Before the South Dakota Public Utilities Commission
State of South Dakota

In the Matter of the Application of
NorthWestern Corporation d/b/a NorthWestern Energy
For Authority to Increase Rates for Electric Utility Service in
South Dakota

Docket No. EL23-__________

Exhibit __________

CLASS COST OF SERVICE
RATE DESIGN

Prefiled Direct Testimony and Schedules of

PAUL M.NORMAND

June 15, 2023

TABLE OF CONTENTS

LIST OF EXHIBITS

I. INTRODUCTION AND QUALIFICATIONS AND EXPERIENCE

Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A. My name is Paul M. Normand. I am a Principal with the firm of Management Applications Consulting, Inc. ("MAC"), 1103 Rocky Drive, Suite 201, Reading, PA 19609.

Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A. I am appearing and providing testimony on behalf of NorthWestern Corporation d/b/a NorthWestern Energy ("NorthWestern" or "Company"). NorthWestern provides electricity and natural gas service to consumers in the northwestern United States and serves approximately 753,600 electric and natural gas customers in South Dakota, Montana and Nebraska. As of December 31, 2022, NorthWestern served 64,678 electric distribution customers in South Dakota.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMSSION ("COMMISSION")?

A. No, this is my first appearance before the Commission.

Q. Please describe MAC.

A. MAC is a management consulting firm that provides rate and regulatory assistance including lead lag studies, allocated cost of service studies, and depreciation services for electric, gas and water utilities.

Q. Please summarize your education and business experience.

A. This information is contained in Exhibit PMN-1.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My Direct Testimony primarily addresses NorthWestern's class cost of service study ("CCOS")Lighting service costs, and a Standby service rate. In addition, I provide supporting information for the rate design proposals sponsored by Company witness Mr. Jeffrey Decker.

Q. WHAT STATEMENTS AND SCHEDULES IN NORTHWESTERN'S RATE FILING DO YOU SPONSOR?

A. I sponsor Statements N and O. Statement N, pages 1 through 36 shows the test year cost of service allocated to the customer classes for which the increased rates are proposed. Statement N provides both a study per books class cost of service study and a class cost of service study adjusted using the Company's claimed revenue requirement in this docket. Statement O, pages 1 through 9 compares the results of the allocated cost of service study by rate class with the revenues under the Company's claimed rate of return and revenues under proposed rates. I also sponsor Schedules N-1 through N-9 which shows the cost of service functionalization, classification, and allocation details.

Q. WHAT EXHIBITS DO YOU SPONSOR?

A. I sponsor Exhibits__(PMN-1) through (PMN-5) as set forth in the table of contents above and attached to this testimony.

Q. WERE THE STATEMENTS, SCHEDULES, AND EXHIBITS YOU ARE SPONSORING PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes, they were.

Q. ARE THE TESTIMONY AND THE CONTENTS OF THE STATEMENTS, SCHEDULES, AND EXHIBITS YOU SPONSOR TRUE AND ACCURATE TO THE BEST OF YOUR KNOWLEDGE AND BELIEF?

A. Yes, they are.

Q. HOW IS YOUR DIRECT TESTIMONY ORGANIZED?

A. My Direct Testimony consists of five sections. Section I provides my qualifications and experience and describes the purpose and organization of my Direct Testimony. Section II describes and supports the CCOS I have conducted on behalf of the Company and which is provided and summarized in Statements N and O of the rate filing. Section III of my Direct Testimony describes the Lighting Service Study that MAC has prepared to assist NorthWestern in its design of Lighting service rates. The Lighting Service Study calculates the relative costs of each type of lighting service offered by NorthWestern. Section IV of my Direct Testimony discusses the design of a new Rate 34 Standby Rate for the Large Commercial & Industrial rate class. Finally, Section V summarizes my testimony and recommendations.

II. CLASS COST OF SERVICE STUDY

Q. WHAT IS THE PURPOSE OF A CCOS?

A. The purpose of a CCOS is to calculate the revenue requirement for each class of customers based on the costs the utility has incurred to serve the class. Once identified, these class revenue requirements provide useful guidelines for rate design. Class revenue requirements are calculated by allocating the detailed components of a utility's revenue requirement to individual classes using allocation factors and direct assignments that represent the cost drivers of the costs being allocated. In a CCOS, the total retail cost of service is prorated among customer classes so that the sum of the class revenue requirements equals the total revenue requirement at issue. Although there is often disagreement among parties regarding cost allocation measurement and attribution, the use of CCOSs as a guide to rate design is a longstanding practice utilized by this Commission and by numerous other state regulatory agencies.

Q. HAVE YOU PREPARED A CCOS ON BEHALF OF NORTHWESTERN?

A. Yes, I have. The per book CCOS and the adjusted, or pro forma, CCOS are presented as Statement N of NorthWestern's rate filing. Statement N includes the details of the allocated cost of service study by rate class per books and per the claimed revenue requirements. This statement shows the following for each of the studies:

1. Detail of the functional cost of service study allocating costs to the 16 cost functions.
2. Detail of the 16 functional costs for the labor allocator.
3. Listing of the functional allocators.
4. Detail of the allocation of the functionalized costs to the customer classes.
5. Listing of the class allocators used to allocate the functionalized costs to rate classes.
6. Detail of the calculation of income taxes at present revenues by customer class.
7. Detail of the calculation of income taxes at the claimed rate of return by customer class.

Q. PLEASE DESCRIBE THE LAYOUT AND OPERATION OF THE CLASS COST OF SERVICE MODEL YOU ARE SPONSORING ON BEHALF OF NORTHWESTERN IN THIS FILING.

A. The CCOS results are presented in Statements N and O of the Rate Filing Package. Statement N consists of a cover page providing the Section N filing requirements and 36 pages of allocated cost of service information. Statement O presents revenues, returns, income taxes, and allocated costs by rate class at present rate revenue levels, at equalized claimed rate of returns, and at the Company's proposed rates. Statement O consists of summaries of the detailed CCOS results from Statement N. Statement O is comprised of sets of three pages with the first page of each set providing the summary cost information for the major customer groupings (i.e., Total Residential, Total Irrigation, Total Commercial, Total Commercial & Industrial, Total Lighting, and Controlled Off-Peak service) and the next two pages including more detailed breakdowns of costs among the individual rate classes.

Statement N provides the detailed functionalization and allocation information that is summarized in Statement O. Pages 1-3 of Statement N present cost of service information for each customer class at present rates, at the Company's claimed rate of return, and at the proposed rates. Pages 4-15 of Statement N detail the allocation of rate base to customer classes. Pages 16-18 provide the allocation of revenue by customer class. Pages 19-24 detail the allocation to classes of operation and maintenance ("O&M") expenses, depreciation expense, regulatory credits and taxes other than income taxes. Pages 25-30 of Statement N provide of income taxes and operating income by customer class. Pages 31-33 set forth each functionalized cost component of base rate revenues at the claimed rate of return and each functionalized cost component of base rate revenues at the present rate of return. Pages 34-36 set forth the functionalized gross receipts tax increase by class and by function for the claimed rate of return.

Schedule N-1 consists of 24 pages and provides the detail of the calculation of income taxes at present rates by functionalized cost component. Pages 1-6 show the functionalization of revenue by type to classes. Pages 7-9 provide the allocation of functionalized O&M and depreciation expenses by class of service. Pages 10-18 set forth the detailed allocations of functionalized tax components to customer classes. Pages 19-24 of Schedule N-1 provide the calculation of operating income, rate base, and rate of return by class at present rate levels. Schedule N-2 provides similar information and is laid out in the same manner as Schedule N-1, but employs revenues and revenue requirements at the Company's claimed rate of return in the calculation of income taxes by customer class.

Schedule N-3 consists of 14 pages and provides the functionalization of NWE's revenue requirement components. Pages 1-4 of Schedule N-3 provide the functionalization of rate base. Pages 5-6 provide the functionalization of revenue. Pages 7-10 provide the functionalization of O&M expenses. Pages 11-14 provide the detailed functionalization of depreciation expense, other taxes, and income taxes.

Schedule N-4 consists of two pages and provides the functionalization of the labor costs within the O&M expense accounts. Schedule N-5 consists of nine pages and provides the detailed allocation factors by function employed in the allocation of functionalized costs to customer classes. Schedule N-6 consists of six pages that provide the detailed functionalization factors employed in the allocation of total Company costs to functions.

Schedule N-7 is comprised of eight pages which provide functionalized base rate revenues by class of service at the Company's present rate of return and claimed rate of return. Schedule N-8 consists of three pages that provide the summary of the customer component costs of each class's revenue requirement.

Q. WHAT ARE THE STEPS INVOLVED IN CONDUCTING A CCOS?

A. There are three steps involved in conducting a CCOS - functionalization, classification, and allocation. Functionalization identifies the operational source where the costs are incurred, either directly or indirectly, with respect to the physical process of providing service. For example, the costs of generating units and purchased power (production function) are identified separately from costs associated with transmission lines (transmission function) which are, in turn, segregated from the costs of the distribution system (distribution function). Each function (production, transmission, and distribution) may be further separated into sub-functions. For example, distribution costs may, as in this case, be further separated into ten separate functions to allow a more accurate cost allocation and to provide information that may be useful in designing cost-based rates for customers receiving service from NorthWestern's distribution system.

Classification is the next step in conducting a cost of service study. Classification refers to the separation of functionalized costs according to a measurable usage characteristic that drives the cost. Classification further breaks down functionalized costs into demand, energy, and customer-related costs. Demand costs are costs that result from the rate of power consumption over a relatively short period of time (usually 15 minutes to an hour). Demand costs frequently reflect the costs of equipment that must be sized to meet a rated maximum load requirement placed on that equipment. Energy costs are those costs that result from the volume of energy supplied over time. Fuel expense is generally the largest type of energy cost incurred by an electric utility. Customer costs are costs that vary as a function of the number of customers. Meters are an example of customer-related costs, although the cost analysis should account for the fact that meters serving large loads are more expensive than meters serving smaller customer loads.

The final step in conducting a cost of service study is the allocation of functionalized and classified costs to individual customer classes. The allocation step uses customer class metrics, along with direct assignments, where applicable, to allocate the specific cost components that have been functionalized and classified to individual customer classes. Customer class information such as non-coincident peak demands, coincident peak demands, annual energy use, and customer counts are employed to calculate class allocation factors.

Q. PLEASE DESCRIBE THE PROCESS OF COST FUNCTIONALIZATION YOU HAVE EMPLOYED IN THE CCOS YOU SPONSOR.

A. The individual details of costs comprising the total revenue requirement are separated according to the function or physical service they provide. The major functions employed in NorthWestern's CCOS are:

- Production – costs associated with power generation and purchased capacity. Production costs are the costs associated with securing power supply resources sufficient to meet maximum load requirements of the system;
- Transmission – Transmission costs are costs that are associated with the high voltage system that transports power and energy to load centers. Transmission facilities include transmission lines, substations, and associated equipment. External transmission costs

included in FERC account 565 are not included in base rates, but are recovered through NorthWestern's separate external transmission cost tracker which includes offsetting revenues;

- Distribution – costs associated with distributing and measuring the power and energy from the transmission system to end users. Distribution facilities include distribution substations, primary and secondary conductors and devices, transformers, voltage regulators, and other equipment necessary to transport power from the high voltage side of the distribution substation to the point of delivery of the power and energy. NorthWestern's CCOS identifies the costs associated with four demand-related distribution functions and two customer-related distribution functions;
- Customer – expenses that tend to be correlated to the number of customers – *i.e.*, meter reading, billing, customer accounting, customer care and service, and other similar costs. NorthWestern's CCOS employs two customer-related distribution functions as well as three customer-related functions of meter reading, customer records, and other customer-related costs;
- Lighting – costs that are directly associated with street and area lighting;
- Other Energy – energy-related costs that are not recovered in the fuel clause, but which are recovered in base rates. These costs are mainly fuel stock, non-recoverable fuel costs, fuel balancing costs, and coal taxes;
- Fuel – fuel and the energy portion of purchased power costs and offsetting revenues rrecovered through a tracker; and
- Ad Valorem – property taxes recovered in the Ad Valorem recovery clause.

Exhibit__(PMN-2) provides a more detailed description of the functions employed in NorthWestern's retail CCOS as well as detailed descriptions for the cost classifications and allocation factors employed in Statements N and O.

A detailed Functional Labor Expense allocator accurately functionalizes labor-related costs. This allocator was developed by functionalizing all labor-related Operation and Maintenance expense by each account and capital labor and summing these allocated labor-related amounts to create the labor expense functional allocation factor.

Q. HOW DID YOU CLASSIFY PRODUCTION COSTS?

A. As stated above, all production-related costs other than fuel expense were classified as being demand-related.

Q. HOW DID YOU CLASSIFY TRANSMISSION COSTS?

A. All transmission costs are classified as demand-related costs. NWE's transmission system must be capable of serving the maximum demands placed upon it, regardless of when those maximum demands occur.

Q. HOW HAVE DISTRIBUTION COSTS BEEN CLASSIFIED?

A. Structures, station equipment, poles and towers, conductors and conduit, and transformers have been classified as demand-related costs. Services, meters, and certain other distribution expenses, such as customer service and information expenses, have been classified as customer-related costs. Distribution costs also include the costs of providing lighting services. Much of the cost of providing lighting services are unique to that service and are readily identifiable using standard accounting and property records. Thus, lighting service is largely directly assigned its distribution costs. Exhibit__(PMN-2) provides more detailed information regarding how each cost of service component was classified in Statements N and O.

Q. ONCE NORTHWESTERN'S COSTS OF SERVICE ARE FUNCTIONALIZED AND CLASSIFIED, WHAT IS THE NEXT STEP IN THE PROCESS OF CALCULATING CLASS COSTS OF SERVICE?

A. Once costs are functionalized and classified, I allocate costs to rate classes. Sixteen allocators were used to allocate the classified functional costs. These allocators are developed externally and are derived from (a) demands imposed by the class (using either monthly coincident peak ("CP") demands or annual non-coincident peak ("NCP") demands); (b) energy use by class at the generation source (*i.e.*, after accounting for line and transformation losses); or (c) number of customers served and meters (weighted by the appropriate weighting factor to recognize differences in types of customers and their impacts upon the system). These allocations are then summarized within the cost of service model to derive costs of service for each customer class. The allocation process also includes the detailed calculation of income taxes at present revenues and at equalized claimed rates of return. These income tax calculations were performed in order to properly functionalize and allocate income taxes to the customer classes.

Q. YOU PREVIOUSLY EXPLAINED THAT PRODUCTION PLANT WAS CLASSIFIED AS DEMAND-RELATED. HOW WAS GENERATION PLANT ALLOCATED?

A. Production costs were allocated on the basis of class contributions to the 12 monthly system peak demands during the test year, an allocation approach referred to as the Twelve Coincident Peak (“12CP”) demand allocation method.

Q. HOW DID YOU ALLOCATE THE FUEL COSTS ASSOCIATED WITH THE PRODUCTION PLANT, THE EXTERNAL TRANSMISSION COSTS, AND AD VALOREM COSTS?

A. Most fuel costs are not recovered in base rates. The fuel clause revenues were determined for the test period by customer class. The offsetting costs, which equaled the fuel revenues, were then allocated on the basis of the fuel revenues by rate class. The result is that fuel revenues equaled allocated fuel costs by rate class and, therefore, have no effect on base rates. This same approach was used for the External Transmission functional costs and the Ad Valorem functional costs both of which are recovered through rate mechanisms other than base rates. The small percentage of fuel-related costs that are recovered in base rates were allocated to rate classes on the basis of energy use adjusted to losses at input.

