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## APPENDIX L: COST IMPACT ANALYSIS BY CUSTOMER CLASS

### Introduction

Order Point 5.f. of the Minnesota Public Utilities Commission’s (“Commission”) May 6, 2011, Order Accepting Resource Plan and Requiring Compliance Filings in Minnesota Power’s 2010-2024 Integrated Resource Plan<sup>1</sup> required Minnesota Power (or the “Company”) to include a “cost impact analysis by customer class” in its next resource plan. The Company complied with this order point in its subsequent 2013-2027 integrated resource plan.<sup>2</sup> This Appendix is included to voluntarily provide that information for this 2021 Integrated Resource Plan (“2021 IRP”). For purposes of this analysis, the terms “cost impact” and “rate impact” are assumed to have the same meaning. It should be noted that these are estimated impacts and thus may not correspond with actual revenue requirements or rates that the Commission sets for various rate classes in the future. In addition, numerous simplifying assumptions have been made in both the calculation methodology and the input variables, and these assumptions naturally cause imprecision in the estimates. Long-term resource planning is inherently inexact and therefore causes additional uncertainty in the resulting rate impacts. Thus, the numbers estimated here should be used as guideposts on rate impact rather than viewed or used as ultimately determinative calculations on customer power costs.

This Appendix provides detail on the estimated rate impacts of the Company’s preferred plan (“2021 Plan”). Specifically, this Appendix discusses the following items:

- A. Calculation of Plan Power Supply Costs
- B. Calculation of Base Rates
- C. Calculation of Rate Impacts

### Calculation of Plan Power Supply Costs

The estimated rate impacts are based on the revenue requirement outputs from the 2021 Plan long-term planning model. These outputs are referred to as the “IRP Power Supply Costs.” The first step in estimating the rate impacts by customer class is to calculate the annual incremental power supply cost of the 2021 Plan for the years 2021 to 2024, compared to the 2021 Base Case power supply costs.<sup>3</sup> The 2021 Base Case power supply costs are subtracted from the annual power supply cost of the 2021 Plan for 2021 to 2024 to determine the incremental power supply cost relative to 2021. The estimated rate impacts by class are therefore calculated relative to 2021 Base Rates which are discussed in the next section.

The incremental 2021 Plan power supply costs are separated into two categories: power supply costs and solar costs. The power supply costs are allocated to jurisdiction and class as described below. The solar costs are divided by the projected non-exempt energy usage to obtain the solar cost rate.

After the incremental power supply costs of the 2021 Plan for 2021 to 2024 are determined, these costs are allocated to the Minnesota jurisdiction and to customer class based on projected revenue requirement allocators for 2021 to 2024. The allocators are based on the total revenue apportionment to the Minnesota jurisdiction and to each retail class in Minnesota Power’s last retail rate case.<sup>4</sup> The annual allocators are projected assuming perfect annual rate making that

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<sup>1</sup> Docket E-015/RP-09-1088.

<sup>2</sup> Docket E-015/RP-13-53.

<sup>3</sup> The 2021 Plan, 2021 Plan Base Case, and other Alternative Cases are described in Appendix K.

<sup>4</sup> Docket E-015/GR-19-442.

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follows the fully allocated class cost-of-service study. In other words, the 2020 rate case relationships between jurisdictional and class revenue apportionment and jurisdictional and class energy are assumed to remain constant, thus allowing those relationships (ratios) to be used to estimate the allocators using the forecasted energy by jurisdiction and class from Minnesota Power's 2020 Annual Electric Utility Forecast Report (see Appendix A). The 2021 Plan incremental power supply costs are then divided by the projected energy usage by class to obtain the 2021 Plan incremental power supply cost rates by class.

The 2021 Plan incremental power supply costs rates and the solar cost rate are added by class to obtain the total adjusted 2021 Plan incremental power supply cost rates by class.

