

Birch Coulee Solar LLC (Birch Coulee Solar), an affiliate of AES Clean Energy (AES), is proposing to construct and operate the Birch Coulee Solar Project (Project). AES owns and operates solar, battery, wind, and green hydrogen projects across the United States, grossing 6.9 GWs in operation at the end of 2023. The Project will be the first solar project developed in Minnesota for an AES affiliate. AES is a division of The AES Corporation based in the United States and a publicly traded Fortune 500 company. The AES Corporation has projects spanning 13 other countries over four continents.

The Project is an up to 125-megawatt (MW) photovoltaic (PV) solar energy generating facility and associated infrastructure in Renville County, Minnesota as shown in Attachment 1. The Project is within Birch Coulee, Camp, and Bandon Townships and city of Franklin in Renville County, Minnesota.

Component	Measurement or Count
Solar arrays	290,948 panels; 484.0 acres
Inverters	36 inverter/transformer units; approximately 1.1 acres
Buried electrical collection lines	46,290 feet; approximately 8.5 acres
Project substation	1.2 acres
115 kV generation tie line	<500 feet; approximately 0.8 acres
Laydown yard (temporary and some permanent)	24.3 acres
Gravel access roads	30,580 feet; up to approximately 14.0 acres
Stormwater management system	21.3 acres
Weather stations	Three permanent stations, total of up to approximately 0.3 acres
Undeveloped areas (e.g., delineated wetland and drain tile avoidance, setback areas) and non-Project component (utility-owned switchyard)	486.1 acres
Total	1,041.6 acres

1.2 Use of Generation Output

The power generated by the Project will be offered for sale to wholesale customers, including Minnesota utilities and cooperatives that have identified a need for additional renewable energy and capacity, and commercial and industrial customers that have set clean energy goals.

2 Decommissioning Objective

The purpose of decommissioning is to restore the site to its prior agricultural use or to another use if the economic conditions and landowner intentions indicate another use is appropriate for the site.

3 Time & Notification

3.1 Anticipated Project Timeline

Construction of the Project is anticipated to commence in 2027. The anticipated life is 30 years from the date of construction. Birch Coulee Solar will update the decommissioning plan every five years or on an as-needed basis.

Depending on market conditions and Project viability, Birch Coulee Solar may repower the Project with updated components to extend its life. Potential triggers for initiating a repower may be aging or faulty equipment, maintenance costs, extending the useful life of the solar panels, or increasing the generation output. If deemed a worthwhile investment, repowering of the Project will abide by local, state, and federal regulations. A new or amended Site Permit may be necessary and will be sought if required.

3.2 Decommissioning Period

Birch Coulee Solar anticipates decommissioning would be complete within twenty-four months after abandonment or the end of its useful life.

3.3 Notification

Birch Coulee Solar will provide written notification of intent to decommission to landowners, the Commission, Renville County, townships (Bandon, Birch Cooley, and Camp), and city of Franklin prior to commencing decommissioning activities. Birch Coulee Solar will also confirm applicable local permitting requirements (e.g., regarding road restrictions or permits required prior to ground disturbance) with Renville County and the city of Franklin. Birch Coulee Solar will provide written notification to landowners, Commission, Renville County, townships, and the city of Franklin upon completion of decommissioning and restoration activities.

4 Permitting Requirements

Birch Coulee Solar will confirm permitting requirements prior to decommissioning activities and will obtain applicable approvals prior to ground-disturbing activities. Birch Coulee Solar anticipates a Stormwater Pollution Prevention Plan (SWPPP) will be necessary for greater than one acre of disturbance. Local permits from Renville County, townships, and the city of Franklin will also be considered, including potential permits required for work in road rights-of-way. On purchased land, Birch Coulee Solar may work with the Minnesota Pollution Control Agency to obtain prior approval to limit the removal of below ground structures to a depth of 4 feet.

