Northern States Power Company State of South Dakota Electric Jurisdiction Area Units - Automatic Protective Lighting Service LED Rate Design - E12 Docket No. EL25-\_\_\_ Exhibit\_\_\_(NNP-1), Schedule 8 Page 1 of 2

**NSP-SD** 

\$2.15

\$5.35

# NSP-SD LED Area Unit Rate Design - E12 Per HPS/LED Area Light Equivalent

	100W/32W	250W/100W
Current HPS Monthly Area Protective Lighting Service Rates	\$9.28	\$16.50
Maintenance Expense Impact (Savings)	(\$0.91)	(\$0.91)
System Allocation Cost Reduction	(\$1.57)	(\$3.83)
Incremental Capital Revenue Requirement	\$1.05	\$1.14
Net LED Fixture Rate Impact - Company Owned Area Lights	(\$1.43)	(\$3.60)
Proposed Monthly LED Area Protective Lighting Service Rates	\$7.85	\$12.90
Percentage Savings (increase)	15.4%	21.8%
Current HPS Lighting Monthly Average Bill per Area Light - E12	\$10.27	\$19.10
LED Fixture Impact on HPS Area Lighting Rate	(\$1.43)	(\$3.60)
Fuel & Resource Adj. Savings Estimate	(\$0.72)	(\$1.75)
Total Monthly Bill Impact (savings)	(\$2.15)	(\$5.35)
Proposed LED Lighting Monthly Average Bill per Area Light - E12	\$8.12	\$13.75
Percentage Savings (increase)	21.0%	28.0%

### Annual Impact of LED Fixtures on the E12

Monthly Savings (increase)

#### **Protective Lighting System Service Rate - Area Units** Per HPS/LED Area Light Equivalent 100W/32W 250W/100W **Maintenance Savings** Relamp Expense Savings \$4.57 \$4.57 Service Order Expense Savings \$6.36 \$6.36 **Total Maintenance Savings** \$10.93 \$10.93 Monthly Savings (increase) \$0.91 \$0.91 **System Allocation Cost Reduction** Energy Related System Cost Allocation Reduction \$13.61 \$33.12 Demand Related System Cost Allocation Reduction \$5.26 \$12.81 **Total System Allocation Cost Reduction** \$18.87 \$45.93 Monthly Savings (increase) \$1.57 \$3.83 **Incremental Capital Revenue Requirement** (\$12.60)(\$13.64)Monthly Savings (increase) (\$1.05) (\$1.14) \$17.20 **LED Fixure Base Rate Savings (Increase)** \$43.22 Monthly Savings (increase) \$1.43 \$3.60 Fuel & Resource Adj. Savings Estimate \$8.63 \$21.01 Monthly Savings (increase) \$0.72 \$1.75 **Annual Bill Savings - LED Area Lights** \$25.83 \$64.23

Northern States Power Company State of South Dakota Electric Jurisdiction Directional Units - Automatic Protective Lighting Service LED Rate Design - E12 Docket No. EL25-\_\_ Exhibit\_\_\_(NNP-1), Schedule 8 Page 2 of 2

## NSP-SD Per HPS/LED Directional Light Equivalent

LED Directional Unit Rate Design - E12	Per HPS/LED Directional Light Equivalent	
	250W/128W	400W/175W
Current HPS Monthly Directional Protective Lighting Service Rates	\$18.34	\$22.96
Maintenance Expense Impact (Savings) System Allocation Cost Reduction Incremental Capital Revenue Requirement Net LED Fixture Rate Impact - Company Owned Directional Lights	(\$0.91) (\$3.31) \$3.29 (\$0.93)	(\$0.91) (\$5.68) \$3.91 (\$2.68)
Proposed Monthly LED Directional Protective Lighting Service Rates	\$17.41	\$20.28
Percentage Savings (increase)	5.1%	11.7%
Current HPS Lighting Monthly Average Bill per Directional Light - E12	\$20.94	\$27.04
LED Fixture Impact on HPS Directional Lighting Rate Fuel & Resource Adj. Savings Estimate Total Monthly Bill Impact (savings)	(\$0.93) (\$1.51) (\$2.44)	(\$2.68) (\$2.60) (\$5.28)
Proposed LED Lighting Monthly Average Bill per Directional Light - E12	\$18.50	\$21.76
Percentage Savings (increase)	11.7%	19.5%

#### Annual Impact of LED Fixtures on the E12

### NSP-SD

Annual impact of ELD 1 ixtures on the E12	1101 -00	
Protective Lighting System Service Rate - Directional Units	Per HPS/LED Directional Light Equivalent	
	250W/128W	400W/175W
Maintenance Savings		
Relamp Expense Savings	\$4.57	\$4.57
Service Order Expense Savings	\$6.36	\$6.36
Total Maintenance Savings	\$10.93	\$10.93
Monthly Savings (increase)	\$0.91	\$0.91
System Allocation Cost Reduction		
Energy Related System Cost Allocation Reduction	\$28.64	\$49.13
Demand Related System Cost Allocation Reduction	\$11.08	\$19.00
Total System Allocation Cost Reduction	\$39.72	\$68.13
Monthly Savings (increase)	\$3.31	\$5.68
Incremental Capital Revenue Requirement	(\$39.42)	(\$46.94)
Monthly Savings (increase)	(\$3.29)	(\$3.91)
LED Fixure Base Rate Savings (Increase)	\$11.23	\$32.12
Monthly Savings (increase)	\$0.93	\$2.68
Fuel & Resource Adj. Savings Estimate	\$18.17	\$31.16
Monthly Savings (increase)	\$1.51	\$2.60
Annual Bill Savings - LED Directional Lights	\$29.40	\$63.28
Monthly Savings (increase)	\$2.44	\$5.28