### **Calculation of Base Rates**

As mentioned above, the estimated rate impacts by class are calculated relative to Minnesota Power's 2021 Base Rates. The starting point to estimate the 2021 Base Rates is the rate case resolution E-Schedules from Minnesota Power's 2020 rate case. The estimated average rates customers will pay in 2021 for Minnesota Power's Renewable Resources Rider, Transmission Cost Recovery Rider, and the Boswell Energy Center Unit 4 Environmental Rider are added to the 2020 base rates. Lastly, an estimated 2021 Fuel and Purchased Energy ("FPE") Adjustment and an estimated 2021 average Conservation Program Adjustment ("CPA") rate are added to arrive at the estimated 2021 Base Rates.<sup>5</sup> The 2021 FPE Adjustment and CPA rate are estimated by comparing the 2020 rates included in Minnesota Power's 2019 rate case to the 2021 budgeted costs expected to be incurred through the FPE and in the new CPA rate expected to be implemented in 2021.

### **Calculation of Rate Impacts**

The 2021 Plan incremental power supply cost rates by class from 2021 to 2024 are divided by the estimated 2021 Base Rates to determine the estimated percent increase in rates. The 2021 Plan incremental power supply cost rates by class from 2021 to 2024 are then multiplied by the projected average monthly billing units by class to estimate the average dollar per month increase by class. As shown in Table 1, the 2021 Plan incremental power supply costs in 2024 would be expected to increase the average Residential rate by about 1.31 percent compared to 2021 base rates. That is equivalent to an increase of \$1.12 per month compared to 2021 base rates. The impact to the average Large Power rate would be an increase of about 0.57 percent compared to 2021 base rates. That is equivalent to an increase of \$24,674 per month.

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<sup>5</sup> CPA factor is not applied to Large Power customers that have obtained exemptions from CIP charges.

**Table 1: Estimated Average Rate Impacts of 2021 Plan Relative to 2021 Projected Base Rates**

Rate Class Impacts <sup>1</sup>	2021	2022	2023	2024
Residential (average rate, cents/kWh)	12.114	12.114	12.114	12.114
Increase (cents/kWh)	-0.003	0.180	0.145	0.158
Increase (%)	-0.03%	1.49%	1.20%	1.31%
Average Impact (\$ / month)	-\$0.02	\$1.28	\$1.03	\$1.12
General Service (average rate, cents/kWh)	12.053	12.053	12.053	12.053
Increase (cents/kWh)	-0.003	0.180	0.145	0.158
Increase (%)	-0.03%	1.49%	1.20%	1.31%
Average Impact (\$ / month)	-\$0.09	\$4.72	\$3.78	\$4.10
Large Light & Power (average rate, cents/kWh)	9.434	9.434	9.434	9.434
Increase (cents/kWh)	-0.003	0.156	0.130	0.140
Increase (%)	-0.03%	1.66%	1.38%	1.49%
Average Impact (\$ / month)	-\$5.22	\$374.16	\$309.92	\$335.11
Large Power (average rate, cents/kWh)	7.223	7.223	7.223	7.223
Increase (cents/kWh)	-0.002	0.055	0.035	0.041
Increase (%)	-0.03%	0.76%	0.48%	0.57%
Average Impact (\$ / month)	-\$1,140	\$32,828	\$20,752	\$24,674
Lighting (average rate, cents/kWh)	19.086	19.086	19.086	19.086
Increase (cents/kWh)	-0.005	0.238	0.182	0.202
Increase (%)	-0.03%	1.25%	0.95%	1.06%
Average Impact (\$ / month)	-\$0.04	\$1.85	\$1.41	\$1.56
Average Weighted Increase (cents/kWh)	-0.002	0.099	0.074	0.083
Avg Weighted Increase (%)	-0.03%	1.15%	0.86%	0.96%
Notes: 1/ Average current rates are 2021 estimates. These estimates are based on 2020 base rates from Minnesota Power's last rate case (E-015/GR-19-442) with 2021 estimated cost recovery rider rates and estimated 2021 FPE and CPA factor added. CPA factor is not applied to Large Power Class.				