5 Decommissioning Tasks

5.1 Modules

Birch Coulee Solar intends to use approximately 291,000 bifacial photovoltaic (PV) modules (580 watt) for the Project. This Plan is based on the Jinko 580W module. Each module assembly (with frame) will have a total weight of approximately 60 pounds. The modules will be approximately 90 inches by 45 inches in width. The modules are mainly comprised of non-metallic materials such as silicon, glass, composite film, plastic, and epoxies, with an anodized aluminum frame.

Once deenergized, the modules will be disassembled and prepared for shipment. At the time of decommissioning, module components in working condition may be refurbished and sold in a secondary market yielding greater revenue than selling as salvage material. Modules that are not in working condition or are not marketable for resale will be recycled, if practicable.

5.2 Racking Systems and Supports

Cabling, wiring and electrical components will be removed from racking. Racking and racking components will be disassembled and removed from the steel foundation posts, processed to appropriate size, and sent to a metal scrap facility.

5.3 Module Piles and Foundations

Module foundations are assumed to be comprised of steel driven piles. Steel piles will be fully removed from the ground, processed to an appropriate size and sent to a metal scrap facility. Concrete foundations or slabs will be demolished and hauled to a licensed facility. Remaining excavations and voids will be backfilled with soils. 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.

5.4 Removal of Overhead and Underground cables

Underground cables and conduits will be removed per the landowner lease agreements. Where Birch Coulee Solar has an option agreement to purchase a parcel (49.6% of the Site acreage) some facilities deeper than 48 inches may remain in place to limit vegetation and surface disturbance. Where facilities are removed, topsoil will be segregated and stockpiled for later use prior to any excavation and the subsurface soils will be staged next to the excavation. Overhead lines and posts will be removed from the Project. Cabling will be scrapped or recycled based on current market rates.

5.5 Removal of Power Conversion Stations and Substation Components

Electrical equipment will be disconnected and disassembled. Parts will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at Birch Coulee Solar's sole discretion, consistent with applicable regulations and industry standards.

Foundations will be demolished and removed to a depth of four feet below grade. Remaining excavations and voids will be backfilled with soils. Birch Coulee Solar will work with the Minnesota Pollution Control Agency to obtain prior approval to limit the removal of below ground structures to a depth of 4 feet.

5.6 Site Roads and Fencing

The Project will include a perimeter security fence around the Anticipated Development Area. The perimeter fence and foundations will be removed from the site to four feet below grade, and then scrapped or hauled to a landfill.

Access roads will be removed from the Project unless written communication is received from the landowner requesting that the road be retained. Decommissioning activities include the removal and stockpiling of aggregate materials onsite for salvage preparation. Local townships or residents may accept the material prior to processing for use on local roads or field access roads.

Following removal of aggregate, the access road areas will be graded, de-compacted, backfilled with native soils, as needed, and land contours restored as near as practicable to pre-construction conditions.

5.7 Site Restoration & Topsoil

Erosion control measures will be installed during decommissioning per the site requirements, the SWPPP, and the Project's Vegetation Management Plan and Agricultural Impact Mitigation Plan. Excavated and backfilled areas will be graded as previously described to restore land contours as near as practicable to pre-construction conditions. Topsoil will be placed on disturbed areas and seeding will be applied according to the SWPPP. After topsoil has been replaced, all areas that were traversed by vehicles and decommissioning equipment will be decompacted to restore soil conditions.

6 Cost Estimate

6.1 Decommissioning Cost Estimate

Costs and salvage values associated with decommissioning the Project will be dependent on labor costs and market value of salvageable materials at the time of decommissioning. The cost estimate below was estimated using 2024 dollars. No escalation or future value has been calculated for the cost estimate.

This concept-level (Class IV, per *AACEI 17R-97: Cost Estimate Classification System*) cost estimate is based on partial design and is meant for feasibility uses. Costs will change with further design changes. Class IV estimates are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. The estimated accuracy range for the total cost is -30% to +50%. The accuracy range is based on professional judgment considering the level of design completed, the complexity of the Project, and the uncertainties in the Project as scoped.

Table 1 summarizes the Project's decommissioning costs. Additional detail is provided in Attachment 2.