Q. PURCHASED POWER IS BOOKED BY ELECTRIC UTILITIES IN FERC ACCOUNT 555. HOW DID YOU ALLOCATE THE DEMAND PORTION OF PURCHASED POWER COSTS TO CLASSES?

A. NorthWestern's firm power supply contracts have demand charges that are not recoverable in its Fuel Clause. These purchased power demand costs were allocated on the basis of 12CP demands consistent with all other generating resources in the study..

Q. HOW DID YOU ALLOCATE TRANSMISSION-RELATED COSTS?

A. I used the 12CP method to allocate transmission function plant and expenses.

Q. WHY DID YOU EMPLOY CLASS CONTRIBUTIONS TO THE TWELVE MONTHLY COINCIDENT PEAK DEMANDS IN THE TEST YEAR TO ALLOCATE THE DEMAND-RELATED COSTS OF GENERATION AND TRANSMISSION PLANT?

A. NWE must build or otherwise secure sufficient power supply resources to meet its peak demands regardless of the times at which those system peak demands occur. Based upon my analyses, I believe that most months of the year should be considered peak months for cost allocation purposes.

Q. PLEASE DESCRIBE THE ANALYSES YOU HAVE CONDUCTED THAT SUPPORT THE USE OF BOTH WINTER AND SUMMER MONTHS IN THE ALLOCATION OF SYSTEM PEAK-RELATED PRODUCTION DEMAND COSTS.

A. Please refer to Exhibit___ (PMN-3), page 1 which sets forth monthly peak demands for the 12 months ended December 31, 2022. Note that the system peak demand occurred in the month of July. However, during the test year the demands were also high for the winter months of January, February, March and December. Monthly historical demands reveals that the magnitudes of winter monthly demands relative to summer peak demands have historically been fairly close. The sum of the peak demands for the test year months of January, February, March and December are 94 percent of the sum of the peak demand for the months of June, July, August and September. The demands of the four summer months of June through September are not significantly different from the peak demands during the winter months December through March. The remaining months provide reduced demand levels that provide for the orderly scheduling of maintenance for the Company's other facilities. For this reason, I recommend that customer contributions to monthly system peak demands in all 12 months of the test period be employed to allocate production and transmission related demand costs.

Q. PLEASE DESCRIBE HOW YOU ALLOCATED DISTRIBUTION-RELATED FUNCTIONAL COSTS TO CUSTOMER CLASSES IN YOUR COST OF SERVICE STUDY.

A. Distribution rate base and expense accounts were allocated on the basis of customer class non-coincident peak ("NCP") demands. NCP demands are the maximum demands of the customer class and represent the undiversified loads placed upon system equipment at or near the customer's point of service. Distribution substations, primary service, and transformer costs were allocated based upon the NCP demands of customers taking service at either primary or secondary voltages. Secondary distribution plant was allocated in a consistent manner, using the NCP demands of customers taking service at secondary voltages.

Q. HOW WERE THE REMAINING DISTRIBUTION-RELATED FUNCTIONAL COSTS ALLOCATED?

A. Service laterals connect the secondary transformer to the customer premises. Services costs include customer-related costs that are allocated to classes on the basis of the customers' individual maximum demands. Meters costs are allocated to classes on the basis of the number of customers weighted by the relative cost of a meter for that class. The remaining plant accounts and related costs, installations on customer premises, and street lighting and signal systems are exclusively used for lighting services of NorthWestern. Therefore, these plant costs are directly assigned to the lighting class as a whole.

Q. HOW WERE THE REMAINING FUNCTIONAL COSTS ALLOCATED TO RATE CLASSES?

A. The meter reading functional costs were allocated to rate classes based on a weighted number of meter allocators. The customer records-related functional costs were allocated to rate classes based on a weighted number of customer allocators. The customer other functional costs relate mostly to customer service and information expense. The allocator used is based on a 50% weighting of the number of customers and a 50% weighting of the kWh sales at the generation level.

Q. HOW WAS GENERAL PLANT ALLOCATED?

A. General plant consists of plant and equipment necessary to support personnel involved in the overall operation of the system. General plant is a cost that is common to all functions and cost classifications. As a common cost, General plant does not readily fall into a demand, energy, or customer classification. However, plant costs and Operation and Maintenance ("O&M") expenses for production, transmission, distribution, customer accounting, and customer information have already been functionalized, classified, and allocated to classes. As a result, the level of wages and salaries recorded within the O&M expense and capital accounts is known, and allocation factors have been developed using this information. General plant is functionalized and allocated on the basis of the prior assignment of distribution wages and salaries by O&M expense and capital labor.

Q. HOW ARE THE REMAINING RATE BASE ITEMS ALLOCATED TO CLASSES?

A. Depreciation reserves are functionalized and allocated to classes based upon the prior allocation of related plant accounts. Additions and deductions from rate base are allocated using the most appropriate allocation factors for the items being assigned. For example, cash working capital is broken into three components --

1. Materials & Supplies, which is functionalized and allocated on the basis of previously allocated production, transmission, and distribution plant,

2. Cash Working Capital, which is functionalized and allocated on the basis of the sum of O&M expense, taxes other than income, income taxes, and interest expense, and

3. Fuel Stock, which is functionalized as energy-related and allocated on the basis of loss-adjusted energy sales. Deferred income taxes were functionalized and allocated on the basis of total plant.

Q. HOW DID YOU DETERMINE EACH CUSTOMER CLASS'S REVENUES FOR PURPOSES OF THE CCOS?

A. Revenues from Sales of Electricity by class are recorded in NorthWestern's books and are directly assigned to the class producing the revenue. Fuel revenue, external transmission revenue, and ad valorem revenue are directly assigned to the class producing the revenues. Non-fuel-related wholesale revenues are assigned on the basis of loss-adjusted energy and fuel-related wholesale revenues are allocated based upon the allocation of fuel expense. Other revenues are comprised of late payment charges, which are allocated on the basis of late payment history by class, and miscellaneous service charges, rents and other electric revenues, which are allocated on the basis of previously allocated total plant by class. Pole rental revenues were allocated and functionalized on the previously functionalized distribution overhead lines plant. Revenue from steam sales was directly assigned and allocated on the same basis as production plant.

Q. PLEASE DESCRIBE THE ALLOCATION OF O&M EXPENSES, DEPRECIATION EXPENSE, REGULATORY CREDITS, AND TAXES OTHER THAN INCOME TAXES.

A. Generation costs and non-recoverable purchased power demand charges are functionalized as production-related and allocated on the basis of the 12CP demand allocation factor. Fuel expense and wholesale fuel expense are functionalized to the fuel function and allocated as previously described. Non-recoverable fuel costs and the costs of fuel balancing are energy-related and allocated on the basis of loss adjusted energy sales. Transmission expenses are allocated on the basis of previously allocated transmission plant. Distribution expenses are functionalized to the associated plant and then allocated on the basis of the previously allocated distribution plant components. Similarly, customer-related expenses are functionalized and then allocated using weighted number of meters, weighted number of customers, and weighted sales allocators. Depreciation expense is functionalized based upon the associated plant values and then allocated on the basis of the previously allocated plant in service. Taxes other than income taxes are identified by type and allocated accordingly. For example, Delaware franchise taxes and South Dakota gross receipts taxes are functionalized and allocated based upon the revenue requirement at the Company's claimed rate of return; ad valorem taxes are assigned to the ad valorem function and then allocated on the basis of ad valorem revenues billed by customer class, and coal taxes are allocated as energy-related costs. Payroll taxes were functionalized and allocated on the basis of the functionalized labor expense.

Q. PLEASE DESCRIBE THE ALLOCATION OF FEDERAL INCOME TAX.

A. As previously stated, federal income tax is not directly allocated to customer classes. Instead, the revenue and cost components used to calculate NWE's South Dakota retail federal income tax are functionalized and allocated to classes. These allocated income tax components are then used to calculate the income tax liability for each class. The detailed computation of federal income taxes is provided in Schedule N-2 for income taxes at present rates and Schedule N-3 for income taxes at the claimed rate of return.

Q. PLEASE DESCRIBE THE RESULTS OF THE CCOS AND COMPARE THESE RESULTS WITH THE CLASS REVENUES PRODUCED BY NORTHWESTERN'S PRESENT RATES.

A. Pages 1 through 3 of Statement N provide the revenues, costs, and returns by customer class under present, claimed and proposed rates. This cost information is summarized in Table 1 below.

Table 1

	Present Revenues	Present Rate of Return	Claimed Revenues	Percent Increase	Proposed Rates	Proposed Increase ($)	Proposed Increase (%)	Prop. ROR
Residential	$47,207,213	3.07%	$66,421,260	40.70%	$59,087,261	11,880,049	25.17%	5.81%
Irrigation	204,088	0.24%	362,325	77.53%	257,783	53,696	26.31%	2.69%
Commercial	12,767,249	4.85%	15,572,285	21.97%	15,972,116	3,204,867	25.10%	7.93%
Comm. & Ind	56,655,630	5.88%	64,458,613	13.77%	71,791,769	15,136,139	26.72%	9.16%
Municipal	628,710	12.391%	469,502	-25.32%	778,962	150,252	23.90%	16.89%
Lighting	1,972,030	-1.80%	2,999,337	52.09%	2,401,950	429,920	21.80%	2.10%
Controlled Off-Peak	79,701	4.17%	104,949	31.68%	98,454	18,752	23.53%	6.67%
Total Retail	$119,514,621	4.51%	$150,388,271	25.83%	$150,388,296	$30,873,674	25.83%	7.54%

As indicated on Table 1 above, the differences between present revenues and allocated costs vary significantly by class of service. Mr. Jeffrey Decker's Direct Testimony supports NorthWestern's proposed revenue distribution, including the Company's proposed rate mitigation concerns. Mr. Decker also developed support of the Company's rate design.

III. ANALYSIS OF LIGHTING SERVICES COSTS

Q. WHAT IS AN ANALYSIS OF LIGHTING SERVICE COSTS AND HOW IS SUCH AN ANALYSIS USED?

A. A separate analysis of lighting service costs was performed to derive reasonable current cost estimates for each of the installed fixtures, brackets, and poles contained within the Company's lighting rate schedules. The cost differentials between the lights resulting from this analysis were adjusted to match the target revenue established in NorthWestern's class proposed revenues.

Q. WHAT APPROACH WAS SELECTED TO PERFORM THE LIGHTING ANALYSIS?

A. The analysis of lighting was based on an accounting class cost of service approach using the most currently available data for 2022. The analysis consisted of using the CCOS functional results, as provided by Statement N, for gross plant, depreciation, net plant, O&M expenses, and existing revenue levels to calculate a unit charge for each functional cost area. These calculated costs include the functional costs for Production (excluding fuel), Transmission, Distribution, and Lighting related plant and O&M expense, as shown in Table 8 of Exhibit__(PMN-4).

Q. PLEASE DESCRIBE THE LIGHTING SERVICE RATES INCLUDED IN NORTHWESTERN'S LIGHTING COST ANALYSIS AND DESCRIBE THE LEVEL OF DETAIL INCLUDED WITHIN EACH OF THESE RATES.

A. NorthWestern's lighting analysis included two lighting service rate schedules, Rate Schedule 19 and Rate Schedule 56. Rate Schedule 19, referred to as the Reddy-Guard class of service, includes residential, commercial, industrial, farm and rural area, outdoor area, and street lighting. Rate Schedule 56's class of service is Company or customer owned highway, and street and area lighting systems. Rate Schedule 56 is available for lighting systems owned by NorthWestern or political sub-divisions.

For each of these lighting rate schedules, a detailed analysis was performed at the revenue code level which identified the fixture by type of lamp (i.e., High Pressure Sodium, Mercury Vapor, and Metal Halide) and wattage (100, 250, and 1000). The revenue codes were then grouped and analyzed by rate code.

Rate Schedule 19 includes six rate code groups:

1. Rate Code U10 – Reddy-Guard Residential Unmetered
2. Rate Code U10 – Reddy-Guard Residential Metered
3. Rate Code U20 – Reddy-Guard Commercial Unmetered
4. Rate Code U20 - Reddy-Guard Commercial Metered
5. Rate Code U30 – Public Lighting Unmetered
6. Rate Code U30 – Public Lighting Metered

Rate Schedule 56 includes six rate code groups:

1. Rate Code U30 - Distribution Pole Mounting - Company Owned
2. Rate Code U30 - Distribution Pole Mounting - Customer Owned

3. Rate Code U30 - Metal Pole Mounting - Company Owned
4. Rate Code U30 - Metal Pole Mounting - Customer Owned
5. Rate Code U30 - Wood Pole Mounting - Company Owned
6. Rate Code U30 - Wood Pole Mounting - Customer Owned

Q. PLEASE DESCRIBE HOW THE LIGHTING ANALYSIS WAS PERFORMED.

A. The first step of the analysis was to isolate current costs by major functions and review the costs to ensure that only those relevant portions of costs be considered and included. In order to facilitate the cost calculations and allocations, costs were allocated and developed on dollars per kilowatt-hour ("$/kWh") by function. This $/kWh by function approach was employed to incorporate the underlying assumption that lighting is an off-peak load and, therefore, is not a cost driver for the Company's distribution cost investments. The assumption is based on a review of the load data which indicates the lighting class was coincident with the monthly system only in November and December and partially coincident with the monthly peak in the months of January and October. Furthermore, historical peaks have occurred during summer daylight hours when lighting services are not used. For this reason, the use of these investments for approximately 4,043 (off-peak) hours per year indicates that kWh usage is a reasonable basis upon which to assign costs.

The second step of the analysis was to establish a common table of current installed costs applicable to all rate schedules that would capture the existing gross plant booked in each account. These installed costs were then used to calculate the current costs for each existing revenue code (fixture type and wattage) category included within each lighting rate schedule. These calculated costs were scaled to the installed gross plant costs for each lighting rate class's revenue code in order to match the level of existing booked gross plant account costs. Net plant was allocated to the revenue code items based on existing booked gross plant costs within each rate code group, as shown in Table 7 of the Lighting Study. Due to limited historical plant data, the same average vintage was assumed for all units in the lighting analysis.

The third step was to calculate functional $/kWh for net plant by rate class using the Company's class cost of service study's plant accounting data for Rate Class 19 and Rate Class 56, as shown in Table 9 of the lighting study. The functional $/kWh for net operating expenses (NOE) were calculated using the functional operating expense, other operating revenue, and wholesale revenue from the Company's class cost of service study, as shown in Tables 11A and 11B of the lighting study. The functional lighting plant $/kWh costs were adjusted to the class target revenue level by subtracting the NOE from the target revenues and dividing them by the kWh for each class. These calculated costs per kWh for each of the rate class's rate codes are summarized on Table 8, provided in Exhibit__(PMN-4).

The fourth step in the lighting analysis was to calculate the monthly charge for each revenue code within each rate class's rate code. This was accomplished by taking each functional cost per kWh (production, transmission, distribution, lighting NOE, and lighting plant) and multiplying these costs by the annual kWh, dividing these costs by the number of units, and then adding the functional costs together to determine a monthly charge for each revenue code. The monthly charges for each revenue code were multiplied by the number of units within each revenue code to get the annual target revenues for each revenue code. The revenue code revenues within Rate Class were added together to compute the total rate class target revenues.

The final step in the lighting analysis was to compare the current monthly charges to the cost based calculated monthly charges for each rate code within each rate class. The cost based monthly revenue code charges were then adjusted to incorporate an increase of 22% for Total Lighting to achieve the required revenue increases found in Mr. Jeffrey Decker's Rate Moderation file.

