

Minnesota Public Utilities Commission

DOCKET NO. E999/PR-19-09

Reporting Period:

January 1 - December 31, 2019

Cogeneration and Small Power Production Tariff

Utility:

Minnesota Power

Instructions:

Due: January 1st, 2019

Reporting period: The tariff is effective for 12 months after the filing date

Complete the following worksheets and e-file in **Excel (XLS or XLSX)** format:

Worksheet 1, Utility Info

Worksheet 2, Minn. Rules 7835.0500 Schedule A: Estimated Energy Costs

Worksheet 3, Minn. Rules 7835.0600 Schedule B: Estimated Capacity Costs

Worksheet 4, Minn. Rules 7835.0650 Schedule C: Average Retail Energy Rate

Worksheet 5, Minn. Rules 7835.1000 Schedule G: Computations and Descriptions

Worksheet 6, Minn. Rules 7835.1100 Schedule H: Wholesale Power Rates

Comments: Wholesale suppliers may provide Schedules A, B, and G to their members to facilitate reporting

Please file Schedules D - F in a separate PDF

To e-file, login, or register, at: <https://www.edockets.state.mn.us/EFiling/home.jsp>

For directions on how to e-file, see: <http://www.commerce.state.mn.us/eDocFile/eFilingHelp.html>

For questions about the worksheets, send an email to: DG.Energy@state.mn.us.

For questions about e-filing, contact Karen Santori at 651-539-1530 or at karen.santori@state.mn.us.

Minnesota Public Utilities Commission

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Reporting Period:

January 1 - December 31, 2019

Cogeneration and Small Power Production Tariff

Utility:

Minnesota Power

Report Year: 2019

Date Submitted: January 2, 2019

Filing Utility Information		Contact Information	
Company ID#	68	Contact Name	Andrew Hall
Company Name	Minnesota Power	Contact Title	Cost and Pricing Analyst II
Street Address Line 1	30 West Superior St	Contact Telephone	218-355-3100
Street Address Line 2		Contact Email	ahall@allete.com
City	Duluth		
State	MN		
Zip Code	55802		

Comments/Notes

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Minn. Rules 7835.0500 Schedule A: Estimated Energy Costs

Schedule A must contain the estimated system average incremental energy costs by seasonal peak and off-peak periods for each of the next five years. For each seasonal period, system incremental energy costs must be averaged during system daily peak hours, system daily off-peak hours, and all hours in the season. The energy costs must be increased by a factor equal to 50 percent of the line losses shown in schedule B. Schedule A must describe in detail the method used to determine the on-peak and off-peak hours and seasonal periods and must show the resulting on-peak and off-peak and seasonal hours selected.

Please include all computation descriptions in Schedule G

		Estimated Marginal Energy Costs (\$/MWh) [TRADE SECRET DATA EXCISED]				
		2019	2020	2021	2022	2023
Summer	On Peak	31.45				
	Off Peak	21.46				
	All Hours	26.13				
Winter	On Peak	30.95				
	Off Peak	24.66				
	All Hours	27.58				
Annual	On Peak	31.20				
	Off Peak	23.05				
	All Hours	26.85				
Annual # hours on-peak:		4080	4112	4096	4080	4064

Description of season and on-peak and off-peak periods	
Summer:	May thru October
Winter:	November thru April
On-peak period:	Weekday hours ending 7 thru 22
Off-peak period:	Weekday hours ending 23 thru 6 and Weekends / Holidays hours ending 1 thru 24

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Minn. Rules 7835.0600 Schedule B: Estimated Capacity Costs		

Subp. 7. Avoidable capacity costs

If the utility has neither planned generating facility additions nor planned additional capacity purchases, other than from qualifying facilities, during the ensuing ten years, the utility must be deemed to have no avoidable capacity costs.