Table 1 **Estimated Decommissioning Costs**

Activity	Total
General Conditions	\$2,309,000
PV Panel	\$5,233,124
Power Conversion Stations	\$172,220
Collection Circuit Line	\$156,807
Site Restoration	\$2,366,159
Fencing	\$313,366
O & M Removal	\$81,136
Substation Removal	\$113,140
Met Station Removal	\$8,525
Gen Tie	\$4,303
Contingency	\$2,689,445
Total Estimated Decommissioning Cost	\$13,447,226
Total Estimated Decommissioning Cost (Low Range -30%)	\$9,413,058
Total Estimated Decommissioning Cost (High Range +50%)	\$20,170,838

6.2 Salvage Value

Based on current markets, used PV panels possess an inherent value. Solar components may be sold as scrap, sold within a secondary market or as salvage. The value of solar components such as PV panels, power conversion stations and batteries, will decrease throughout the life of the Project.

The market value of scrap materials fluctuates daily. Salvage value estimates were based on the five-year average price of steel, copper and aluminum and derived from the online resource scrapmonster.com. Table 2 summarizes the estimated decommissioning cost, estimated salvage value for the solar components, steel structures and construction materials and net estimated decommissioning cost of the Project. Additional detail is provided in Attachment 3.

Table 2 Estimated Net Decommissioning Costs

Activity	Total
Total Estimated Decommissioning Cost	\$13,447,226
Total Estimated Salvage Value	\$10,103,747
Net Estimated Decommissioning Cost	\$3,334,478
Net Estimated Decommissioning Cost (Low Range -30%)	\$2,340,435
Net Estimated Decommissioning Cost (High Range +50%)	\$5,015,217

7 Financial Assurance

Birch Coulee Solar will provide financial assurance in one of the following forms: self-bond, surety bond, a federally insured certificate of deposit, government-backed securities, corporate guarantee, letter of credit, or cash ("Financial Assurance"). Financial Assurance will begin in the tenth year after initiation of construction activities, unless there is abandonment or decommissioning of the Project prior to that time and secured by the Owner(s) or Operator(s). The amount of the Financial Assurance will be adjusted accordingly to offset any increases or decreases in decommissioning costs and salvage values determined during each plan reassessment. Birch Coulee Solar proposes to post financial assurance in the following format:

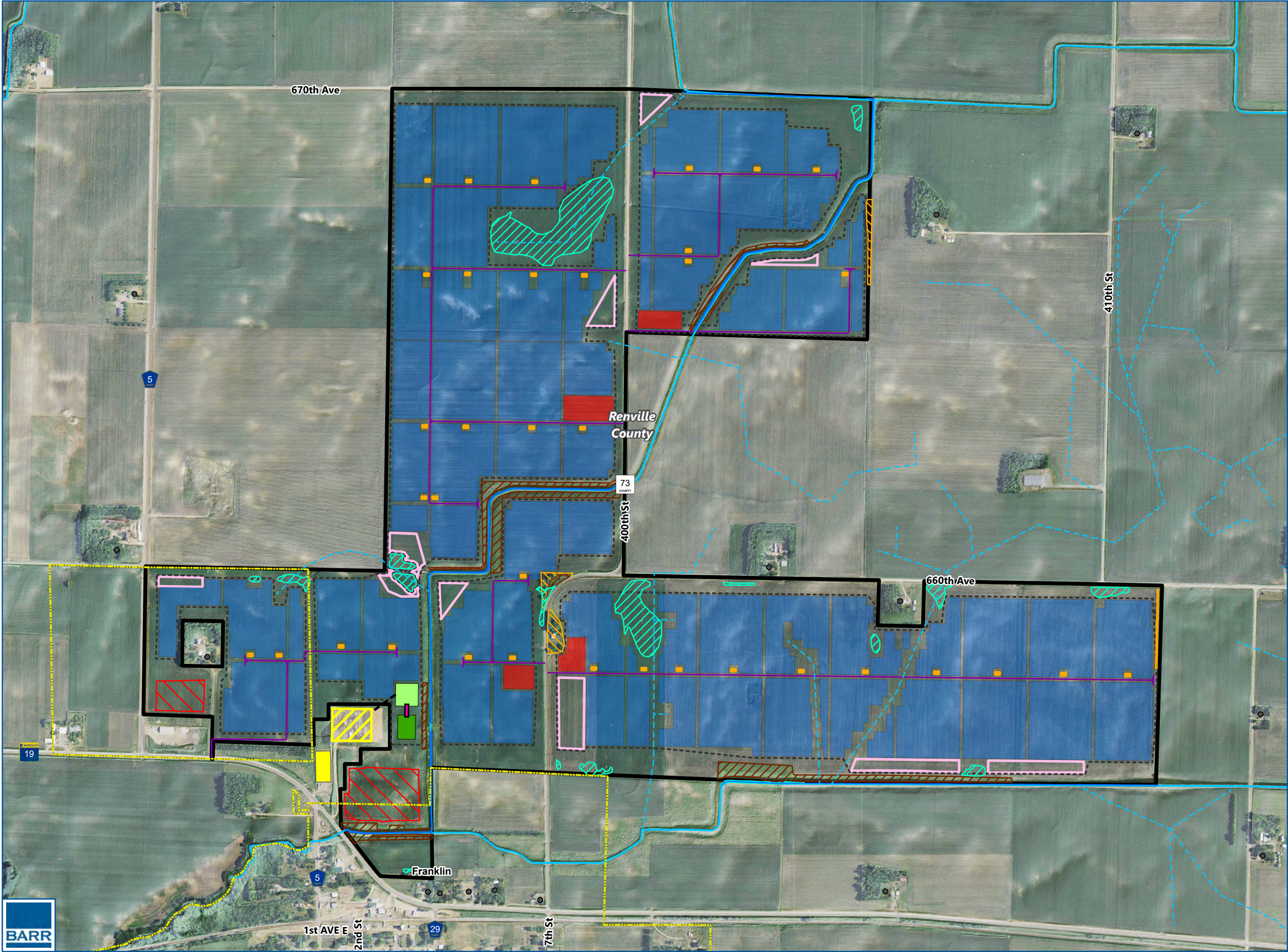
- 25% of the net decommissioning estimate will be posted in year 10;
- 25% of the net decommissioning estimate will be posted in year 15;
- 25% of the net decommissioning estimate will be posted in year 20; and
- 25% of the net decommissioning estimate will be posted in year 25.

Birch Coulee Solar will update the decommissioning plan every five years, or on an as-needed basis, and adjust the financial assurance according to the latest net decommissioning cost estimate.

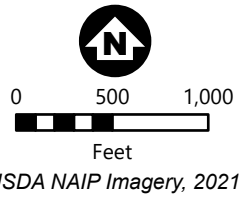


Attachments

Attachment 1
Project Layout Map



- Site
- Anticipated Development Area
- Proposed Solar Arrays
- Access Routes
- Stormwater Basin
- Laydown Yard (temporary or permanent)
- Laydown Yard (temporary)
- Project Substation
- Utility-Owned Switchyard
- Inverter
- Franklin 115 kV Substation
- Utility Distribution Substation
- Gen-Tie
- Field-Identified Watercourse
- Field-Identified Wetland Boundaries
- Tree Areas
- Native Vegetation Areas
- Municipal Boundary
- Tile Lines (Renville Co)
- Open Ditches (Renville Co)
- Dwelling