Q. BRIEFLY SUMMARIZE THE RESULTS OF NORTHWESTERN'S LIGHTING COST ANALYSIS.

A. The lighting cost analysis indicates the following:

Lighting Schedule	Change to Recover Costs of Service
Rate 19 (U10) Reddy Guard Residential Metered	Increase.
Rate 19 (U10) Reddy Guard Residential Unmetered	Increase.
Rate 19 (U20) Reddy Guard Commercial Metered	Increase.
Rate 19 (U20) Reddy Guard Commercial Unmetered	Increase.
Rate 19 (U30) Public Lighting (PL) Unmetered	Increase.
Rate 19 (U30) Public Lighting (PL) Metered	Increase.
Rate 56 (U30) PL w/Distribution Pole Mounting-Co Owned	Increase.
Rate 56 (U30) PL w/Distribution Pole Mounting- Cust Own	Increase.
Rate 56 (U30) PL w/Metal Pole Mounting- Company Owned	Increase.
Rate 56 (U30) PL w/Metal Pole Mounting -Customer Owned	Increase.
Rate 56 (U30) PL w/Wood Pole Mounting-Company Owned	Increase.
Rate 56 (U30) PL w/Wood Pole Mounting-Customer Owned	Increase.

Q. HOW WERE THESE COSTS BY LIGHTING SERVICE TYPE (REVENUE CODE LEVEL) USED TO DETERMINE THE COSTS OF THE VARIOUS LIGHTING SERVICES OFFERED BY THE COMPANY?

A. After the costs by lighting service type were calculated, the differentials between the revenue codes within each rate code group of each lighting service rate schedule were adjusted to match the target revenue established in the Company's class proposed revenues.

Q. DO THE LIGHTING COSTS BY SERVICE TYPE THAT RESULT FROM THE LIGHTING ANALYSIS YOU SPONSOR REASONABLY AND ACCURATELY REFLECT NORTHWESTERN'S COSTS OF PROVIDING THESE TYPES OF LIGHTING SERVICES?

A. Yes, they do.

IV. RATE 34 LARGE COMMERCIAL & INDUSTRIAL STANDBY RATE

Q. PLEASE PROVIDE A BRIEF DISCUSSION OF A UTILITY'S STANDBY SERVICE.

A. The use of customer's onsite generation requires that some level of pricing needs to be developed by the Company to provide the necessary backup facilities in the event that a customer's generating facilities become inoperable. The complexities of this pricing approach require considerations for the following support:

Contract Demand – Customer maximum demand which will establish level of applicable Standby charge that customer is responsible to pay each month.

Backup Service – provide equivalent capacity in the event of inoperable customer facilities to generate power. These outage events are unscheduled and can occur on any hour or day of the year.

Maintenance Service – a customer's need to perform routine and periodic maintenance on its facilities on a schedule service with the utility. This approach ensures a best practice for both utility and customer operation.

While there are many scenarios that can exist that add many layers of complexity, the pricing goal of the standby rate is to provide backup supply and distribution infrastructure support for a customer's return to service even on a very limited basis.

Q. HOW WOULD YOU DEVELOP THE COST ASSIGNMENT AND RATE PRICING LEVELS TO ENSURE A FAIR REFLECTION OF COSTS RESPONSIBILITY FOR ALL EXISTING AND NEW STANDBY CUSTOMERS WHO REQUIRE INTERMITTENT AND LIMITED USE OF A UTILITY'S GENERATION AND INFRASTRUCTURE FACILITIES?

A. The utility company must invest in both generating and transmission facilities to provide safe and reliable power for all hours of the year. This infrastructure requires a considerable amount of investment that must be made to accomplish this for all levels of service.

<u>Supply</u>

One of the major considerations is to recognize that customers with onsite generation facilities provide the customer with virtually all its power requirements. Each onsite generation will experience various periods of unavailability due to both unforeseen equipment problems/malfunctions to periodic maintenance that is known and coordinated with the utility to minimize any potential delivery problems.

In order to recognize the infrequent operating factors of customer facilities, one should consider incorporating a well-known statistic in utility generation operation called a forced outage rate.

This statistic reflects the generation and interconnection which will be inoperable for some limited period of time over a calendar year. For our purposes in this Standby rate derivation, we have assumed a Forced Outage Rate of 10% which can be thought of as an industrywide factor for all types of customer-owned facilities. Initial immature (new) facilities may easily exceed this level, but over time, good engineering and coordination will from time to time be even consistently lower than 10%. This forced outage value would be periodically reviewed and updated to reflect a customer installation and maintenance upkeep over time. We have also assumed that each customer is an independent event whereby failure or multiple facilities at the same time would be a very small probability of occurrence and over time and not considered in my analysis. An alternative approach is to limit the total amount of customer generation (e.g. 10% of system peak, substation and feeder limitations, etc.).

For Transmission, I am also using the same approach by applying the Forced Outage Rate of 10% to also reflect the very limited unavailability of a customer's facilities.

Standby Distribution (wires) Costs

The remaining distribution costs reflect a movement of costs towards more local facilities. The substations and primary feeder facilities provide electric service to many hundreds (thousands) of customers depending on their location on the Company's extensive delivery network.

An underlying consideration is the total contract capacity of these installed facilities versus the actual day-to-day maximum use of any one customer. In my analysis of distribution costs, I considered that the distribution capability will generally support a 25% reserve level while the substation and feeder investments may have additional capacity to accept/tolerate accidental or intermittent load. This application is a systemwide assumption where any one location would possibly exhibit a different reserve level.

Q. COULD YOU PLEASE DISCUSS YOUR EXHIBIT PMN-5?

A. Exhibit PMN-5 details the calculations and assumptions of deriving the Standby pricing based on my previous discussion of the considerations I integrated in the functional costs' calculation.

To begin with, all functional costs shown are based on the Company's filed costs of service results (Exhibit PMN-5, column (a)). Lines 41 and 42 reference the cost of service (Schedule N-2, page 3 of 24). Line 4 (PMN-5) shows the 10% Forced Outage rate utilized for Production and Transmission functional costs for the Standby rate. Applying row 2 percentages to each cost area results in a total costs identification to be used in the Standby calculation on line 20, columns (b) through (d). Lines 22 – 35 show the unit $/kW charges that would result by using different units of customer demand (12 CP, NCP, billing demand). For purposes of this rate design, we chose the use of the Company's billing demands which are far greater as shown in rows 28 and 29. The resulting proposed pricing is detailed and summarized on lines 33 for Transmission of 2.12/kW and line 34 for Distribution of 2.44/kW. The infrequent customer access to the Company's supply infrastructure necessitates that Standby rates should reflect a demand pricing level in order to efficiently recover these costs on an equitable basis.

V. SUMMARY AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR DIRECT TESTIMONY AND YOUR RECOMMENDATIONS IN THIS PROCEEDING.

A. My testimony addresses three topics:

1) Class Cost of Service. I have prepared and submitted class cost of service studies using both pro-forma and booked revenue requirements. This cost of service study

employs well established allocation methods and practices and accurately reflects the costs of serving NorthWestern's customer classes. I recommend that the Commission approve the use of the 12CP allocation method for allocating production and transmission demand costs. I further recommend that the Commission approve the allocations of distribution and other costs as set forth in Schedule N;

2) Lighting Services. I have provided a study that calculates the Company's costs of serving the various types of Lighting services that it offers. The results of this study allow the Company to identify how to adjust the rates for these services to better reflect the relative costs of providing electric power and energy to Lighting customers. I recommend that the resulting Lighting rates proposed by NWE be approved by the Commission**.**

3) Rate 34 Standby Rate**.** I have provided detailed calculations supporting the method used to calculate proposed rates Rate 34 Standby Rate. These calculations provide underlying support for the proposed rates. I recommend that the Commission approve the use of the proposed Standby rate.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

PAUL M. NORMAND
Principal

Experience in the electric, gas, and water industry includes project management of various cost analyses, engineering system planning and design functions, detailed electric power loss analyses, as well as cost and contract functions for a manufacturer of nuclear equipment. Also, experienced in the analysis and preparation of economic data, revenue requirements and rate design for presentation before state and federal regulatory agencies. Presented expert testimony on behalf of utilities in over 30 applications before regulatory commissions.

EXPERIENCE:

1984 - Present **MANAGEMENT APPLICATIONS CONSULTING, INC.**
Principal consultant providing consulting services to industry in planning, pricing, and regulation. Extensive experience in analyzing power systems for power loss studies and unbundling issues.

1983 - 1984 **P. M. NORMAND ASSOCIATES**
Independent consultant providing services to the utility industry in cost analyses, rate design and expert testimony.

1976 - 1983 **GILBERT/COMMONWEALTH**, Reading, Pa.
Director, Rate Regulatory Services - Administrative and fiscal responsibility for rate and regulatory services nationally for electric, gas, and water utilities. Additional responsibilities included all marketing, research and development efforts, and contract negotiations for all studies performed by the Regulatory Service Department. Provided consulting service to utilities in project management, personnel staffing, and future development efforts.

Manager, Austin, Texas Office - Responsibility for the overall administrative and business aspects for the department in the Southwest. Duties included the preparation of all aspects of rate cases and PURPA compliance studies.

Senior Management Consultant - Responsibilities included project management of various electric and gas cost-of-service studies and the development of methodologies utilized in the analysis of time-differentiated average and marginal cost studies.

Consulting Engineer - Prepared class and time-differentiated cost-of- service studies, revenue requirements exhibits, and expert testimony for formal rate proceedings before regulatory agencies. Performed forecasted ten-year cost-of-service studies by customer classes. Analyzed and prepared transmission (wheeling) rates based on cost-of-service.

Engineer - Derived system demand and energy loss factors and customer load characteristics required for cost-of-service results and related rate schedules.

1975 - 1976 **WESTINGHOUSE ELECTRIC CORPORATION**, Pittsburgh, PA
Responsible for the procurement of electrical/electronic control equipment and power cables for the nuclear reactor control system. Assisted in the development of procedures for the seismic testing of various electronic equipment related to reactor control.

1971 - 1974 **NEW ENGLAND ELECTRIC SYSTEM**, Westborough, Massachusetts
Experience from various system assignments in conjunction with formal education. Assigned to the Transmission and Distribution Department with responsibilities in several voltage conversion efforts and system planning. Development of network modeling techniques, load flow, and fault study analyses for the system planning department.

1966 - 1970 **U.S. NAVY**
Aviation electronic technician with responsibilities for maintenance and trouble-shooting of electronic communication equipment.

EDUCATION:

B.S.E.E., Electrical Engineering, Northeastern University, 1975
M.S.E.E., Electrical Power Systems, Northeastern University, 1975

Graduate Studies - MBA Program, Lehigh University and Albright College, 1977 to 1980

SOCIETIES:

Institute of Electrical and Electronic Engineers

APPEARANCES AS EXPERT WITNESS:

Federal Energy Regulatory Commission
Arkansas Public Service Commission
Delaware Public Service Commission
Indiana Utility Regulatory Commission
Illinois Commerce Commission
Kansas Corporation Commission
Kentucky Public Service Commission
Louisiana Public Service Commission
Maine Public Utilities Commission
Maryland Public Service Commission
Massachusetts Department of Public Utilities
Missouri Public Service Commission
New Hampshire Public Utilities Commission
New Jersey Board of Public Utilities
New York Public Service Commission
North Carolina Utilities Commission
Ohio Public Utilities Commission
Pennsylvania Public Utility Commission
Texas Public Utilities Commission

PAPERS AND PRESENTATIONS:

"Probability of Dispatch Costing Method for Electric Utility Cost-of-Service Analysis." Co-authored with P. S. Hurley, presented to Edison Electric Institute Rate Research Committee May 4, 1982.

"Costing Strategies under Changing Marketing Goals and Long Term Investment Growth." Presented to Missouri Valley Electric Association (MVEA), Kansas City, MO, November 13, 1991.

I. COST OF SERVICE METHODOLOGY

Through the application of a cost of service model developed specifically for NorthWestern Energy's South Dakota retail electric operations, it is possible to address the revenue requirement elements of rate base, revenue and operating expense and assign or allocate each element to customer classes. This cost of service process consists of the following three steps:

A. Functionalization – The assignment and allocation of costs into one of the following major functions:

- Production
- Transmission
- Distribution
- Customer
- Energy

Each of these major functions was also further assigned to sub-functions such as Distribution Primary within the Distribution function, Meter Reading within the Customer function, etc.

B. Classification – The classification of functional costs into demand, energy and customer components.

C. Allocation – The allocation of the functionalized and classified costs to customer classes using allocation factors developed for each functionalized cost category.

II. FUNCTIONS

There are five major functions in the cost of service study. Descriptions of the functions, sub-functions and costs that are included in each are as follows:

A. Production – Costs that relate to the cost of generation and purchased power.

B. Transmission – Costs that relate to the Transmission lines, substations, and associated facilities that transport power from the Generation source to the Distribution substations.

C. Distribution – Includes the cost of facilities that transport power from the high voltage side of the Distribution substation to the Primary and Secondary Distribution systems. Distribution costs also include the costs of line transformers.

1. Distribution Substations – The costs of substation transformers and switchgear between the Transmission system and the Primary and Secondary conductor systems.
2. Distribution Primary – The costs associated with Primary conductors and devices.
3. Distribution Secondary – The costs associated with Secondary conductors and devices.
4. Distribution Transformers – The costs associated with Distribution Line Transformers.

D. Customer – Includes those costs that are directly related to the change in the number of customers.

1. Services – The costs associated with customer service drops.
2. Meters – The costs associated with the fixed cost of metering.
3. Meter Reading – The costs associated with meter reading.
4. Customer Records – The costs associated with customer records, collections, customer service, and information.
5. Customer Other – The costs associated with customer-related Other Operating revenues.
6. Lighting – Costs directly associated with the Lighting customer class

E. Energy – Includes those costs that are associated with generation fuel costs.

III. COST CLASSIFICATION

All functional costs are further classified into the following three components:

1. Demand – Costs whose main driver is the customer's demand or time of use (kW).
2. Energy – Costs whose main driver is the use of energy (kWh).
3. Customer – Costs whose main driver is the number of customers.

The classification of functional costs into the component costs is as follows:

A. Demand

- Production
- Transmission
- Distribution Substations
- Distribution Primary
- Distribution Secondary
- Distribution Transformers

B. Energy – Generation Fuel Costs

C. Customer

- Services
- Meters
- Meter Reading
- Customer Records & Information
- Customer Other
- Lighting

IV. FUNCTIONAL ALLOCATION FACTORS

The first step in the cost of service allocation process is the functionalization of costs. All costs are assigned to the functions noted above either directly or by the use of internally developed functional cost allocation factors.

1. Direct Functional Cost Assignment – Certain costs relate solely to one function and can be directly assigned. The categories of costs that contain directly assignable costs are as follows:
   - Plant in Service
   - Accumulated Depreciation
   - Fuel Inventory
   - Fuel Charge Revenues and Costs
   - External Transmission Revenues and Costs
   - Ad Valorem Revenues and Costs
   - Wholesale Revenues and Costs
   - Steam Sales Revenues
   - Yankton Sioux Billing Credits
   - O&M Production Expenses
   - O&M Transmission Expenses
   - Meter Reading Expenses
   - Customer Records Expenses
   - Customer Service & Information Expenses
   - Sales Expenses
   - Depreciation Expense
   - Plant-Related Regulatory Credits
   - North Dakota Coal Tax

2. Internal Functional Allocation – For those costs that do not relate directly to one function, an internal functional allocation factor was developed to allocate the costs. The internal functional allocation factors are the sum of functional costs that have been directly assigned or allocated or both.

