

MISO Project Number Point of Interconnection Summer Net Output (MW)	J711-1	County/State Fuel Type Control Area	Baraga, Michigan
	M38 138kV Substation		Wind
	130		UPPC

Summer Off Peak

Monitored Element	Contingency	DF(%)	Rating (MVA)	Overload (%)	Voltage (kV)
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	44.76%	246	119.6%	138
Empire Mine - Forsyth 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	45.02%	246	119.1%	138
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	45.02%	246	101.3%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	41.72%	205	122.4%	138
Forsyth - Arnold 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	41.96%	205	121.8%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	41.96%	205	102.0%	138

Summer Peak

Monitored Element	Contingency	DF(%)	Rating (MVA)	Overload (%)	Voltage (kV)
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	44.73%	246	206.5%	138
Empire Mine - Forsyth 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	44.98%	246	200.9%	138
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	44.98%	246	182.8%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	41.69%	205	217.9%	138
Forsyth - Arnold 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	41.92%	205	211.7%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	41.92%	205	191.5%	138
Pearch Lake - Nordic 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	44.24%	191	142.5%	138
Pearch Lake - Nordic 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	44.00%	191	141.6%	138
Pearch Lake - Nordic 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	44.00%	191	128.1%	138

DPP Entry Milestone
\$555,507

See Attachment A for M2 Milestone Payment Calculation

N/A indicates no constraints have been found based on the scope of the feasibility screening.

MISO Project Number	J711-2	County/State	Baraga, Michigan
Point of Interconnection	M38 - North Lake 138kV Line	Fuel Type	Wind
Summer Net Output (MW)	130	Control Area	UPPC

Summer Off Peak

Monitored Element	Contingency	DF(%)	Rating (MVA)	Overload (%)	Voltage (kV)
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:8-1	49.83%	246	121.1%	138
Empire Mine - Forsyth 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	50.04%	246	120.6%	138
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:7-8	50.04%	246	103.0%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:8-1	46.39%	205	124.0%	138
Forsyth - Arnold 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	46.59%	205	123.5%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:7-8	46.59%	205	103.8%	138
J711 Tap - Northlake 138kV Line Ckt1C	P24:138:ATC:M-38:BTG1-2	100.00%	79	158.2%	138

Summer Peak

Monitored Element	Contingency	DF(%)	Rating (MVA)	Overload (%)	Voltage (kV)
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:8-1	53.09%	246	205.7%	138
Empire Mine - Forsyth 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	53.13%	246	201.2%	138
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:7-8	53.13%	246	183.0%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:8-1	49.39%	205	217.1%	138
Forsyth - Arnold 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	49.43%	205	212.0%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:7-8	49.43%	205	191.8%	138
Pearch Lake - Nordic 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:8-1	38.72%	191	145.3%	138
Pearch Lake - Nordic 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	38.68%	191	143.1%	138
Pearch Lake - Nordic 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:7-8	38.68%	191	129.6%	138
Presque Isle - Pearch Lake 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:8-1	8.79%	173	130.4%	138
Presque Isle - Pearch Lake 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	8.74%	173	128.6%	138
Presque Isle - Pearch Lake 138kV Line Ckt1	P23:138:ATC:PresqueIsleMT:7-8	8.74%	173	115.7%	138

DPP Entry Milestone

\$581,507

See Attachment A for M2 Milestone Payment Calculation

N/A indicates no constraints have been found based on the scope of the feasibility screening.

MISO Project Number	J711-3	County/State	Baraga, Michigan
Point of Interconnection	M38 - Perch Lake 138kV Line	Fuel Type	Wind
Summer Net Output (MW)	130	Control Area	UPPC

Summer Off Peak

Monitored Element	Contingency	DF(%)	Rating (MVA)	Overload (%)	Voltage (kV)
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	31.64%	246	122.4%	138
Empire Mine - Forsyth 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	32.06%	246	121.9%	138
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	32.06%	246	103.1%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	29.64%	205	125.5%	138
Forsyth - Arnold 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	30.02%	205	124.9%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	30.02%	205	104.0%	138
J711 Tap - M-38 138kV Line Ckt1C	P23:138:ATC:Atlantic:M38G22	100.00%	123	100.4%	138
J711 Tap - M-38 138kV Line Ckt1C	J711 Tap - Perch Lake 138kV Line Ckt1	100.00%	123	100.4%	138
J711 Tap - M-38 138kV Line Ckt1C	P23:138:ATC:PerchLake:2201	100.00%	123	100.4%	138
J711 Tap - Perach Lake 138kV Line Ckt1C	J711 Tap - M-38 138kV Line Ckt1	100.00%	123	100.4%	138
J711 Tap - Perach Lake 138kV Line Ckt1C	P24:138:ATC:M-38:BTG1-2	100.00%	123	100.4%	138
Lake Mine - Mass 69kV Line Ckt1	P23:138:ATC:PerchLake:2201	70.61%	46	112.4%	69
Lake Mine - Mass 69kV Line Ckt1	P23:138:ATC:Atlantic:M38G22	70.61%	46	112.4%	69
Lake Mine - Mass 69kV Line Ckt1	J711 Tap - Perch Lake 138kV Line Ckt1	70.61%	46	112.4%	69
Winona - Lake Mine 69kV Line Ckt1	P23:138:ATC:Atlantic:M38G22	70.61%	37	140.3%	69
Winona - Lake Mine 69kV Line Ckt1	P23:138:ATC:PerchLake:2201	70.61%	37	140.3%	69
Winona - Lake Mine 69kV Line Ckt1	J711 Tap - Perch Lake 138kV Line Ckt1	70.61%	37	140.3%	69

Summer Peak

Monitored Element	Contingency	DF(%)	Rating (MVA)	Overload (%)	Voltage (kV)
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	31.65%	246	212.6%	138
Empire Mine - Forsyth 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	31.64%	246	207.6%	138
Empire Mine - Forsyth 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	31.64%	246	188.7%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	29.64%	205	224.7%	138
Forsyth - Arnold 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	29.64%	205	219.2%	138
Forsyth - Arnold 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	29.64%	205	198.1%	138
Pearch Lake - Nordic 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:8-1	57.27%	191	140.8%	138
Pearch Lake - Nordic 138kV Line Ckt1	P12:138:ATC:481_MT:PRESQIS:DEADRVR	57.27%	191	137.4%	138
Pearch Lake - Nordic 138kV Line Ckt1	P23:138:ATC:PresquelsleMT:7-8	57.27%	191	124.5%	138

N/A indicates no constraints have been found based on the scope of the feasibility screening.

DPP Entry Milestone
\$606,507

See Attachment A for M2 Milestone Payment Calculation

N/A indicates no constraints have been found based on the scope of the feasibility screening.

Attachment A

Voltage(kV)	Cost(\$)
345	350,000
230	200,000
161	130,000
138	130,000
115	130,000
69	125,000

M2 Milestone Payment = 10% x (Total for Number of Feasibility Constraints per Voltage Level x Constant Cost (see chart above) per Voltage Level + Project Size (MW) x Current Schedule 7 MISO Drive-Through and Out Yearly Maximum Cost = \$10,000 per Gross MW, Minimum Cost = \$2,000 per Gross MW

Schedule 7 MISO Drive-Through and Out rate = \$39,731.3354