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Derivation of Metering Costs - State of South Dakota

OCCASIONAL DELIVERY ENERGY SERVICE

STANDARD KWH METER	**Single Phase**
(1) Installed Cost	$140.00
(2) L.A.R.R.	9.90%
(3) Levelized Cost (1)*(2)	$13.86
(4) Accounting Expenses $/Cust/Yr	$45.66
(5) Total Annual (3)+(4)	$59.52
(6) Total Monthly (5)/12	$4.96
Proposed	$3.75
Current	$3.75

TIME OF DELIVERY ENERGY SERVICE

TOD KW/KWH METER	**Single Phase**
(7) Installed Cost	$350.00
(8) Levelized Cost (7)*(2)	$34.65
(9) Total Annual (8)+(4)	$80.31
(10) Total Monthly	$6.69
Proposed	$4.75
Current	$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 2017 (¢/kWh)	[TRADE SECRET BEGINS:
(2) Energy Loss Factors	TRADE SECRET ENDS]
(3) Estimated System Average Incremental Energy Costs Adjusted for Losses (1)/(2)	2.38

TIME OF DELIVERY ENERGY SERVICE

	Annual On Peak	Annual Off Peak
(1) Estimated System Average Incremental Energy Costs for 2017 (¢/kWh)	[TRADE SECRET BEGINS:	
(2) Energy Loss Factors		TRADE SECRET ENDS]
(3) Estimated System Average Incremental Energy Costs Adjusted for Losses(1)/(2)	3.10	1.99

Sources:

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

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Northern States Power Company

Electric Operations - State of South Dakota

COGENERATION AND SMALL POWER PRODUCTION FILING

Calculation of Net Annual Avoided Capacity Costs

	[TRADE SECRET BEGINS:	
(1) Completed Cost of Planned C.T. Unit (2017$)		$/kW
(2) Inflation Net of Technical Progress		
(3) Average Service Life		Years
(4) Discount Rate (After Tax)		
Calculation of Marginal Capital Carry Charge Rate		
(5) Present Value of Revenue Requirements		
(6) Annuity Factor Adjustment for Inflation **		
(7) Present Value of Revenue Requirements Adjusted for Inflation (5)*(6)		
(8) Marginal Capital Carrying Charge Rate (7)/(1)		
(9) First Year Revenue Requirement (2017$) (1)*(8)		$/kW
(10) Present Value at 6.44% for 0 years		$/kW
(11) Present Value of Average Annual Fuel Savings		$/kW
(12) Annual Avoided Capacity Cost (10)-(11)		$/kW
(13) Adjusted for 15.00% Reserve Margin*** (12)*15.00%		$/kW
(14) Plus $____/kW Fixed O & M (2017 $) (13)+$2.61		$/kW
(15) Adjusted for Losses (14)/0.9348		$/kW
(16) NET ANNUAL AVOIDED CAPACITY COST		$/kW
(17) Net Annual Avoided Capacity Cost Average Over All Hours	$0.51	¢/kWh
	TRADE SECRET ENDS]	

** AC = (r-j)*(1+j)^(t-1)*[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 (2.64%)

n = Expected Service Life of Investment (35 Years)

Northern States Power Company, a Minnesota Corporation

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

Marginal Cost of Capital

(Before Tax)	Capitalization Ratio (%)	Cost (%)	Weighted (%)
	[TRADE SECRET BEGINS:		
Debt			
Preferred Equity			
Common Equity			
			TRADE SECRET ENDS]
Weighted Average	100.00%		**7.22%** *

(After Tax)	Capitalization Ratio (%)	Cost (%)	Weighted (%)
	[TRADE SECRET BEGINS:		
Debt			
Preferred Equity			
Common Equity			
			TRADE SECRET ENDS]
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) under Docket No. EL14-058.