The following is a list of the internal functional allocators and the costs they allocate to functions:

FuncLabor – Sum of Total Functionalized Labor Expense
Costs Functionalized:
- General Plant-Related Cost
- Common Plant-Related Cost
- O&M Administrative & General Labor-Related Expense
- Intangible Plant-Related Cost
- Prepaid Insurance
- Allowance for Injuries and Damages
- Regulatory Credits Pension Related
- SD Vehicle Tax
- Payroll Taxes

MeterServices – Sum of Meters & Service Plant Function
Costs Functionalized:
- O&M Distribution Customer Installations Expense
- Customer Deposits

ProdExpXFuel – Sum of O&M Functional Production Expense
Costs Functionalized:
- Production Labor Expense

TransmExp – Sum of O&M Functional Transmission Expense
Costs Functionalized:
- Transmission Labor Expense

DistOpLabXS – Sum of Total Functionalized Distribution Operating Labor Excluding Supervision
Costs Functionalized:
- O&M Distribution Operating Supervision Labor

DistOpSubs – O&M Distribution Operating Substation Expense
Costs Functionalized:
- O&M Distribution Operating Substation Labor

DistOpOHLine – O&M Distribution Overhead Lines Expense
Costs Functionalized:
- O&M Distribution Operating Overhead Lines Labor

DistOpUGLine – O&M Distribution Underground Lines Expense
Costs Functionalized:
– O&M Distribution Operating Underground Lines Labor

DistOpLight – O&M Distribution Operating Lighting Expense
Costs Functionalized:
– O&M Distribution Operating Lighting Labor

DistOpMeter – O&M Distribution Operating Meter Expense
Costs Functionalized:
– O&M Distribution Operating Meters Labor

DistOpCustin – O&M Distribution Operating Customer Installation Expense
Costs Functionalized:
– O&M Distribution Operating Customer Installation Labor

DistOpOth – O&M Distribution Operating Other Expense
Costs Functionalized:
– O&M Distribution Operating Other Labor

DistMnLabXS – Sum of Functionalized Distribution Maintenance Labor Excluding Supervision
Costs Functionalized:
– O&M Distribution Maintenance Supervision Labor

DistMnSubs – O&M Distribution Maintenance Substation Expense
Costs Functionalized:
– O&M Distribution Maintenance Substation Labor

DistMnOHLine – O&M Distribution Maintenance Overhead Lines Expense
Costs Functionalized:
– O&M Distribution Maintenance Overhead Lines Labor

DistMnUGLine – O&M Distribution Maintenance Underground Lines Expense
Costs Functionalized:
– O&M Distribution Maintenance Underground Lines Labor

DistMnTrans – O&M Distribution Maintenance Line Transformer Expense
Costs Functionalized:
– O&M Distribution Maintenance Line Transformers Labor

DistMnLight – O&M Distribution Maintenance Lighting Expense
Costs Functionalized:
– O&M Distribution Maintenance Lighting Labor

DistMnMeter – O&M Distribution Maintenance Meters Expense
Costs Functionalized:
– O&M Distribution Maintenance Meters Labor

DistMnOther – O&M Distribution Maintenance Other Expense
Costs Functionalized:
– O&M Distribution Maintenance Other Labor Expense

CustMeterRdg – O&M Customer Meter Reading Expense
Costs Functionalized:
– O&M Customer Meter Reading Labor

CustRecExp – O&M Customer Records Expense
Costs Functionalized:
– O&M Customer Records Labor Expense

CustServInfo – O&M Customer Service & Information Expense
Costs Functionalized:
– O&M Customer Service & Information Labor

AGExpLabor – O&M Administration & General Labor-Related Expenses
Costs Functionalized:
– O&M Administration & General Labor Expense

AGExpGeneral – O&M Administrative & General Expense General Plant
Costs Functionalized:
– O&M Administrative & General Labor Expense General Plant

ProdPlant – Sum of Production Plant
Costs Functionalized:
– Production Construction Labor Expense

TransPlant – Total Transmission Plant
Costs Functionalized:
– Transmission Construction Labor Expense

DistrPlant – Sum of Functionalized Distribution Plant Accounts
Costs Functionalized:
– Distribution Construction Labor Expense

PTDCWIPLab – Sum of Functionalized Production, Transmission and Distribution Construction Labor Expenses
Costs Functionalized:
– Contingency Construction Labor Expense

GeneralPlt – Functionalized General Plant
Costs Functionalized:
– Accumulated Depreciation Reserve General Plant
– O&M Administration & General Expenses – General Plant
– Depreciation Expense General Plant

CommonPlt – Functionalized General Plant
Costs Functionalized:
– Accumulated Depreciation Common Plant
– Depreciation Expense General Plant

PTDPlt – Sum of Functionalized Production, Transmission and Distribution Plant
Costs Functionalized:
– Working Capital Materials & Supplies

TotalPlant – Sum of Functionalized Production, Transmission, Distribution, General and Common Plant
Costs Functionalized:
– Other Prepaid Expenses
– Deferred Tax Reserves
– Miscellaneous Service Charges
– Rent Other
– Other Utility Revenues
– O&M Administrative & General Expenses – Plant Related
– Amortization Expense

ClaimedRev– Sum of Functionalized Revenue Requirement at the Equalized Claimed Rate of Return
Costs Functionalized:
- Rate Case Expenses
- Late Payment Charge Revenues Functionalized on Claimed Revenues
- Uncollectible Accounts Expense Functionalized on Claimed Revenues
- O&M Administrative and General Expense Revenue Related
- Taxes Other Than Income Taxes Delaware Franchise Taxes
- Taxes Other Than Income Taxes SD Gross Receipts Tax and Increase
- Tax Credits and Adjustments

DistOpLab – Sum of Functionalized Distribution Operations Labor
Costs Functionalized:
- O&M Distribution Operating Supervision Expense

DistSubs – Functionalized Distribution Substation Plant
Costs Functionalized:
- O&M Distribution Operating Substation Expense
- O&M Distribution Maintenance Substation Expense

DistOHLine – Sum of Functionalized Distribution Overhead Primary and Secondary Lines Plant
Costs Functionalized:
- O&M Distribution Operating Overhead Lines Expense
- O&M Distribution Maintenance Overhead Lines Expense
- Rent from Poles and Contacts

DistUGLine – Sum of Functionalized Distribution Underground Primary and Secondary Lines Plant
Costs Functionalized:
- O&M Distribution Operating Underground Lines Expense
- O&M Distribution Maintenance Underground Lines Expense

DistLight – Sum of Functionalized Installations on Customer Premises and Street Lighting Plant
Costs Functionalized:
- O&M Distribution Operating Lighting Expense
- O&M Distribution Maintenance Lighting Expense

DistMeters – Functionalized Meters Plant
Costs Functionalized:
- O&M Distribution Operating Meters Expense
- O&M Distribution Maintenance Meters Expense

DistOPExpXS – Sum of Functionalized Distribution Operating Expense excluding Supervision and Other Expenses
Costs Functionalized:
- O&M Distribution Operating Other Expense

DistMnLab – Sum of Functionalized Distribution Maintenance Labor
Costs Functionalized:
- O&M Distribution Maintenance Supervision Expense

DistTransf – Functionalized Distribution Transformer Plant
Costs Functionalized:
- O&M Distribution Maintenance Transformer Expense

DistMnExpXS – Sum of Functionalized Distribution Maintenance Expense excluding Supervision and Other Expenses
Costs Functionalized:
- O&M Distribution Maintenance Other Expense

MetRdgRec – Sum of Functionalized Customer Meter Reading Expense and Customer Records Expense
Costs Functionalized:
- O&M Customer Accounts Expense Miscellaneous Expenses

LatePayment – Direct assignment of Late Payment charges to the customer classes functionalized on Claimed Revenues
Costs Functionalized:
- Late Payment Charges

Uncollectibles – Direct assignment of Uncollectible Accounts expense to the customer classes functionalized on Claimed Revenues
Costs Functionalized:
- Uncollectible Accounts Expense

CashWorkC – Sum of functionalized expenses used in the calculation of cash working capital. Sum of O&M expense, Taxes Other Than Income, Federal Income Taxes, and Interest Expense
Costs Functionalized:
- Cash Working Capital

V. CLASS ALLOCATORS

After all costs have been functionalized, they are then allocated to customer classes using class allocation factors. Below is a listing of the functions and the class allocation factor used for that function.

1. Production

   12CPProd – Average 12 Coincident Peaks
   – Used to allocate Production-Related Costs to the customer classes

2. Transmission

   12CPTrans – Average of Class 12 Coincident Peaks
   – Used to allocate Transmission Functional Costs to the customer classes

3. Distribution Substation

   NonCP – Non-Coincident Class Peaks
   – Used to allocate Distribution Substation Functional Costs to the customer classes

4. Distribution Primary

   NonCPPrimary – Non-Coincident Class Peaks
   – Used to allocate Distribution Primary Functional Costs to the customer classes served at Primary voltage level and below

5. Distribution Secondary

   NonCPSecondary – Average of Non-Coincident Class Peaks and Maximum Diversified Demands
   – Used to allocate Distribution Secondary Functional Costs to the customer classes served at Secondary voltage level

6. Distribution Transformers

   DemTransf – Average of Non-Coincident Class Peaks and Maximum Diversified Demands
   – Used to allocate Distribution Transformer Functional Costs to the customer classes

7. Services

Services – Maximum Diversified Class Demands
– Used to allocate Distribution Services Functional Costs to the customer classes

8. Meters

MeterCost – Direct assignment of Meter Costs to customer classes
– Used to allocate Distribution Meter Costs to the customer classes

9. Customer Meter Reading

MeterRdg – Direct assignment of Meter Reading Costs to customer classes
– Used to allocate Meter Reading Functional Costs to the customer classes

10. Customer Records

CustRecords – Direct assignment of Customer Records and Billing Costs to customer classes
– Used to allocate Customer Records Functional Costs to the customer classes

11. Customer Other

Customer – Allocator to customer classes based on the number of customers
– Used to allocate Other Customer Functional Costs to the customer classes

12. Street Lighting

Lighting – Direct assignment of Lighting Costs to customer classes
– Used to assign Lighting Functional Costs to the Lighting classes

13. Energy Related

Energy – kWh Sales Allocator
– Used to allocate Energy Functional Costs to the customer classes

14. Fuel

Fuel – Direct assignment of offsetting fuel clause costs and revenues to customer classes
– Used to assign offsetting fuel costs and revenues to the customer classes

15. External Transmission

ExtTransm – Direct assignment of offsetting External Transmission clause costs and revenues to the customer classes
– Used to assign offsetting external transmission costs and revenues to the customer classes

16. Ad Valorem

AdValorem – Direct assignment of offsetting Ad Valorem clause costs and revenues to the customer classes
– Used to assign offsetting Ad Valorem costs and revenues to the customer classes

VI. CUSTOMER CLASSES

The individual customer classes with rates and grouping categories recognized in the cost of service study are as follows:

Total Residential
- Residential Basic 10
- Residential with Space Heating 11
- Residential Space Heating and Cooling 14
- Residential Dual-Fuel 15

Total Irrigation
- Irrigation Interruptible IRR 16 & 18
- Irrigation IRR 17

Total Commercial
- Commercial General Service 21
- Commercial Separate Metered Space Heating 23
- Commercial Space Heating & Cooling 24
- Commercial All-Inclusive 25

Total Commercial & Industrial
- Commercial & Industrial 33
- Large Commercial & Industrial 34

Total Municipal
- Municipal Pumping 41

Total Lighting
- Lighting Reddy-Guard 19
- Highway Street & Area Lighting 56

Controlled Off-Peak

Controlled Off Peak 70

NorthWestern Corporation dba NorthWestern Energy
Monthly System Peaks
South Dakota Electric
Test Year Ended December 31, 2022

Line No.		Date	Hour	Day	Megawatts	
1	January	1/6/2022	800	Thursday	307.2	
2	February	2/22/2022	1000	Tuesday	319.3	
3	March	3/11/2022	900	Friday	281.3	
4	April	4/14/2022	1000	Thursday	248.2	
5	May	5/12/2022	1600	Thursday	253.9	
6	June	6/20/2022	1600	Monday	322.8	
7	July	7/18/2022	1600	Monday	337.9	System Peak
8	August	8/5/2022	1600	Friday	336.7	
9	September	9/1/2022	1700	Thursday	303.0	
10	October	10/18/2022	800	Tuesday	225.2	
11	November	11/17/2022	1800	Thursday	264.7	
12	December	12/22/2022	1800	Thursday	313.9	
	Average Peak December to March				305.4	
	Average Peak June to September				325.1	
	Percent Winter of Summer				94%	

NWE SD LIGHTING COST ANALYSIS - 12/31/22

TABLE OF CONTENTS

WORKPAPERS

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 1 - RATE 19 - U10 RESIDENTIAL REDDY-GUARD SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**A**	**BILLING STATISTICS**																	
2									**SCALED**				**ANNUAL**	**CURRENT**					
3									**TOT $**	**NET**	**ANNUAL**	**ANNUAL**	**BASE**	**MONTHLY**					
4	**Rev Code**		**Watts**			**Lumens**	**KWH/MO**		**INSTALLED**	**PLANT**	**KWH**	**UNITS**	**REVENUES**	**CHARGE (1)**					
6	**Unmetered**																		
7	RR001	HPS	35			4,095	14.07		$0	$0		0		$4.00000					
8	RR002	HPS	50			5,850	19.77		$102	$76	554	27	$113	$4.15000					
9	RR003	HPS	100			11,700	49.58		$161	$7,856	104,185	2,063	$15,293	$7.43000					
10	RR004	HPS	150			17,550	69.68		$179	$23,580	411,324	5,796	$44,812	$7.75000					
11	RR005	HPS	250			29,250	107.87		$280	$4,614	66,751	605	$6,716	$10.96000					
12	RR006	HPS	400			46,800	166.16		$286	$1,608	32,164	188	$2,437	$12.94000					
13	RR007	HPS	1000			117,000	389.94		$0	$0		0		$27.07000					
15	RR010	MV	175			8,750	72.36		$234	$56,328	800,865	10,865	$53,170	$4.92000					
16	RR011	MV	250			12,500	100.84		$251	$1,315	19,767	191	$1,220	$6.24000					
17	RR012	MV	400			20,000	158.79		$0	$0		0		$9.26000					
18	RR013	MV	1000			50,000	380.23		$0	$0		0		$17.56000					
20	RR014	MH	175			15,225	68.68		$0	$0		0		$5.05000					
21	RR015	MH	250			21,750	97.15		$365	$546	5,313	48	$306	$6.43000					
22	RR016	MH	400			34,800	153.43		$835	$937	7,830	46	$431	$9.43000					
24	RR026	LED	60				20.10		$224	$57,637	29,897	1,201	$7,488	$8.88000					
25	RR030	LED	66				22.11		$224	$84	28	1	$17	$9.76800					
26	RR035	LED	73				24.46		$224	$504	1,158	46	$455	$9.34400					
27	RR060	LED	126				42.21		$274	$513	416	8	$71	$13.60800					
28	RR070	LED	189				63.32		$352	$527	330	4	$35	$20.41200					
30									TOTAL	$156,126	1,480,583	21,089	$132,563						
31									CHECK TOTAL	$156,126	1,480,583	21,089	$132,563						
35									**SCALED**				**ANNUAL**						
36									**TOT $**	**NET**	**ANNUAL**	**ANNUAL**	**BASE**	**MONTHLY**					
37	**Rev Code**		**Watts**			**Lumens**	**KWH/MO**		**INSTALLED**	**PLANT**	**KWH**	**UNITS**	**REVENUES**	**CHARGE (1)**					
39	**Metered**																		
40	RR100	HPS	35			4,095	14.07		$0	$0		0		$3.63					
41	RR101	HPS	50			5,850	19.77		$102	$191	1,186	60	$219	$3.63					
42	RR102	HPS	100			11,700	49.58		$161	$2,659	27,616	557	$2,811	$5.00					
43	RR103	HPS	150			17,550	69.68		$179	$17,618	225,275	3,233	$19,203	$5.88					
44	RR104	HPS	250			29,250	107.87		$280	$629	8,630	80	$616	$7.64					
45	RR105	HPS	400			46,800	166.16		$286	$1,179	21,933	132	$1,072	$8.05					
46	RR106	HPS	1000			117,000	389.94		$0	$0		0		$14.92					
48	RR110	MV	175			8,750	72.36		$234	$48,782	494,002	6,827	$15,933	$2.31					
49	RR111	MV	250			12,500	100.84		$251	$282	3,630	36	$105	$2.88					
50	RR112	MV	400			20,000	158.79		$0	$0		0		$3.63					
51	RR113	MV	1000			50,000	380.23		$0	$0		0		$7.10					
53	RR114	MH	175			15,225	68.68		$0	$0		0		$2.73					
54	RR115	MH	250			21,750	97.15		$365	$273	2,332	24	$158	$6.35					
55	RR116	MH	400			34,800	153.43		$0	$0		0		$8.05					
57	RR125	LED	55				18.54		$223	$167	241	13	$99	$7.21					
58	RR126	LED	60				20.10		$224	$3,193	1,246	62	$356	$7.86					
59	RR160	LED	126				42.21		$274	$103	42	1	$11	$11.47					
60	RR170	LED	189				63.32		$352	$132	63	1	$10	$17.20					
62									TOTAL	$75,208	786,196	11,026	$40,593						
63									CHECK TOTAL	$75,208	786,196	11,026	$40,593						

