

PUBLIC DOCUMENT

CONFIDENTIAL INFORMATION HAS BEEN EXCISED

Northern States Power Company
Electric Operations - State of South Dakota
COGENERATION AND SMALL POWER PRODUCTION FILING

Attachment 1
Page 1 of 4

Derivation of Metering Costs - State of South Dakota

OCCASIONAL DELIVERY ENERGY SERVICE

STANDARD KWH METER	Single Phase
(1) Installed Cost	\$98.92
(2) L.A.R.R.	9.98%
(3) Levelized Cost (1)*(2)	\$9.87
(4) Accounting Expenses \$/Cust/Yr	\$43.34
(5) Total Annual (3)+(4)	\$53.21
(6) Total Monthly (5)/12	\$4.43
	Proposed <input type="text" value="\$3.75"/>
	Current <input type="text" value="\$3.75"/>

TIME OF DELIVERY ENERGY SERVICE

TOD KW/KWH METER	Single Phase
(7) Installed Cost	\$273.69
(8) Levelized Cost (7)*(2)	\$27.31
(9) Total Annual (8)+(4)	\$70.65
(10) Total Monthly	\$5.89
	Proposed <input type="text" value="\$4.75"/>
	Current <input type="text" value="\$4.75"/>

Source:

(1)(7) Data provided by NSP Metering Dept.

(2) Based on cost of capital on page 4

(4) Based on NSP ECCOSS Workpapers (Docket No. EL14-058).

Derivation of Energy Payments - State of South Dakota

OCCASIONAL DELIVERY ENERGY SERVICE

	Annual Average
(1) Estimated System Average Incremental Energy Costs for 2016 (¢/kWh)	
(2) Energy Loss Factors	
(3) Estimated System Average Incremental Energy Costs Adjusted for Losses (1)/(2)	2.58

TIME OF DAY PURCHASE SERVICE

	Annual On Peak	Annual Off Peak
(1) Estimated System Average Incremental Energy Costs for 2016 (¢/kWh)		
(2) Energy Loss Factors		
(3) Estimated System Average Incremental Energy Costs Adjusted for Losses(1)/(2)	3.36	2.17

Sources:

Incremental Energy Cost Data provided by Xcel Energy's Generation Modeling Services.

PUBLIC DOCUMENT
CONFIDENTIAL INFORMATION HAS BEEN EXCISED

Northern States Power Company
Electric Operations - State of South Dakota
COGENERATION AND SMALL POWER PRODUCTION FILING

Attachment 1
Page 3 of 4

Calculation of Net Annual Avoided Capacity Costs

- | | |
|--|-------|
| (1) Completed Cost of Planned C.T. Unit (2016\$) | \$/kW |
| (2) Inflation Net of Technical Progress | |
| (3) Average Service Life | Years |
| (4) Discount Rate (After Tax) | |

Calculation of Marginal Capital Carry Charge Rate

- | | |
|---|---------------|
| (5) Present Value of Revenue Requirements | |
| (6) Annuity Factor Adjustment for Inflation ** | |
| (7) Present Value of Revenue Requirements
Adjusted for Inflation ^{(5)*(6)} | |
| (8) Marginal Capital Carrying Charge Rate
^{(7)/(1)} | |
| (9) First Year Revenue Requirement (2016\$) ^{(1)*(8)} | \$/kW |
| (10) Present Value at % for 0 years | \$/kW |
| (11) Present Value of Average Annual Fuel Savings | \$/kW |
| (12) Annual Avoided Capacity Cost
⁽¹⁰⁾⁻⁽¹¹⁾ | \$/kW |
| (13) Adjusted for % Reserve Margin***
^{(12)*15.00%} | \$/kW |
| (14) Plus \$ /kW Fixed O & M (2016 \$)
^{(13)+\$O&M} | \$/kW |
| (15) Adjusted for Losses ^{(14)/losses} | \$/kW |
|
(16) NET ANNUAL AVOIDED CAPACITY COST |
\$/kW |
|
(17) Net Annual Avoided Capacity Cost
Average Over All Hours
^{(16)*100/8760} |

¢/kWh |

** $AC = (r-j) \cdot (1+j)^{t-1} \cdot [1 / (1-(1+j)^n / (1+r)^n)]$
Where AC = Annual Charge in year t
t = Year (=1)
K = Total Present Value Cost of Original Investment
r = Discount Rate (Overall Marginal Cost of Capital) (6.44%)
j = Inflation Rate Net of Technology Progress (2.82%)
n = Expected Service Life of Investment (35 Years)

O & M = \$

***Reserve Margin based upon MN docket 15-9

PUBLIC DOCUMENT
CONFIDENTIAL INFORMATION HAS BEEN EXCISED

Northern States Power Company, a Minnesota Corporation

Attachment 1

Page 4 of 4

Electric Operations - State of South Dakota
COGENERATION AND SMALL POWER PRODUCTION FILING

Marginal Cost of Capital

<i>(Before Tax)</i>	Capitalization Ratio (%)	Cost (%)	Weighted (%)
Debt			
Preferred Equity			
Common Equity			
Weighted Average	100.00%		7.22% *

<i>(After Tax)</i>	Capitalization Ratio (%)	Cost (%)	Weighted (%)
Debt			
Preferred Equity			
Common Equity			
Weighted Average	100.00%		6.44%

* SD Commission approval of settlement in Docket No. EL14-058.

Source:

Information based on Company's 2014 Rate Case settlement (Confidential).