

MISO Generator Interconnection Cycle Projects

PRESENTED BY

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Purpose

- Update on MISO Generator Interconnection “DPP-2018-Cycle” Projects

Takeaways

- Capital Cost: \$40 million
- Eleven (11) Interconnection Requests – moving to Generator Interconnection Agreement (GIA) phase
- Total: 925 MW
- Two (2) Interconnections at two New Substations
- Nine (9) Interconnection at Existing Substations
- Six (6) Network Projects
 - Two (2) Transformer upgrades
 - Four (4) line upgrades
- Various Short Circuit and Ground Grid Related Upgrades

Cost Assigned to Each Interconnection

No	MISO ID	Name	Fuel	MW	Point of Interconnection	Energy Resource Interconnection Service Network Upgrades (\$)			Network Resource Interconnection Service Network Upgrades (\$)	Interconnection Facilities TO Network Upgrades (\$)	Total Cost of Network Upgrades (Exclude TOIF & Affected Systems) (\$)
						Steady State Thermal and Voltage	Dynamic and EMT Stability	Short Circuit			
1	J986	GSD Farming Co	SOLAR	150	Port Edwards - Sand lake 138kV	5,093,272	0	1,020,668		6,740,635	12,854,575
2	J1000	Nelson Dewey Interconnection	SOLAR	50	Nelson - Lancaster 138-kV X-16	0	0	0		6,441,458	6,441,458
3	J1002	Wautoma Interconnection	SOLAR	99	Wautoma 138 kV Switchyard	1,575,471	0	737,572		2,618,981	4,932,024
4	J1003	North Beaver Dam Interconnection	SOLAR	50	North Beaver Dam 69kV	0	0	221,760		366,697	588,457
5	J1042	Walworth 1 Solar Farm	SOLAR	180	North Lake Geneva 138 kV Substation	0	0	220,000	3,720,312	750,098	4,690,410
6	J1101	Two Creeks Storage	STORAGE	20	Kewaunee 138kV Substation	0	0	0		0	0
7	J1153	Onion River Solar Project	SOLAR	150	Holland 138 kV Substation	0	0	660,000		4,106,408	4,766,408
8	J1154	Crawfish River Solar Project	SOLAR	75	Jefferson 138 kV Substation (J818)	1,860,217	0	0		0	1,860,217
9	J1171	Springfield Solar	SOLAR	100	Butternut 138 kV Substation	0	0	220,000		1,521,698	1,741,698
10	J1183	Garden Solar Phase II	SOLAR	1.35	Heritage Garden substation	0	0	0		0	0
11	J1188	North Rock Solar	SOLAR	50	Sheepskin 69 kV Substation	0	0	220,000	243,282	1,362,993	1,826,275
Total (\$)				925		8,528,960		3,300,000	3,963,594	23,908,968	39,701,522