Planned facility additions or capacity purchases

Fill out Schedule B

Subp. 2. Description of all planned utility generating facility additions anticipated during the next ten years, including:

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
A. Name of Unit	1x1 Combined Cycle (NTEC)					
B. Nameplate Rating	50% Share of 525 MW					
C. Fuel Type	Natural Gas					
D. In-Service Date	1/1/2025					
E. Completed Cost in \$/kW in the year in which the plant is expected to be put in service, including allowance for funds used during construction						
F. Anticipated average annual fixed operating and maintenance costs in \$/kW						
G. Energy costs associated with the unit, including fuel costs and variable operating and maintenance costs		[TRADE SECRET DATA EXCISED]				
H. Projected average number of kWh/year the plant will generate during its useful life						
I. Average annual fuel savings resulting from the addition of this generating facility, stated in \$/kW						

Subp. 3. Description of all planned firm capacity purchases, other than from qualifying facilities, during the next ten years, including:

	Purchase 1	Purchase 2	Purchase 3	Purchase 4	Purchase 5	Purchase 6
A. Year of Purchase						
B. Name of the seller						
C. Number of kW of capacity to be purchased						
D. Capacity cost in \$/kW						
E. Associated energy costs in cents/kWh						

	Purchase 7	Purchase 8	Purchase 9	Purchase 10	Purchase 11	Purchase 12
A. Year of Purchase						

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Minn. Rules 7835.0600 Schedule B: Estimated Capacity Costs

B. Name of the seller						
C. Number of kW of capacity to be purchased						
D. Capacity cost in \$/kW						
E. Associated energy costs in cents/kWh						

	Purchase 13	Purchase 14	Purchase 15	Purchase 16	Purchase 17	Purchase 18
A. Year of Purchase						
B. Name of the seller						
C. Number of kW of capacity to be purchased						
D. Capacity cost in \$/kW						
E. Associated energy costs in cents/kWh						

Subp. 4. Utility's overall average percentage of line losses due to distribution, transmission, and transformation of electric energy						
Average Annual line loss	10.49%					
	Summer On-Peak	Summer Off-Peak	Average Summer	Winter On-Peak	Winter Off-Peak	Average Winter
Loss Factors						

Subp. 5 Net annual avoided capacity cost - Please show calculations in Schedule G		
Averaged on Peak hours	0 016	The utility's net annual avoided capacity cost stated in dollars per kilowatt-hour averaged over the on-peak hours and the utility's net annual avoided capacity cost stated in dollars per kilowatt-hour averaged over all hours.
Average Over All Hours	0 007	

Subp. 6 Net annual avoided capacity cost - Please show calculations in Schedule G		
Averaged on Peak hours		If the utility has no planned generating facility additions for the ensuing ten years, but has planned additional capacity purchases, other than from qualifying facilities, during the ensuing ten years, schedule B must contain its net annual avoided capacity cost stated in dollars per kilowatt-hour averaged over the on-peak hours and the utility's net annual avoided capacity costs stated in dollars per kilowatt-hour averaged over all hours.
Average Over All Hours		

**PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED**

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Minn. Rules 7835.1000 Schedule G: Computations and Descriptions		
Schedule G must contain and describe all computations made by the utility in determining Schedules A and B. Please use the space below to show your calculations. Refer to Minn. Rules 7835.0500-7835.0600 for detailed computation descriptions, especially for Schedule B Subp. 5 and 6.		

Schedule A: Description of the Calculations

For each year in the study period (2019-2023) marginal energy costs are computed from the output of the RTSim production cost model. The modeling output from RTSim includes the system variable energy costs by period (i.e. On Peak and Off Peak) for Minnesota Power. The marginal energy cost is computed by subtracting the system variable energy cost for the Base Case from the Decremental 50 MW case to yield the change in system variable energy costs. By dividing the change of the system variable energy cost by 50 MW (the marginal change) yields the change in system variable energy costs by period on a dollar per MWh basis (Marginal Energy Costs). The estimated marginal energy costs are increased by a factor equal to 50 percent of the line losses shown in schedule B.

