Date/Vintage:	Feb 2024
Updated On:	2/1/2024
Updated By:	Ben Kaldunski
Verified (Yes/No):	Yes
Note:	Levelized cost includes initial cap ex, on-going cap ex, fixed O&M, and gas demand costs. CTs are assumed to be dual fuel. All Costs are 2018$

Thermal Generic Information	
Resource	**Generic CT**
Technology	7H
Location Type	Greenfield
Cooling Type	Dry
Book life	40
Nameplate Capacity (MW)	374
Summer Peak Capacity (MW)	331
Capital Cost ($000) 2023$	$280,000
Ongoing Capital Expenditures ($000-yr) 2023$	$1,784
Capital Cost ($/kW) 2023$	$749
Ongoing Capital Expenditures ($/kW-yr) 2023$	$4.77
Fixed O&M Cost ($000/yr) 2023$	$1,524
Variable O&M Cost ($/MWh) 2023$	$1.20
Summer Heat Rate 100% Loading (btu/kWh)	9,264
Summer Heat Rate 75% Loading (btu/kWh)	9,738
Summer Heat Rate 50% Loading (btu/kWh)	11,120
Summer Heat Rate 25% Loading (btu/kWh)	11,558
Forced Outage Rate	3%
Maintenance (weeks/yr)	2
CO2 Emissions (lbs/MMBtu)	118
SO2 Emissions (lbs/MWh)	0.00
NOx Emissions (lbs/MWh)	0.90
PM10 Emissions (lbs/MWh)	0.03
Mercury Emissions (lbs/MMWh)	0.00

Forecast of Marginal Energy Prices ($/MWh)

Summary of Estimated NSP Average System On & Off Peak Marginal Energy Costs in $/MWh

	Month	On Peak	Off Peak	Average	Row
31	Jan-25	$55.03	$36.06	$45.55	1
28	Feb-25	$48.13	$38.79	$43.46	2
31	Mar-25	$28.55	$23.14	$25.84	3
30	Apr-25	$24.54	$19.92	$22.23	4
31	May-25	$28.18	$20.48	$24.33	5
30	Jun-25	$36.12	$23.23	$29.67	6
31	Jul-25	$47.89	$27.51	$37.70	7
31	Aug-25	$46.08	$26.88	$36.48	8
30	Sep-25	$34.72	$23.69	$29.20	9
31	Oct-25	$34.62	$24.75	$29.69	10
30	Nov-25	$34.48	$24.79	$29.64	11
31	Dec-25	$39.57	$27.61	$33.59	12
		[PROTECTED DATA BEGINS			
31	Jan-26				13
28	Feb-26				14
31	Mar-26				15
30	Apr-26				16
31	May-26				17
30	Jun-26				18
31	Jul-26				19
31	Aug-26				20
30	Sep-26				21
31	Oct-26				22
30	Nov-26				23
31	Dec-26				24
				PROTECTED DATA ENDS]	

Energy

NSP Average Summer/Winter Marginal Energy Costs 2025 - 2029

	Summer On	Summer Off	Average	Winter On	Winter Off	Average
2025	41.28	25.36	30.91	36.63	26.80	30.24
	[PROTECTED DATA BEGINS					
2026						
2027						
2028						
2029						

NSP Annual Average Marginal Cost 2025 - 2029

	Annual On	Annual Off	Annual Average
2025	38.18	26.32	30.46
2026			
2027			
2028			
2029			

Summer months are June through September
Winter months are Jan-May and Oct-Dec

PROTECTED DATA ENDS]

Peak Hour Calculation

NUMBER OF PEAK HOURS

The on peak period contains all hours between 9:00 a.m. and 9:00 p.m., Monday through Friday, except the following holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. When a designated holiday occurs on Saturday, the preceding Friday will be designated a holiday. When a designated holiday occurs on Sunday, the following Monday will be designated a holiday.

The off peak period contains all other hours not included in the on peak period. Definition of on peak and off peak period is subject to change with change in Company's system operating characteristics.

	On-Peak	Off-Peak
Winter	2,023	3,809
Summer	1,022	1,906
Total	3,045	5,715

On-Peak Days/Week	5 Days
On-Peak Hour Block	12 Hours

	Day in Month	On Peak Hours	Off Peak Hours
June	30	257	463
July	31	266	478
4th of July	0	-12	12
August	31	266	478
September	30	257	463
Labor Day	0	-12	12
October	31	266	478
November	30	257	463
Thanksgiving	0	-12	12
December	31	266	478
Christmas	0	-12	12
January	31	266	478
New Year's Day	0	-12	12
February	28	240	432
March	31	266	478
Easter	0	-12	12
April	30	257	463
May	31	266	478
Memorial Day	0	-12	12
		3,045	5,715

Line Loss Calculation

	Summer On-Peak	Summer Off-Peak	Average Summer	Winter On-Peak	Winter Off-Peak	Average Winter	Annual On-Peak	Annual Off-Peak	Annual All Hours
Overall Loss Factors	0.9232	0.9364	0.9318	0.9225	0.9334	0.9296	0.9227	0.9344	0.9303
Overall Loss Factor	0.9616	0.9682	0.9659	0.9612	0.9667	0.9648	0.9614	0.9672	0.9652

NSP (MN & Subs)
NSP System Peak Demands
Summer/Winter Factors: 12 Months Ending Dec 31, 2023

	System MW	
Month	**Full**	**Net**
1	6,174	1,306
2	6,157	1,320
3	5,853	1,016
4	5,662	825
5	5,178	341
6	6,334	1,497
7	8,347	3,510
8	9,126	4,289
9	8,517	3,680
10	7,316	2,479
11	5,465	628
12	5,573	736
	6,109	127176.9%
Annual Average Hourly Load	**4,868**	
Average of Monthly Peaks		
Year	6,642	1,802
Summer	8,081	3,244
Winter	5,922	1,081
Total	14,003	4,325
Summer:Winter Ratio	**1.3645**	**3.0002**
Summer Percent	57.71%	75.00%
Winter Percent	42.29%	25.00%
	100.00%	100.00%

Notes:

Full system ratio used to weight actual summer class peaks

Net system ratio used to split total peaking plant into summer and winter