65 NOTES:
66 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 1 - RATE 19 - U10 RESIDENTIAL REDDY-GUARD SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	B	UNMETERED ALLOCATED COSTS RESULTS																	
2						PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
3				ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
4	Rev Code		Watts	UNITS	KWH	$0.00942	$0.00092	$0.01681	$0.02715	$0.03707	$0.03971	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
5												Cap Adjustment Factors							
6	Unmetered											(0.21)	0.21						
7	RR001	HPS	35		0	$0.13	$0.01	$0.24	$0.38	$0.52	$0.56								
8				0		$0.13	$0.01	$0.24	$0.38	$0.52	$0.56	$1.46	$4.84	$4.00	21.01%	$0	$0	$0	$0
9	RR002	HPS	50		554	$5.22	$0.51	$9.32	$15.05	$20.55	$22.02								
10				27		$0.19	$0.02	$0.35	$0.56	$0.76	$0.82	$2.13	$5.02	$4.15	21.01%	$58	$136	$113	$22
11	RR003	HPS	100		104,185	$981.42	$95.85	$1,751.34	$2,828.61	$3,862.13	$4,137.17								
12				2,063		$0.48	$0.05	$0.85	$1.37	$1.87	$2.01	$5.25	$8.99	$7.43	21.01%	$10,828	$18,548	$15,293	$3,255
13	RR004	HPS	150		411,324	$3,874.67	$378.42	$6,914.36	$11,167.45	$15,247.78	$16,333.68								
14				5,796		$0.67	$0.07	$1.19	$1.93	$2.63	$2.82	$7.38	$9.38	$7.75	21.01%	$42,749	$54,356	$44,812	$9,544
15	RR005	HPS	250		66,751	$628.79	$61.41	$1,122.08	$1,812.29	$2,474.45	$2,650.68								
16				605		$1.04	$0.10	$1.85	$3.00	$4.09	$4.38	$11.47	$13.26	$10.96	20.96%	$6,937	$8,020	$6,716	$1,305
17	RR006	HPS	400		32,164	$302.98	$29.59	$540.67	$873.25	$1,192.32	$1,277.23								
18				188		$1.61	$0.16	$2.88	$4.64	$6.34	$6.79	$17.78	$15.66	$12.94	21.01%	$3,343	$2,944	$2,437	$506
19	RR007	HPS	1000		0	$3.67	$0.36	$6.55	$10.59	$14.46	$15.48								
20				0		$3.67	$0.36	$6.55	$10.59	$14.46	$15.48	$40.53	$32.76	$27.07	21.01%	$0	$0	$0	$0
21																			
22	RR010	MV	175		800,865	$7,544.15	$736.80	$13,462.54	$21,743.48	$29,688.06	$31,802.34								
23				10,865		$0.69	$0.07	$1.24	$2.00	$2.73	$2.93	$7.66	$5.95	$4.92	21.01%	$83,234	$64,686	$53,170	$11,516
24	RR011	MV	250		19,767	$186.21	$18.19	$332.28	$536.67	$732.76	$784.95								
25				191		$0.97	$0.10	$1.74	$2.81	$3.84	$4.11	$10.76	$7.55	$6.24	21.01%	$2,054	$1,442	$1,220	$223
26	RR012	MV	400		0	$1.50	$0.15	$2.67	$4.31	$5.89	$2.87								
27				0		$1.50	$0.15	$2.67	$4.31	$5.89	$2.87	$13.07	$11.21	$9.26	21.01%	$0	$0	$0	$0
28	RR013	MV	1000		0	$3.58	$0.35	$6.39	$10.32	$14.09	$2.87								
29				0		$3.58	$0.35	$6.39	$10.32	$14.09	$2.87	$27.29	$21.25	$17.56	21.01%	$0	$0	$0	$0
30																			
31	RR014	MH	175		0	$0.65	$0.06	$1.15	$1.86	$2.55	$2.73								
32				0		$0.65	$0.06	$1.15	$1.86	$2.55	$2.73	$7.14	$6.11	$5.05	21.01%	$0	$0		$0
33	RR015	MH	250		5,313	$50.04	$4.89	$89.30	$144.23	$196.93	$210.96								
34				48		$1.04	$0.10	$1.86	$3.00	$4.10	$4.39	$11.50	$7.78	$6.43	21.01%	$552	$373	$306	$68
35	RR016	MH	400		7,830	$73.76	$7.20	$131.63	$212.59	$290.27	$310.94								
36				46		$1.60	$0.16	$2.86	$4.62	$6.31	$6.76	$17.69	$11.41	$9.43	21.01%	$814	$525	$431	$94
37																			
38	RR026	LED	60		29,897	$281.63	$27.51	$502.57	$811.71	$1,108.29	$1,187.22								
39				1,201		$0.23	$0.02	$0.42	$0.68	$0.92	$0.99	$2.59	$10.75	$8.88	21.01%	$3,107	$12,905	$7,488	$5,417
40	RR030	LED	66		28	$0.27	$0.03	$0.48	$0.77	$1.06	$1.13								
41				1		$0.27	$0.03	$0.48	$0.77	$1.06	$1.13	$2.96	$11.82	$9.77	21.01%	$3	$12	$17	($5)
42	RR035	LED	73		1,158	$10.91	$1.07	$19.47	$31.45	$42.93	$45.99								
43				46		$0.24	$0.02	$0.42	$0.68	$0.93	$1.00	$2.62	$11.31	$9.34	21.01%	$120	$520	$455	$65
44	RR060	LED	126		416	$3.92	$0.38	$7.00	$11.30	$15.43	$16.53								
45				8		$0.49	$0.05	$0.87	$1.41	$1.93	$2.07	$5.41	$16.47	$13.61	21.01%	$43	$132	$71	$61
46	RR070	LED	189		330	$3.11	$0.30	$5.55	$8.96	$12.24	$13.11								
47				4		$0.78	$0.08	$1.39	$2.24	$3.06	$3.28	$8.58	$24.70	$20.41	21.01%	$34	$99	$35	$64
48																			
49	TOTAL			21,089	1,480,583			REV REQ	$40,225	$54,923	$58,794					$153,877	$164,699	$132,563	$32,136
50								CHECK	$40,198	$54,885	$58,794	$153,877				Present Revenues	$132,563		
51									$27	$38	$0					Increase	$32,136		
52						Difference due to no kWh in light units			$27	$38									
53																			
54																			
55																			
56																			
57																			

58 NOTES:
59 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
60 (2) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 1 - RATE 19 - U10 RESIDENTIAL REDDY-GUARD SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	C	METERED ALLOCATED COSTS RESULTS																	
2						PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
3				ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
4	Rev Code		Watts	UNITS	KWH				$0.00000	$0.03355	$0.04858	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
5												Cap Adjustment Factors							
6	Metered											(0.21)	0.21						
7	RR100	HPS	35		0	$0.00	$0.00	$0.00	$0.00	$0.47	$0.68								
8				0		$0.00	$0.00	$0.00	$0.00	$0.47	$0.68	$1.16	$4.39	$3.63	21.01%	$0.00	$0	$0	$0
9	RR101	HPS	50		1,186	$0.00	$0.00	$0.00	$0.00	$39.79	$57.61								
10				60		$0.00	$0.00	$0.00	$0.00	$0.66	$0.96	$1.62	$4.39	$3.63	21.01%	$97.40	$264	$219	$44
11	RR102	HPS	100		27,616	$0.00	$0.00	$0.00	$0.00	$926.59	$1,341.59								
12				557		$0.00	$0.00	$0.00	$0.00	$1.66	$2.41	$4.07	$6.05	$5.00	21.01%	$2,268.18	$3,370	$2,811	$559
13	RR103	HPS	150		225,275	$0.00	$0.00	$0.00	$0.00	$7,558.58	$10,943.88								
14				3,233		$0.00	$0.00	$0.00	$0.00	$2.34	$3.39	$5.72	$7.12	$5.88	21.01%	$18,502.46	$23,004	$19,203	$3,800
15	RR104	HPS	250		8,630	$0.00	$0.00	$0.00	$0.00	$289.55	$419.23								
16				80		$0.00	$0.00	$0.00	$0.00	$3.62	$5.24	$8.86	$9.24	$7.64	20.94%	$708.77	$739	$616	$123
17	RR105	HPS	400		21,933	$0.00	$0.00	$0.00	$0.00	$735.91	$1,065.51								
18				132		$0.00	$0.00	$0.00	$0.00	$5.58	$8.07	$13.65	$9.74	$8.05	21.01%	$1,801.42	$1,286	$1,072	$214
19	RR106	HPS	1000		0	$0.00	$0.00	$0.00	$0.00	$13.08	$18.94								
20				0		$0.00	$0.00	$0.00	$0.00	$13.08	$18.94	$32.03	$18.05	$14.92	21.01%	$0.00	$0	$0	$0
21																			
22	RR110	MV	175		494,002	$0.00	$0.00	$0.00	$0.00	$16,575.04	$23,998.60								
23				6,827		$0.00	$0.00	$0.00	$0.00	$2.43	$3.52	$5.94	$2.80	$2.31	21.01%	$40,573.64	$19,084	$15,933	$3,150
24	RR111	MV	250		3,630	$0.00	$0.00	$0.00	$0.00	$121.80	$176.35								
25				36		$0.00	$0.00	$0.00	$0.00	$3.38	$4.90	$8.28	$3.49	$2.88	21.01%	$298.15	$125	$105	$21
26	RR112	MV	400		0	$0.00	$0.00	$0.00	$0.00	$5.33	$3.52								
27				0		$0.00	$0.00	$0.00	$0.00	$5.33	$3.52	$8.84	$4.39	$3.63	21.01%	$0.00	$0	$0	$0
28	RR113	MV	1000		0	$0.00	$0.00	$0.00	$0.00	$12.76	$3.52								
29				0		$0.00	$0.00	$0.00	$0.00	$12.76	$3.52	$16.27	$8.59	$7.10	21.01%	$0.00	$0	$0	$0
30																			
31	RR114	MH	175		0	$0.00	$0.00	$0.00	$0.00	$2.30	$3.34								
32				0		$0.00	$0.00	$0.00	$0.00	$2.30	$3.34	$5.64	$3.30	$2.73	21.01%	$0.00	$0	$0	$0
33	RR115	MH	250		2,332	$0.00	$0.00	$0.00	$0.00	$78.23	$113.27								
34				24		$0.00	$0.00	$0.00	$0.00	$3.26	$4.72	$7.98	$7.68	$6.35	21.01%	$191.50	$184	$158	$26
35	RR116	MH	400		0	$0.00	$0.00	$0.00	$0.00	$5.15	$7.45								
36				0		$0.00	$0.00	$0.00	$0.00	$5.15	$7.45	$12.60	$9.74	$8.05	21.01%	$0.00	$0	$0	$0
37																			
38	RR125	LED	55		241	$0.00	$0.00	$0.00	$0.00	$8.09	$11.71								
39				13		$0.00	$0.00	$0.00	$0.00	$0.62	$0.90	$1.52	$8.72	$7.21	21.01%	$19.80	$113	$99	$15
40	RR126	LED	60		1,246	$0.00	$0.00	$0.00	$0.00	$41.81	$60.54								
41				62		$0.00	$0.00	$0.00	$0.00	$0.67	$0.98	$1.65	$9.51	$7.86	21.01%	$102.35	$590	$356	$234
42	RR160	LED	126		42	$0.00	$0.00	$0.00	$0.00	$1.42	$2.05								
43				1		$0.00	$0.00	$0.00	$0.00	$1.42	$2.05	$3.47	$13.87	$11.47	21.01%	$3.47	$14	$11	$2
44	RR170	LED	189		63	$0.00	$0.00	$0.00	$0.00	$2.12	$3.08								
45				1		$0.00	$0.00	$0.00	$0.00	$2.12	$3.08	$5.20	$20.81	$17.20	21.01%	$5.20	$21	$10	$11
46																			
47	TOTAL			11,026	786,196			REV REQ	$0	$26,418	$38,193					$64,572	$48,794	$40,593	$8,200
48								CHECK	$0	$26,379	$38,193	$64,572				Present Revenues	$40,593		
49									$0	$39	$0						$8,200		
50						Difference due to no kWh in light units			$0	$39									
51																			
52																			
53																			
54																Proposed Total Rate 19 U10	$213,492		
55																Current Total Rate 19 U10	$173,156		
56																Increase	$40,336		

57 NOTES:
58 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
59 (2) Metered plant costs per lamp are not included in metered rates since they are metered and included with the customer;s service bill.
60 (3) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7
61
62