Schedule B: Calculations

Item A:

MP "Marginal Capital Carrying Charge Rate" for CC capital	
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Plant Capital Cost (\$/kW)	
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[TRADE SECRET DATA EXCISED]

A. Levelized revenue requirement (\$/kW-Year)	
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Item B:

Incremental Cost of Capital (Discount Rate)	7.0639%
Reporting Year	2019
B. Levelized revenue requirement discounted to mid-Point of Reporting Year (\$/kW-Year)	

Item C:

NTEC Plant Operating Characteristics (NTEC)	
Installed Year	2025
MP Share of NTEC Capacity (MW)	262.623
Baseload Performance	UOM
Net Plant Output	kW
Net Plant Heatrate	Btu/kWh (Hvw)
Fired Performance	
Incremental Plant Output	kW
Incremental Heatrate	Btu/kWh (Hvw)
Net Fired Performance	
Net Fired Plant Output	kW
Net Fired Plant Heatrate	Btu/kWh (Hvw)

[TRADE SECRET DATA EXCISED]

	2025
Gas Price Outlook (\$/MMBtu)	
Delivery Adder (\$/MMBtu)	
Total	
Fuel Price Base \$/MWh	
Fuel Price Fired \$/MWh	

Estimated On-Peak Hours	4,160
Estimated Off Peak Hours	4,600

Average Generation from Strategist Adjusted to 50% MW Share of NTEC from 2025-2034	
Duct Firing: Average CT Capacity Factor for 2025-2034 From Independent Forecast	

[TRADE SECRET DATA EXCISED]

On-Peak Non-Fired Operation (MWh)	
On-Peak Fired Operations (MWh)	
Off-Peak Non Fired Operations (MWh)	

2025 Variable O&M (\$/MWh)	
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**PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED**

Energy costs associated with the unit, including fuel costs and variable operating and maintenance costs	
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Energy Price Outlook for Minn.hub

Year 2025	\$/MWh
On-Peak	
Off-Peak	

[TRADE SECRET DATA EXCISED]

Annual Fuel Savings	
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Average annual fuel savings resulting from the addition of this generating facility, stated in \$/kW-year	
C. Average annual fuel savings discounted to mid-point of Reporting Year (\$/kW-Year)	

Item D:

D. Annual Avoided Capacity Cost - Item C subtracted from Item B (\$/kW-Year)	
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Item E:

Reserve Margin	15%
E. Annual Avoided Capacity Cost increased for Reserve Margins (\$/kW-Year)	

[TRADE SECRET DATA EXCISED]

Item F:

Annual fixed operating and maintenance costs	
Annual fixed operating and maintenance costs discounted to mid-point of Reporting Year (\$/kW-Year)	
F. The Annual Avoided Capacity Cost increased for operating and maintenance costs (\$/kW-Year)	

Item G:

Line Losses	10.49%
1/2 Line Losses	5.25%
G. Annual Avoided Capacity Costs increased by one-half of the percentage amount of the average system line losses (\$/kW-Year)	

[TRADE SECRET DATA EXCISED]

Item H:

Number of On-Peak Hours	4,160
H. Annual Avoided Capacity Costs (Item G) Divided by the annual number of hours in the on-peak period (\$/kW-On Peak hours)	\$0.016

Item I:

Total number of All Hours	8,760
H. Annual Avoided Capacity Costs (Item G) Divided by the annual number of hours in the on-peak period (\$/kW hours)	\$0.00748

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Minn. Rules 7835.1100 Schedule H: Wholesale Power Rates

Special Rule for Non-Generating Utilities: Schedule H must list the rates at which a non-generating utility purchases energy and capacity. If the non-generating utility has more than one wholesale supplier, schedule H must list the rates of that supplier from which purchases may first be avoided. If the non-generating utility with more than one wholesale supplier also chooses to file schedules A and B, the data on schedules A and B must be obtained from that supplier from which purchases may first be avoided. Please use the space below to include these rates.