Costs are based on DPP Phase 3 System Impact Studies Report

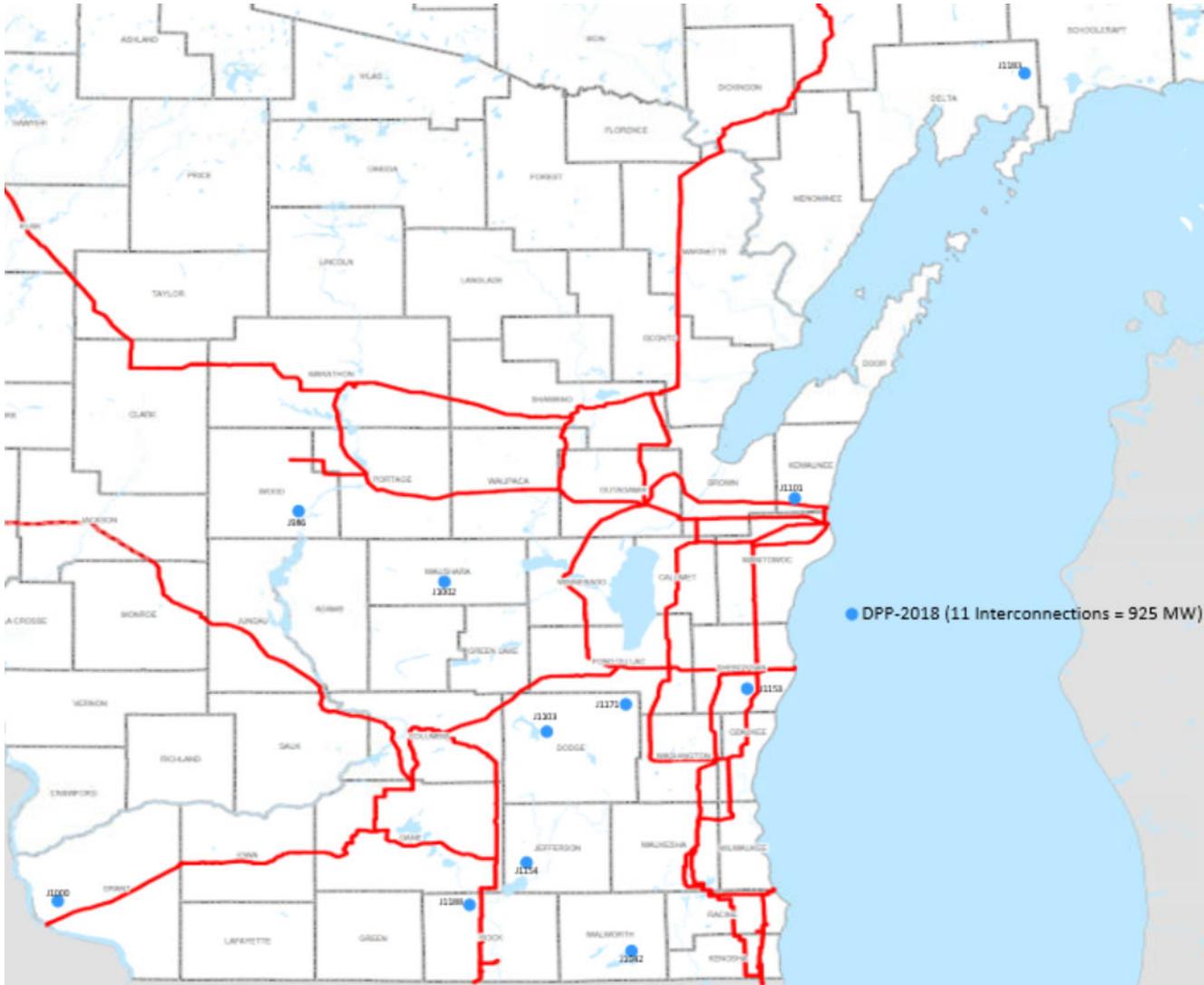
Project Costs: Interconnection Substations

Count	Interconnections at New Substations	Cost
1	J986 ⁺ Interconnection Facility (7 Mile Creek 138-kV Substation)	6,740,635
2	J1000 Interconnection Facility (New 138-kV Substation)	6,441,458
	Total	13,182,093

Count	Interconnections at Existing Substations	Cost
1	J1002 Interconnection Facility (Wautoma 138-kV Substation)	2,618,981
2	J1003 Interconnection Facility (North Beaver Dam 69-kV Substation)	366,697
3	J1042 Interconnection Facility (North Lake Geneva 138-kV Substation)	750,098
4	J1101 Interconnection Facility (Kewaunee 138-kV Substation)	0
5	J1153 Interconnection Facility (Holland 138-kV Substation)	4,106,408
6	J11534 Interconnection Facility (Jefferson 138-kV Substation)	0
7	J1171 Interconnection Facility (Butternut 138-kV Substation)	1,521,698
8	J1183 Interconnection Facility (Heritage Garden 138-kV Substation)	0
9	J1188 Interconnection Facility (Sheepskin 69-kV Substation)	1,362,993
	Total	10,726,875

Project Costs: Transmission Upgrades

Network Upgrade	Type	Cost
Sand Lake 138/69 kV Transformer, Replacement	ERIS	3,105,696
Crawfish River - Concord (9043) 138 kV, Uprate	ERIS	902,919
Jefferson - Crawfish River (6654) 138 kV, Uprate	ERIS	957,298
J986 POI – Port Edwards (X-11) 138 kV, Uprate	ERIS	584,677
Wautoma 138/69 kV Transformer, Replacement	ERIS	2,978,370
North Lake Geneva Tap - Burlington (6541) 138 kV, Reconductor	NRIS	3,963,594
Short Circuit / Ground Grid related upgrades as single bucket	ERIS	3,300,000
Total		15,792,554



In Progress: MISO Generation Interconnection Cycles

- DPP-2019-Cycle : Phase 2 almost complete
- DPP-2020-Cycle: Phase 1 in progress

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