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 2 - RATE 19 - U20 COMMERCIAL REDDY-GUARD SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**A**	**BILLING STATISTICS**																	
2									**SCALED**	**PLANT**			**ANNUAL**	**CURRENT**					
3									**TOT $**	**NET**	**ANNUAL**	**ANNUAL**	**BASE**	**MONTHLY**					
4	**Rev Code**		**Watts**			**Lumens**	**KWH/MO**		**INSTALLED**	**PLANT**	**KWH**	**UNITS**	**REVENUES**	**CHARGE (1)**					
5																			
6	**Unmetered**																		
7	RC001	HPS	35			4,095	14.07		$0	$0	0	0	$0	$4.00000					
8	RC002	HPS	50			5,850	19.77		$102	$38	168	9	$38	$4.15000					
9	RC003	HPS	100			11,700	49.58		$161	$6,526	76,513	1,568	$11,710	$7.43000					
10	RC004	HPS	150			17,550	69.68		$179	$31,217	490,128	7,158	$56,008	$7.75000					
11	RC005	HPS	250			29,250	107.87		$280	$47,296	623,563	5,854	$65,140	$10.96000					
12	RC006	HPS	400			46,800	166.16		$286	$37,093	783,524	4,827	$63,677	$12.94000					
13	RC007	HPS	1000			117,000	389.94		$391	$1,024	32,427	84	$2,318	$27.07000					
14																			
15	RC010	MV	175			8,750	72.36		$234	$59,925	738,513	10,383	$51,623	$4.92000					
16	RC011	MV	250			12,500	100.84		$251	$3,288	49,067	493	$3,085	$6.24000					
17	RC012	MV	400			20,000	158.79		$295	$1,216	22,730	145	$1,365	$9.26000					
18	RC013	MV	1000			50,000	380.23		$0	$0		0		$17.56000					
19																			
20	RC014	MH	175			15,225	68.68		$0	$0		0		$5.05000					
21	RC015	MH	250			21,750	97.15		$327	$8,704	92,001	861	$5,531	$6.43000					
22	RC016	MH	400			34,800	153.43		$365	$25,543	425,990	2,584	$24,254	$9.43000					
23	RC017	MH	1000			87,000	380.23		$835	$8,436	174,998	469	$8,434	$17.59000					
24																			
25	RC026	LED	60				20.10		$224	$43,354	20,926	839	$5,249	$8.88000					
26	RC030	LED	66				22.11		$224	$84	211	10	$101	$9.76800					
27	RC035	LED	73				24.46		$224	$252	397	15	$157	$9.34400					
28	RC060	LED	126				42.21		$274	$6,362	5,150	103	$1,084	$13.60800					
29	RC070	LED	189				63.32		$352	$16,064	17,756	239	$3,937	$20.41200					
30	RC080	LED	319				106.87		$610	$1,826	6,295	57	$1,688	$29.34800					
31																			
32									TOTAL	$298,249	3,560,355	35,698	$305,399						
33									CHECK TOTAL	$298,249	3,560,355	35,698	$305,399						
34																			
35																			
36																			
37									**SCALED**	**PLANT**			**ANNUAL**	**CURRENT**					
38									**TOT $**	**NET**	**ANNUAL**	**ANNUAL**	**BASE**	**MONTHLY**					
39	**Rev Code**		**Watts**			**Lumens**	**KWH/MO**		**INSTALLED**	**PLANT**	**KWH**	**UNITS**	**REVENUES**	**CHARGE (1)**					
40																			
41	**Metered**																		
42	RC100	HPS	35			4,095	14.07		$0	$0	0	0	$0	$3.63					
43	RC101	HPS	50			5,850	19.77		$102	$687	4,269	216	$795	$3.63					
44	RC102	HPS	100			11,700	49.58		$161	$3,082	32,326	652	$3,291	$5.00					
45	RC103	HPS	150			17,550	69.68		$179	$13,465	168,347	2,416	$14,389	$5.88					
46	RC104	HPS	250			29,250	107.87		$280	$26,427	350,685	3,251	$25,131	$7.64					
47	RC105	HPS	400			46,800	166.16		$286	$26,051	487,513	2,934	$23,834	$8.05					
48	RC106	HPS	1000			117,000	389.94		$391	$878	28,076	72	$1,087	$14.92					
49																			
50	RC110	MV	175			8,750	72.36		$234	$4,475	295,012	4,077	$9,518	$2.31					
51	RC111	MV	250			12,500	100.84		$251	$18,882	34,687	344	$1,004	$2.88					
52	RC112	MV	400			20,000	158.79		$295	$27,855	14,767	93	$342	$3.63					
53	RC113	MV	1000			50,000	380.23		$423	$38,491	4,563	12	$86	$7.10					
54																			
55	RC114	MH	175			15,225	68.68		$0	$0		0		$2.73					
56	RC115	MH	250			21,750	97.15		$327	$4,536	46,243	476	$3,048	$6.35					
57	RC116	MH	400			34,800	153.43		$365	$11,611	153,890	1,003	$8,154	$8.05					
58	RC117	MH	1000			87,000	22.11		$224	$420	1,327	60	$905	$17.56					
59																			
60	RC126	LED	60				20.10		$224	$1,092	442	22	$147	$7.86					
61	RC130	LED	66				22.11		$274	$205	531	24	$210	$8.65					
62	RC160	LED	126				42.21		$352	$658	253	6	$41	$11.47					
63	RC170	LED	189				63.32		$610	$685	380	6	$75	$17.20					
64																			
65									TOTAL	$179,499	1,623,312	15,664	$92,057						
66									CHECK TOTAL	$179,499	1,623,312	15,664	$92,057						
67																			
69	NOTES:																		
70	(1)	Current monthly charge excludes fuel, ad valorem, and transmission by others charge.																	
71																			
72																			

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 2 - RATE 19 - U20 COMMERCIAL REDDY-GUARD SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**B**	**UNMETERED ALLOCATED COSTS RESULTS**																	
2						**PROD**	**TRANS**	**DIST**	**TOT PTDG**	**LIGHTING**	**LIGHTING**	**COST BASED**	**CAPPED**		**PERCENT**	**CALCULATED**	**PROPOSED**	**CURRENT**	**INCR/DECR**
3				**ANNUAL**	**ANNUAL**	**(Excl Fuel)**		**(WO LTG)**	**NOE**	**NOE**	**PLANT**	**CALCULATED**	**PROPOSED**	**EXISTING**	**INCREASE/**	**ANNUAL**	**ANNUAL**	**ANNUAL**	**ANNUAL**
4	**Rev Code**		**Watts**	**UNITS**	**KWH**	**$0.00942**	**$0.00092**	**$0.01681**	**$0.02715**	**$0.03707**	**$0.03971**	**--- MONTHLY CHARGES (1) ---**			**DECREASE**	**REVENUES**	**REVENUES**	**REVENUES**	**REVENUES**
5											**$0.00993**	**Cap Adjustment Factors**							
6	**Unmetered**											**(0.21)**	**0.21**						
7	RC001	**HPS**	35		0	$0.13	$0.01	$0.24	$0.38	$0.52	$0.56								
8				0		$0.13	$0.01	$0.24	$0.38	$0.52	$0.56	$1.46	$4.84	$4.00	21.01%	$0	$0	$0	$0
9	RC002	**HPS**	50		168	$1.58	$0.15	$2.82	$4.55	$6.22	$6.66								
10				9		$0.18	$0.02	$0.31	$0.51	$0.69	$0.74	$1.94	$5.02	$4.15	21.01%	$17	$45	$38	$7
11	RC003	**HPS**	100		76,513	$720.75	$70.39	$1,286.18	$2,077.33	$2,836.34	$3,038.33								
12				1,568		$0.46	$0.04	$0.82	$1.32	$1.81	$1.94	$5.07	$8.99	$7.43	21.01%	$7,952	$14,098	$11,710	$2,387
13	RC004	**HPS**	150		490,128	$4,617.00	$450.92	$8,239.05	$13,306.97	$18,169.04	$19,462.98								
14				7,158		$0.65	$0.06	$1.15	$1.86	$2.54	$2.72	$7.12	$9.38	$7.75	21.01%	$50,939	$67,129	$56,008	$11,121
15	RC005	**HPS**	250		623,563	$5,873.96	$573.68	$10,482.09	$16,929.73	$23,115.47	$24,761.67								
16				5,854		$1.00	$0.10	$1.79	$2.89	$3.95	$4.23	$11.07	$13.26	$10.96	20.99%	$64,807	$77,627	$65,140	$12,488
17	RC006	**HPS**	400		783,524	$7,380.79	$720.84	$13,171.03	$21,272.67	$29,045.22	$31,113.72								
18				4,827		$1.53	$0.15	$2.73	$4.41	$6.02	$6.45	$16.87	$15.66	$12.94	21.01%	$81,432	$75,584	$63,677	$11,907
19	RC007	**HPS**	1000		32,427	$305.46	$29.83	$545.09	$880.38	$1,202.05	$1,287.66								
20				84		$3.64	$0.36	$6.49	$10.48	$14.31	$15.33	$40.12	$32.76	$27.07	21.01%	$3,370	$2,752	$2,318	$434
21																			
22	RC010	MV	175		738,513	$6,956.79	$679.43	$12,414.40	$20,050.62	$27,376.67	$29,326.34								
23				10,383		$0.67	$0.07	$1.20	$1.93	$2.64	$2.82	$7.39	$5.95	$4.92	21.01%	$76,754	$61,817	$51,623	$10,193
24	RC011	MV	250		49,067	$462.21	$45.14	$824.82	$1,332.17	$1,818.91	$1,948.45								
25				493		$0.94	$0.09	$1.67	$2.70	$3.69	$3.95	$10.34	$7.55	$6.24	21.01%	$5,100	$3,723	$3,085	$637
26	RC012	MV	400		22,730	$214.12	$20.91	$382.10	$617.13	$842.62	$902.63								
27				145		$1.48	$0.14	$2.64	$4.26	$5.81	$6.23	$16.29	$11.21	$9.26	21.01%	$2,362	$1,625	$1,365	$259
28	RC013	MV	1000		0	$3.58	$0.35	$6.39	$10.32	$14.09	$2.87								
29				0		$3.58	$0.35	$6.39	$10.32	$14.09	$2.87	$27.29	$21.25	$17.56	21.01%	$0	$0	$0	$0
30																			
31	RC014	**MH**	175		0	$0.65	$0.06	$1.15	$1.86	$2.55	$2.73								
32				0		$0.65	$0.06	$1.15	$1.86	$2.55	$2.73	$7.14	$6.11	$5.05	21.01%	$0	$0	$0	$0
33	RC015	**MH**	250		92,001	$866.65	$84.64	$1,546.54	$2,497.83	$3,410.48	$3,653.36								
34				861		$1.01	$0.10	$1.80	$2.90	$3.96	$4.24	$11.11	$7.78	$6.43	21.01%	$9,562	$6,699	$5,531	$1,168
35	RC016	**MH**	400		425,990	$4,012.82	$391.91	$7,160.89	$11,565.62	$15,791.44	$16,916.05								
36				2,584		$1.55	$0.15	$2.77	$4.48	$6.11	$6.55	$17.13	$11.41	$9.43	21.01%	$44,273	$29,486	$24,254	$5,232
37	RC017	**MH**	1000		174,998	$1,648.48	$161.00	$2,941.72	$4,751.20	$6,487.18	$6,949.18								
38				469		$3.51	$0.34	$6.27	$10.13	$13.83	$14.82	$38.78	$21.29	$17.59	21.01%	$18,188	$9,983	$8,434	$1,549
39																			
40	RC026	LED	60		20,926	$197.12	$19.25	$351.76	$568.13	$775.71	$830.95								
41				839		$0.23	$0.02	$0.42	$0.68	$0.92	$0.99	$2.59	$10.75	$8.88	21.01%	$2,175	$9,016	$5,249	$3,766
42	RC030	LED	66		211	$1.99	$0.19	$3.55	$5.74	$7.83	$8.39								
43				10		$0.20	$0.02	$0.36	$0.57	$0.78	$0.84	$2.20	$11.82	$9.77	21.01%	$22	$118	$101	$18
44	RC035	LED	73		397	$3.74	$0.37	$6.67	$10.78	$14.72	$15.76								
45				15		$0.25	$0.02	$0.44	$0.72	$0.98	$1.05	$2.75	$11.31	$9.34	21.01%	$41	$170	$157	$12
46	RC060	LED	126		5,150	$48.51	$4.74	$86.57	$139.82	$190.90	$204.50								
47				103		$0.47	$0.05	$0.84	$1.36	$1.85	$1.99	$5.20	$16.47	$13.61	21.01%	$535	$1,696	$1,084	$613
48	RC070	LED	189		17,756	$167.26	$16.34	$298.48	$482.08	$658.22	$705.09								
49				239		$0.70	$0.07	$1.25	$2.02	$2.75	$2.95	$7.72	$24.70	$20.41	21.01%	$1,845	$5,903	$3,937	$1,966
50	RC080	LED	319		6,295	$59.30	$5.79	$105.81	$170.90	$233.34	$249.96								
51				57		$1.04	$0.10	$1.86	$3.00	$4.09	$4.39	$11.48	$35.51	$29.35	21.01%	$654	$2,024	$1,688	$337
52																			
53	TOTAL			35,698	3,560,355			REV REQ	$96,676	$132,000	$141,382					$370,028	$369,494	$305,399	$64,095
54								CHECK	$96,664	$131,982	$141,382	$370,028				Present Revenues	$305,399		
55									$13	$17	$0					Increase	$64,095		
56						Difference due to no kWh in light units			$13	$17									
57																			
58	NOTES:																		
59	(1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.																		
60	(2) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7																		
61																			
62																			