USDA NAIP Imagery, 2021

SITE LAYOUT PLAN

Decommissioning Plan
Birch Coulee Solar LLC





Attachment 2

Decommissioning Cost Estimate



April 16, 2024

Birch Coulee Solar Decommissioning Cost Estimate

125 MW
Jinko 580W - PV Panels

Item	Description	Qty	Unit	Unit Cost (\$)	Total Cost (\$)
1 General Conditions					
	Mobilization/Bond/Insurance	1	LS	1,014,000	1,014,000
	Project Management / Overhead	1	LS	845,000	845,000
	Public Road Maintenance	1	LS	200,000	200,000
	Erosion Control	1	LS	250,000	250,000
					2,309,000
2 PV Panel					
	PV Panel Removal	290,948	EA	9.00	2,618,532
	PV Panel Hauling	293	EA	795.00	233,169
	PV Panel Recycling	29,095	EA	15.00	436,422
	Racking/Tracker Frame Removal	4,061	EA	315.00	1,279,215
	Racking/Tracker Frame Hauling	203	EA	112.50	22,843
	Pile Removal	36,369	EA	15.00	545,528
	Pile Hauling	866	EA	112.50	97,416
					5,233,124
3 Inverter Skids and Controller Stations					
	Inverter Skid and Controller Station Removal	36	EA	2,100.00	75,600
	Inverter Skid and Controller Station Hauling	36	EA	795.00	28,620
	Inverter Skid and Controller Station Disposal	108	TON	40.00	4,320
	Inverter Skid and Controller Station Foundation Removal	216	CY	200.00	43,200
	Inverter Skid and Controller Station Foundation Hauling	27	EA	142.50	3,848
	Inverter Skid and Controller Station Foundation Disposal	416	TON	40.00	16,632
					172,220
4 Collection Circuit Line					
	Buried DC Circuit Line Removal	46,290	LF	1.68	77,536
	Pile Hauling	46,290	EA	112.50	5,206,125
	Circuit Line Hauling	15	EA	112.50	1,736
					156,807
5 Site Restoration					
	Interior Road Removal	30,580	SY	3.00	91,740
	Laydown Area Removal	116,160	SY	3.00	348,480
	Interior Gravel Hauling	4,076	EA	112.50	458,563
	Site Grading	30	AC	2,775.00	84,133
	Soil Decompaction	382	AC	800.00	305,664
	Topsoil Import and Placement	146,740	SY	7.00	1,027,180
	Seeding	12	AC	4,200.00	50,400
					2,366,159
6 Fencing					
	Fencing Removal	73,195	LF	4.00	292,780
	Fencing Hauling	20	EA	112.50	2,287
	Fencing Disposal	457	TON	40.00	18,299
					313,366
6 O & M Removal					
	Demo Maintenance building	60,000	CF	0.50	30,000
	Demo Building Slabs	120	CY	80.00	9,600
	Demo Foundation	50	CY	80.00	4,000
	Debris Hauling 30 Mile Round Trip	170	CY	142.50	24,225
	Dump Fees	382.78	TON	40.00	15,311
					81,136
7 Substation Removal					
	Substation Removal	10	DAY	11,000.00	110,000
	Substation Hauling	8	EA	142.50	1,140
	Substation Disposal	50.00	TON	40.00	2,000
					113,140
8 Met Station Removal					
	Met Station Removal	2	DAY	4,080.20	8,160
	Met Station Hauling	2	EA	142.50	285
	Met Station Disposal	2	TON	40.00	80
					8,525
9 Gen Tie					
	Gen Tie Removal	1	DAY	4,080.20	4,080
	Gen Tie Hauling	1	EA	142.50	143
	Gen Tie Disposal	2	TON	40.00	80
					4,303
TOTAL Construction Cost					10,757,781
Contingency (25%)					2,689,445
TOTAL Construction Cost w/Contingency					\$ 13,447,226



Attachment 3

Salvage Value Cost Estimate



April 16, 2024

Birch Coulee Solar Decommissioning Cost Estimate - Salvage Value

125 MW
Jinko 580W - PV Panels

Item	Salvage Weight (TN)	Scrap Value (TN)	Scrap Value (Ea)	Qty	Total Scrap Value (\$)
PV Panels			29.00	261853	7,593,743
Racking	1015	190	192,898	1	192,898
Piles	8728	190	1,658,404	1	1,658,404
Solar Salvage Subtotal					9,445,044
Inverter Skid			8,400	36	302,400
Substation Steel	10	190	1,900	1	1,900
Substation Transformer			65,200	1	65,200
Transmission Towers Steel	0.0	190	-	1	-
Transmission Line	0.0	450		1	
MET Station	2.0	190	380	1	380
DC Collection Cable	51	450	22,914	1	22,914
AC Collection Cable					
Aggregate	42812	5	214,060	1	214,060
Fencing	518.5	100	51,850	1	51,850
Total Salvage Value					10,103,747