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 2 - RATE 19 - U20 COMMERCIAL REDDY-GUARD SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	C	METERED ALLOCATED COSTS RESULTS																	
2						PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
3				ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
4	Rev Code		Watts	UNITS	KWH				$0.00000	$0.03355	$0.04858	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
5											$0.00000	Cap Adjustment Factors							
6	Metered											(0.21)	0.21						
7	RC100	HPS	35		0	$0.00	$0.00	$0.00	$0.00	$0.47	$0.68								
8				0		$0.00	$0.00	$0.00	$0.00	$0.47	$0.68	$1.16	$4.39	$3.63	21.01%	$0	$0	$0	$0
9	RC101	HPS	50		4,269	$0.00	$0.00	$0.00	$0.00	$143.24	$207.40								
10				216		$0.00	$0.00	$0.00	$0.00	$0.66	$0.96	$1.62	$4.39	$3.63	21.01%	$351	$949	$795	$154
11	RC102	HPS	100		32,326	$0.00	$0.00	$0.00	$0.00	$1,084.63	$1,570.40								
12				652		$0.00	$0.00	$0.00	$0.00	$1.66	$2.41	$4.07	$6.05	$5.00	21.01%	$2,655	$3,945	$3,291	$654
13	RC103	HPS	150		168,347	$0.00	$0.00	$0.00	$0.00	$5,648.47	$8,178.29								
14				2,416		$0.00	$0.00	$0.00	$0.00	$2.34	$3.39	$5.72	$7.12	$5.88	21.01%	$13,827	$17,191	$14,389	$2,801
15	RC104	HPS	250		350,685	$0.00	$0.00	$0.00	$0.00	$11,766.40	$17,036.30								
16				3,251		$0.00	$0.00	$0.00	$0.00	$3.62	$5.24	$8.86	$9.24	$7.64	20.94%	$28,803	$30,038	$25,131	$4,908
17	RC105	HPS	400		487,513	$0.00	$0.00	$0.00	$0.00	$16,357.34	$23,683.40								
18				2,934		$0.00	$0.00	$0.00	$0.00	$5.58	$8.07	$13.65	$9.74	$8.05	21.01%	$40,041	$28,581	$23,834	$4,747
19	RC106	HPS	1000		28,076	$0.00	$0.00	$0.00	$0.00	$942.01	$1,363.92								
20				72		$0.00	$0.00	$0.00	$0.00	$13.08	$18.94	$32.03	$18.05	$14.92	21.01%	$2,306	$1,300	$1,087	$213
21																			
22	RC110	MV	175		295,012	$0.00	$0.00	$0.00	$0.00	$9,898.41	$0.00								
23				4,077		$0.00	$0.00	$0.00	$0.00	$2.43	$0.00	$2.43	$2.79	$2.31	20.69%	$9,898	$11,366	$9,518	$1,848
24	RC111	MV	250		34,687	$0.00	$0.00	$0.00	$0.00	$1,163.85	$0.00								
25				344		$0.00	$0.00	$0.00	$0.00	$3.38	$0.00	$3.38	$3.48	$2.88	20.95%	$1,164	$1,198	$1,004	$194
26	RC112	MV	400		14,767	$0.00	$0.00	$0.00	$0.00	$495.49	$0.00								
27				93		$0.00	$0.00	$0.00	$0.00	$5.33	$0.00	$5.33	$4.39	$3.63	21.01%	$495	$409	$342	$67
28	RC113	MV	1000		4,563	$0.00	$0.00	$0.00	$0.00	$153.09	$0.00								
29				12		$0.00	$0.00	$0.00	$0.00	$12.76	$0.00	$12.76	$8.59	$7.10	21.01%	$153	$103	$86	$17
30																			
31	RC114	MH	175		0	$0.00	$0.00	$0.00	$0.00	$2.30	$3.34								
32				0		$0.00	$0.00	$0.00	$0.00	$2.30	$3.34	$5.64	$3.30	$2.73	21.01%	$0	$0	$0	$0
33	RC115	MH	250		46,243	$0.00	$0.00	$0.00	$0.00	$1,551.59	$2,246.50								
34				476		$0.00	$0.00	$0.00	$0.00	$3.26	$4.72	$7.98	$7.68	$6.35	21.01%	$3,798	$3,658	$3,048	$609
35	RC116	MH	400		153,890	$0.00	$0.00	$0.00	$0.00	$5,163.42	$7,475.99								
36				1,003		$0.00	$0.00	$0.00	$0.00	$5.15	$7.45	$12.60	$9.74	$8.05	21.01%	$12,639	$9,770	$8,154	$1,616
37	RC117	MH	1000		1,327	$0.00	$0.00	$0.00	$0.00	$44.51	$64.45								
38				60		$0.00	$0.00	$0.00	$0.00	$0.74	$1.07	$1.82	$21.25	$17.56	21.01%	$109	$1,275	$905	$370
39																			
40	RC126	LED	60		442	$0.00	$0.00	$0.00	$0.00	$14.84	$21.48								
41				22		$0.00	$0.00	$0.00	$0.00	$0.67	$0.98	$1.65	$9.51	$7.86	21.01%	$36	$209	$147	$63
42	RC130	LED	66		531	$0.00	$0.00	$0.00	$0.00	$17.80	$25.78								
43				24		$0.00	$0.00	$0.00	$0.00	$0.74	$1.07	$1.82	$10.47	$8.65	21.01%	$44	$251	$210	$41
44	RC160	LED	189		253	$0.00	$0.00	$0.00	$0.00	$8.50	$12.30								
45				6		$0.00	$0.00	$0.00	$0.00	$1.42	$2.05	$3.47	$13.87	$11.47	21.01%	$21	83.24916	$41	$43
46	RC170	LED	189		380	$0.00	$0.00	$0.00	$0.00	$12.75	$18.46								
47				6		$0.00	$0.00	$0.00	$0.00	$2.12	$3.08	$5.20	$20.81	$17.20	21.01%	$31	$125	$75	$50
48																			
49	TOTAL			15,664	1,623,312			REV REQ	$0	$54,469	$61,905					$116,371	$110,451	$92,057	$18,394
50								CHECK	$0	$54,466	$61,905	$116,371				Present Revenues	$92,057		
51									$0	$3	$0						$18,394		
52						Difference due to no kWh in light units				$3									
53																			
54																			
55															Proposed Total Rate 19 U20	$479,944			
56															Current Total Rate 19 U20	$397,456			
57															Increase	$82,489			

58 NOTES:
59 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
60 (2) Metered plant costs per lamp are not included in metered rates since they are metered and included with the customer;s service bill.
61 (3) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7
62

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 3 - RATE 19 - U30 PUBLIC LIGHTING SUMMARY RESULTS

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
A	**BILLING STATISTICS**															
Rev Code		**Watts**			**Lumens**	**KWH/MO**		**SCALED TOT $ INSTALLED**	**NET PLANT**	**ANNUAL KWH**	**ANNUAL UNITS**	**BASE REVENUES**	**MONTHLY CHARGE (1)**			
Unmetered																
RM001	HPS	35			4,095	14.07		$0	$0	0	0	$0	$4.00			
RM002	HPS	50			5,850	19.77		$0	$0	0	0	$0	$4.15			
RM003	HPS	100			11,700	49.58		$0	$0	0	0	$0	$7.43			
RM004	HPS	150			17,550	69.68		$211	$316	5,370	75	$555	$7.75			
RM005	HPS	250			29,250	107.87		$312	$234	2,706	24	$266	$10.96			
RM006	HPS	400			46,800	166.16		$319	$120	2,087	12	$157	$12.94			
RM007	HPS	1000			117,000	389.94		$0	$0	0	0	$0	$27.07			
RM010	MV	175			8,750	72.36		$264	$296	2,495	32	$157	$4.92			
RM011	MV	250			12,500	100.84		$0	$0	0	0	$0	$6.24			
RM012	MV	400			20,000	158.79		$0	$0	0	0	$0	$9.26			
RM013	MV	1000			50,000	380.23		$0	$0	0	0	$0	$17.56			
RM014	MH	175			15,225	68.68		$0	$0	0	0	$0	$5.05			
RM015	MH	250			21,750	97.15		$396	$594	4,271	39	$242	$6.43			
RM016	MH	400			34,800	153.43		$859	$322	2,087	12	$112	$9.43			
	Company Owned															
RM026	LED	60				20.10		$224	$252	380	14	$61	$8.88			
RM035	LED	73				24.46		$224	$84	307	12	$114	$9.34			
								TOTAL	$2,217	19,703	220	$1,663				
								CHECK TOTAL	$2,217	19,703	220	$1,663				

Rev Code		Watts	Lumens	KWH/MO	SCALED TOT $ INSTALLED	NET PLANT	ANNUAL KWH	ANNUAL UNITS	ANNUAL BASE REVENUES	CURRENT MONTHLY CHARGE (1)
Metered										
RM100	HPS	35	4,095	14.07	$0	$0	0	0	$0	$3.63
RM101	HPS	50	5,850	19.77	$0	$0	0	0	$0	$3.63
RM102	HPS	100	11,700	49.58	$172	$129	1,190	24	$121	$5.00
RM103	HPS	150	17,550	69.68	$211	$158	1,672	24	$143	$5.88
RM104	HPS	250	29,250	107.87	$0	$0	0	0	$0	$7.64
RM105	HPS	400	46,800	166.16	$0	$0	0	0	$0	$8.05
RM106	HPS	1000	117,000	389.94	$0	$0	0	0	$0	$14.92
RM110	MV	175	8,750	72.36	$264	$99	507	7	$15	$2.31
RM111	MV	250	12,500	100.84	$0	$0	0	0	$0	$2.88
RM112	MV	400	20,000	158.79	$0	$0	0	0	$0	$3.63
RM113	MV	1000	50,000	380.23	$0	$0	0	0	$0	$7.10
RM114	MH	175	15,225	68.68	$0	$0	0	0	$0	$2.73
RM115	MH	250	21,750	97.15	$0	$0	0	0	$0	$6.35
RM116	MH	400	34,800	153.43	$0	$0	0	0	$0	$8.05
	Company Owned									
RM126	LED	60		20.10	$224	$84	20	1	$6	$7.86
					TOTAL	$470	3,389	56	$285	
					CHECK TOTAL	$470	3,389	56	$285	

NOTES:
(1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 3 - RATE 19 - U30 PUBLIC LIGHTING SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		
1	B	UNMETERED ALLOCATED COSTS RESULTS																	
2						PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
3				ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
4	Rev Code		Watts	UNITS	KWH	$0.00942	$0.00092	$0.01681	$0.02715	$0.03707	$0.03971	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
5												Cap Adjustment Factors							
6	Unmetered											(0.21)	0.21						
7	RM001	**HPS**	35		0	$0.13	$0.01	$0.24	$0.38	$0.52	$0.56								
8				0		$0.13	$0.01	$0.24	$0.38	$0.52	$0.56	$1.46	$4.84	$4.00	21.01%	$0	$0	$0	$0
9	RM002	**HPS**	50		0	$0.19	$0.02	$0.33	$0.54	$0.73	$0.78								
10				0		$0.19	$0.02	$0.33	$0.54	$0.73	$0.78	$2.05	$5.02	$4.15	21.01%	$0	$0	$0	$0
11	RM003	**HPS**	100		0	$0.47	$0.05	$0.83	$1.35	$1.84	$1.97								
12				0		$0.47	$0.05	$0.83	$1.35	$1.84	$1.97	$5.15	$8.99	$7.43	21.01%	$0	$0	$0	$0
13	RM004	**HPS**	150		5,370	$50.59	$4.94	$90.27	$145.80	$199.07	$213.25								
14				75		$0.67	$0.07	$1.20	$1.94	$2.65	$2.84	$7.44	$9.38	$7.75	21.01%	$558	$703	$555	$149
15	RM005	**HPS**	250		2,706	$25.49	$2.49	$45.49	$73.47	$100.32	$107.46								
16				24		$1.06	$0.10	$1.90	$3.06	$4.18	$4.48	$11.72	$13.26	$10.96	20.97%	$281	$318	$266	$52
17	RM006	**HPS**	400		2,087	$19.66	$1.92	$35.08	$56.65	$77.35	$82.86								
18				12		$1.64	$0.16	$2.92	$4.72	$6.45	$6.90	$18.07	$15.66	$12.94	21.01%	$217	$188	$157	$31
19	RM007	**HPS**	1000		0	$3.67	$0.36	$6.55	$10.59	$14.46	$15.48								
20				0		$3.67	$0.36	$6.55	$10.59	$14.46	$15.48	$40.53	$32.76	$27.07	21.01%	$0	$0	$0	$0
21																			
22	RM010	MV	175		2,495	$23.50	$2.30	$41.94	$67.74	$92.49	$99.08								
23				32		$0.73	$0.07	$1.31	$2.12	$2.89	$3.10	$8.10	$5.95	$4.92	21.01%	$259	$191	$157	$34
24	RM011	MV	250		0	$0.95	$0.09	$1.70	$2.74	$3.74	$2.87								
25				0		$0.95	$0.09	$1.70	$2.74	$3.74	$2.87	$9.35	$7.55	$6.24	21.01%	$0	$0	$0	$0
26	RM012	MV	400		0	$1.50	$0.15	$2.67	$4.31	$5.89	$2.87								
27				0		$1.50	$0.15	$2.67	$4.31	$5.89	$2.87	$13.07	$11.21	$9.26	21.01%	$0	$0	$0	$0
28	RM013	MV	1000		0	$3.58	$0.35	$6.39	$10.32	$14.09	$2.87								
29				0		$3.58	$0.35	$6.39	$10.32	$14.09	$2.87	$27.29	$21.25	$17.56	21.01%	$0	$0	$0	$0
30																			
31	RM014	**MH**	175		0	$0.65	$0.06	$1.15	$1.86	$2.55	$2.73								
32				0		$0.65	$0.06	$1.15	$1.86	$2.55	$2.73	$7.14	$6.11	$5.05	21.01%	$0	$0	$0	$0
33	RM015	**MH**	250		4,271	$40.24	$3.93	$71.80	$115.97	$158.34	$169.62								
34				39		$1.03	$0.10	$1.84	$2.97	$4.06	$4.35	$11.38	$7.78	$6.43	21.01%	$444	$303	$242	$62
35	RM016	**MH**	400		2,087	$19.66	$1.92	$35.08	$56.65	$77.35	$82.86								
36				12		$1.64	$0.16	$2.92	$4.72	$6.45	$6.90	$18.07	$11.41	$9.43	21.01%	$217	$137	$112	$25
33	RM026	LED	60		380	$3.58	$0.35	$6.38	$10.31	$14.08	$15.08								
34				14		$0.26	$0.02	$0.46	$0.74	$1.01	$1.08	$2.82	$10.75	$8.88	21.01%	$39	$150	$61	$89
35	RM035	LED	73		307	$2.90	$0.28	$5.17	$8.35	$11.40	$12.21								
36				12		$0.24	$0.02	$0.43	$0.70	$0.95	$1.02	$2.66	$11.31	$9.34	21.01%	$32	$136	$114	$22
37																			
38	TOTAL			220	19,703			REV REQ	$567	$774	$782					$2,048	$2,126	$1,663	$463
39								CHECK	$535	$730	$782	$2,048				Present Revenues	$1,663		
40									$32	$44	$0					Increase	$463		
41						Difference due to no kWh in light units			$32	$44									

NOTES:
(1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
(2) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 3 - RATE 19 - U30 PUBLIC LIGHTING SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		
1	C	METERED ALLOCATED COSTS RESULTS																	
2						PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
3				ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
4	Rev Code		Watts	UNITS	KWH				$0.00000	$0.03355	$0.04858	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
5												Cap Adjustment Factors							
6	Metered											(0.21)	0.21						
7	RM101	HPS	50		0	$0.00	$0.00	$0.00	$0.00	$0.66	$0.96								
8				0		$0.00	$0.00	$0.00	$0.00	$0.66	$0.96	$1.62	$4.39	$3.63	21.01%	$0	$0	$0	$0
9	RM102	HPS	100		1,190	$0.00	$0.00	$0.00	$0.00	$39.92	$57.81								
10				24		$0.00	$0.00	$0.00	$0.00	$1.66	$2.41	$4.07	$6.05	$5.00	21.01%	$98	$145	$121	$24
11	RM103	HPS	150		1,672	$0.00	$0.00	$0.00	$0.00	$56.11	$81.24								
12				24		$0.00	$0.00	$0.00	$0.00	$2.34	$3.39	$5.72	$7.12	$5.88	21.01%	$137	$171	$143	$28
13	RM104	HPS	250		0	$0.00	$0.00	$0.00	$0.00	$3.62	$5.24								
14				0		$0.00	$0.00	$0.00	$0.00	$3.62	$5.24	$8.86	$9.24	$7.64	20.94%	$0	$0	$0	$0
15	RM105	HPS	400		0	$0.00	$0.00	$0.00	$0.00	$5.58	$8.07								
16				0		$0.00	$0.00	$0.00	$0.00	$5.58	$8.07	$13.65	$9.74	$8.05	21.01%	$0	$0	$0	$0
17	RM106	HPS	1000		0	$0.00	$0.00	$0.00	$0.00	$13.08	$18.94								
18				0		$0.00	$0.00	$0.00	$0.00	$13.08	$18.94	$32.03	$18.05	$14.92	21.01%	$0	$0	$0	$0
19																			
20	RM110	MV	175		507	$0.00	$0.00	$0.00	$0.00	$17.00	$24.61								
21				7		$0.00	$0.00	$0.00	$0.00	$2.43	$3.52	$5.94	$2.80	$2.31	21.01%	$42	$20	$15	$5
22	RM111	MV	250		0	$0.00	$0.00	$0.00	$0.00	$3.38	$3.52								
23				0		$0.00	$0.00	$0.00	$0.00	$3.38	$3.52	$6.90	$3.49	$2.88	21.01%	$0	$0	$0	$0
24	RM112	MV	400		0	$0.00	$0.00	$0.00	$0.00	$5.33	$3.52								
25				0		$0.00	$0.00	$0.00	$0.00	$5.33	$3.52	$8.84	$4.39	$3.63	21.01%	$0	$0	$0	$0
26	RM113	MV	1000		0	$0.00	$0.00	$0.00	$0.00	$12.76	$3.52								
27				0		$0.00	$0.00	$0.00	$0.00	$12.76	$3.52	$16.27	$8.59	$7.10	21.01%	$0	$0	$0	$0
28																			
29	RM114	MH	175		0	$0.00	$0.00	$0.00	$0.00	$2.30	$3.34								
30				0		$0.00	$0.00	$0.00	$0.00	$2.30	$3.34	$5.64	$3.30	$2.73	21.01%	$0	$0	$0	$0
31	RM115	MH	250		0	$0.00	$0.00	$0.00	$0.00	$3.26	$4.72								
32				0		$0.00	$0.00	$0.00	$0.00	$3.26	$4.72	$7.98	$7.68	$6.35	21.01%	$0	$0	$0	$0
33	RM116	MH	400		0	$0.00	$0.00	$0.00	$0.00	$5.15	$7.45								
34				0		$0.00	$0.00	$0.00	$0.00	$5.15	$7.45	$12.60	$9.74	$8.05	21.01%	$0	$0	$0	$0
35																			
36	RM126	LED	60		20	$0.00	$0.00	$0.00	$0.00	$0.67	$0.98								
37				1		$0.00	$0.00	$0.00	$0.00	$0.67	$0.98	$1.65	$9.51	$7.86	21.01%	$2	$10	$6	$4
38																			
39	TOTAL			56	3,389			REV REQ	$0	$169	$165					$278	$345	$285	$60
40								CHECK	$0	$114	$165	$278				Present Revenues	$285		
41									$0	$55	$0					Decrease	$60		
42						Difference due to no kWh in light units			$0	$55									
43																			
44																			
45																			
46																			
47																			
48																Proposed Total Rate 19 U20	$2,472		
49																Current Total Rate 19 U20	$1,948		
50																Increase	$524		
51																			
52																			
53																			
54																			

55 NOTES:
56 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
57 (2) Metered plant costs per lamp are not included in metered rates since they are metered and included with the customer's service bill.
58 (3) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7
59
60

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 4 - RATE 56 - U30 DISTRIBUTION POLE SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	A	BILLING STATISTICS																	
2									SCALED										
3			Watts						TOT $	NET	ANNUAL	ANNUAL	BASE	MONTHLY					
4	Rev Code		Company Owned (*)			Lumens	KWH/MO		INSTALLED	PLANT	KWH	UNITS	REVENUES	CHARGE (1)					
5																			
6	SMD37	HPS	100 *		With Pole	11,700	49.58		$923	$125,526	75,480	1,449	$7,282	$4.22					
7	SMD38	HPS	100			11,700	49.58		$0	$0	24,864	480	$714	$1.48					
8	SMD39	HPS	150 *		With Pole	17,550	69.68		$948	$1,423,308	1,299,120	17,820	$138,071	$7.53					
9	SMD40	HPS	150			17,550	69.68		$0	$0	11,309	155	$327	$2.08					
10	SMD41	HPS	250 *		With Pole	29,250	107.87		$1,098	$286,505	348,657	3,093	$34,501	$10.66					
11	SMD42	HPS	250			29,250	107.87		$0	$0	163,451	1,445	$4,722	$3.19					
12	SMD43	HPS	400 *		With Pole	46,800	166.16		$1,108	$35,467	68,774	404	$5,672	$12.58					
13	SMD44	HPS	400			46,800	166.16		$0	$0	428,488	2,468	$12,604	$4.76					
14	SMD45	HPS	1000 *		With Pole	117,000	389.94		$0	$0	0	0	$0	$26.32					
15	SMD46	HPS	1000			117,000	389.94		$0	$0	0	0	$0	$11.82					
16																			
17	SMD47	MV	175 *		With Pole	8,750	72.36		$1,027	$1,993,689	1,749,803	23,128	$115,880	$4.79					
18	SMD48	MV	175			8,750	72.36		$0	$0	12,823	169	$375	$2.14					
19	SMD49	MV	250 *		With Pole	12,500	100.84		$1,050	$27,291	30,620	288	$1,914	$6.06					
20	SMD50	MV	250			12,500	100.84		$0	$0	0	0	$0	$2.76					
21	SMD51	MV	400 *		With Pole	20,000	158.79		$1,113	$17,812	27,839	167	$1,681	$9.01					
22	SMD52	MV	400			20,000	158.79		$0	$0	9,224	55	$299	$4.84					
23	SMD53	MV	1000 *		With Pole	50,000	380.23		$0	$0	0	0	$0	$17.07					
24	SMD54	MV	1000			50,000	380.23		$0	$0	0	0	$0	$8.80					
25																			
26	SMD55	MH	250 *		With Pole	21,750	97.15		$1,168	$2,336	2,706	24	$263	$10.99					
27	SMD56	MH	250			21,750	97.15		$0	$0	0	0	$0	$3.52					
28	SMD57	MH	400 *		With Pole	34,800	153.43		$1,222	$2,444	3,946	23	$305	$12.98					
29	SMD58	MH	400			34,800	153.43		$0	$0	0	0	$0	$4.48					
30																			
31	SLD45	LED	42*		With Pole		14.07		$126	$126	100	6	$109	$10.71					
32	SLD51	LED	60*		With Pole		20.10		$126	$5,397	2,149	79	$1,128	$12.13					
33	SLD53	LED	73*		With Pole		24.46		$126	$753	1,281	48	$576	$10.73					
34	SLD57	LED	126*		With Pole		42.21		$126	$502	332	6	$103	$15.75					
35	SLD63	LED	189*		With Pole		63.32		$126	$377	875	12	$295	$23.63					
36																			
37																			
38									TOTAL	$3,921,532	4,261,841	51,319	$326,820						
39									CHECK TOTAL	$3,921,532	4,261,841	51,319	$326,820						
40																			
41									Company Owned	$3,921,532	3,611,682	46,547	$307,780						
42									Customer Owned	$0	650,159	4,772	$19,040						
43									Total	$3,921,532	4,261,841	51,319	$326,820						

54 NOTES:
55 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 4 - RATE 56 - U30 DISTRIBUTION POLE SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	B	ALLOCATED COSTS RESULTS				PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
2			Watts	ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
3	Rev Code		Company Owned (	UNITS	KWH	$0.00779	$0.00076	$0.01299	$0.02154	$0.13351	$0.11897	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
4			Customer Owned			$0.00550	$0.00054	$0.00917	$0.01521	$0.00000	$0.02988	Cap Adjustment Factors							
5												(0.26)	0.26						
6	SMD37	HPS	100 *		75,480	$587.99	$57.36	$980.48	$1,625.83	$10,077.29	$8,979.82								
7				1,449		$0.41	$0.04	$0.68	$1.12	$6.95	$6.20	$14.27	$5.30	$4.22	25.55%	$20,683	$7,677	$7,282	$395
8	SMD38	HPS	100		24,864	$136.75	$13.43	$228.00	$378.18	$0.00	$742.93								
9				480		$0.28	$0.03	$0.48	$0.79	$0.00	$1.55	$2.34	$1.86	$1.48	25.55%	$1,121	$892	$714	$178
10	SMD39	HPS	150 *		1,299,120	$10,120.14	$987.33	$16,875.56	$27,983.04	$173,445.47	$154,556.27								
11				17,820		$0.57	$0.06	$0.95	$1.57	$9.73	$8.67	$19.98	$9.45	$7.53	25.55%	$355,985	$168,462	$138,071	$30,391
12	SMD40	HPS	150		11,309	$62.20	$6.11	$103.71	$172.01	$0.00	$337.92								
13				155		$0.40	$0.04	$0.67	$1.11	$0.00	$2.18	$3.29	$2.61	$2.08	25.55%	$510	$405	$327	$78
14	SMD41	HPS	250 *		348,657	$2,716.04	$264.98	$4,529.06	$7,510.08	$46,549.25	$41,479.77								
15				3,093		$0.88	$0.09	$1.46	$2.43	$15.05	$13.41	$30.89	$13.38	$10.66	25.55%	$95,539	$41,394	$34,501	$6,893
16	SMD42	HPS	250		163,451	$898.98	$88.26	$1,498.84	$2,486.09	$0.00	$4,883.91								
17				1,445		$0.62	$0.06	$1.04	$1.72	$0.00	$3.38	$5.10	$4.00	$3.19	25.55%	$7,370	$5,787	$4,722	$1,065
18	SMD43	HPS	400 *		68,774	$535.75	$52.27	$893.37	$1,481.39	$9,182.00	$8,182.03								
19				404		$1.33	$0.13	$2.21	$3.67	$22.73	$20.25	$46.65	$15.79	$12.58	25.55%	$18,845	$6,381	$5,672	$708
20	SMD44	HPS	400		428,488	$2,356.69	$231.38	$3,929.24	$6,517.31	$0.00	$12,803.23								
21				2,468		$0.95	$0.09	$1.59	$2.64	$0.00	$5.19	$7.83	$5.98	$4.76	25.55%	$19,321	$14,749	$12,604	$2,145
22	SMD45	HPS	1000 *		0	$3.04	$0.30	$5.07	$8.40	$52.06	$46.39								
23				0		$3.04	$0.30	$5.07	$8.40	$52.06	$46.39	$106.85	$33.04	$26.32	25.55%	$0	$0	$0	$0
24	SMD46	HPS	1000		0	$2.14	$0.21	$3.58	$5.93	$0.00	$11.65								
25				0		$2.14	$0.21	$3.58	$5.93	$0.00	$11.65	$17.58	$14.84	$11.82	25.55%	$0	$0	$0	$0
26																			
27	SMD47	MV	175 *		1,749,803	$13,630.96	$1,329.85	$22,729.94	$37,690.75	233,616.17	$208,174.04								
28				23,128		$0.59	$0.06	$0.98	$1.63	$10.10	$9.00	$20.73	$6.01	$4.79	25.55%	$479,481	$139,083	$115,880	$23,203
29	SMD48	MV	175		12,823	$70.53	$6.92	$117.58	$195.03	$0.00	$383.14								
30				169		$0.42	$0.04	$0.70	$1.15	$0.00	$2.27	$3.42	$2.69	$2.14	25.55%	$578	$454	$375	$80
31	SMD49	MV	250 *		30,620	$238.53	$23.27	$397.75	$659.55	$4,088.05	$3,642.84								
32				288		$0.83	$0.08	$1.38	$2.29	$14.19	$12.65	$29.13	$7.61	$6.06	25.55%	$8,390	$2,191	$1,914	$277
33	SMD50	MV	250		0	$0.55	$0.05	$0.92	$1.53	$0.00	$3.01								
34				0		$0.55	$0.05	$0.92	$1.53	$0.00	$3.01	$4.55	$3.47	$2.76	25.55%	$0	$0	$0	$0
35	SMD51	MV	400 *		27,839	$216.87	$21.16	$361.64	$599.66	$3,716.85	$3,312.06								
36				167		$1.30	$0.13	$2.17	$3.59	$22.26	$19.83	$45.68	$11.31	$9.01	25.55%	$7,629	$1,889	$1,681	$208
37	SMD52	MV	400		9,224	$50.73	$4.98	$84.58	$140.30	$0.00	$275.62								
38				55		$0.92	$0.09	$1.54	$2.55	$0.00	$5.01	$7.56	$6.08	$4.84	25.55%	$416	$334	$299	$35
39	SMD53	MV	1000 *		0	$2.96	$0.29	$4.94	$8.19	$50.76	$45.24								
40				0		$2.96	$0.29	$4.94	$8.19	$50.76	$45.24	$104.19	$21.43	$17.07	25.55%	$0	$0	$0	$0
41	SMD54	MV	1000		0	$2.09	$0.21	$3.49	$5.78	$0.00	$11.36								
42				0		$2.09	$0.21	$3.49	$5.78	$0.00	$11.36	$17.14	$11.05	$8.80	25.55%	$0	$0	$0	$0
43																			
44	SMD55	MH	250 *		2,706	$21.08	$2.06	$35.15	$58.29	$361.30	$321.95								
45				24		$0.88	$0.09	$1.46	$2.43	$15.05	$13.41	$30.90	$13.80	$10.99	25.55%	$742	$331	$263	$69
46	SMD56	MH	250		0	$0.53	$0.05	$0.89	$1.48	$0.00	$2.90								
47				0		$0.53	$0.05	$0.89	$1.48	$0.00	$2.90	$4.38	$4.42	$3.52	25.58%	$0	$0	$0	$0
48	SMD57	MH	400 *		3,946	$30.74	$3.00	$51.26	$84.99	$526.80	$469.43								
49				23		$1.34	$0.13	$2.23	$3.70	$22.90	$20.41	$47.01	$16.30	$12.98	25.55%	$1,081	$375	$305	$70
50	SMD58	MH	400		0	$0.84	$0.08	$1.41	$2.33	$0.00	$4.58								
51				0		$0.84	$0.08	$1.41	$2.33	$0.00	$4.58	$6.92	$5.62	$4.48	25.55%	$0	$0	$0	$0
48	SLD45	LED	42*		100	$0.78	$0.08	$1.30	$2.15	$13.31	$11.86								
49				6		$0.13	$0.01	$0.22	$0.36	$2.22	$1.98	$4.55	$13.45	$10.71	25.55%	$27	$81	$109	($28)
48	SLD51	LED	60*		2,149	$16.74	$1.63	$27.92	$46.30	$286.96	$255.71								
49				79		$0.21	$0.02	$0.35	$0.59	$3.63	$3.24	$7.46	$15.23	$12.13	25.55%	$589	$1,203	$1,128	$75
48	SLD53	LED	73*		1,281	$9.98	$0.97	$16.64	$27.59	$171.01	$152.39								
49				48		$0.21	$0.02	$0.35	$0.57	$3.56	$3.17	$7.31	$13.47	$10.73	25.55%	$351	$647	$576	$71
48	SLD57	LED	126*		332	$2.58	$0.25	$4.31	$7.15	$44.30	$39.47								
49				6		$0.43	$0.04	$0.72	$1.19	$7.38	$6.58	$15.15	$19.77	$15.75	25.55%	$91	$119	$103	$15
48	SLD63	LED	189*		875	$6.82	$0.67	$11.37	$18.85	$116.87	$104.14								
49				12		$0.57	$0.06	$0.95	$1.57	$9.74	$8.68	$19.99	$29.66	$23.63	25.55%	$240	$356	$295	$61
52															Company Owned	$989,673	$370,187		
53															Customer Owned	$29,316	$22,621		
54	TOTAL			51,319	4,261,841			REV REQ	$87,718	$482,298	$449,109					$1,018,989	$392,808	$326,820	$65,988
55								CHECK	$87,685	$482,196	$449,109	$1,018,989				Present Revenues	$326,820		
56									$34	$103	$0					Increase	$65,988		
57								Difference due to no kWh in light units	$34	$103									
58																			
59	NOTES:															$1,018,989	$392,808		

60 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
61 (2) Plant costs per lamp are not included in Customer-Owned rates.
62 (3) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7
63
64

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 5 - RATE 56 - U30 METAL POLE SUMMARY RESULTS

Line No.	A	B	C	E	F	G	I	J	K	L	M	N
1	A	BILLING STATISTICS										
2							SCALED				ANNUAL	CURRENT
3			Watts				TOT $	NET	ANNUAL	ANNUAL	BASE	MONTHLY
4	Rev Code		Company Owned (*)		Lumens	KWH/MO	INSTALLED	PLANT	KWH	UNITS	REVENUES	CHARGE (1)
6	SMM22	HPS	50		5,850	24.79	$0	$0	2,486	48	$19	$0.73
7	SMM01	HPS	100 *	With Pole	11,700	49.58	$0	$0	0	0	$0	$19.07
8	SMM02	HPS	100		11,700	49.58	$0	$0	5,548	107	$161	$1.48
9	SMM03	HPS	150 *	With Pole	17,550	69.68	$1,898	$337,504	411,947	5,603	$118,368	$19.39
10	SMM04	HPS	150		17,550	69.68	$0	$0	80,496	1,104	$2,306	$2.08
11	SMM05	HPS	250 *	With Pole	29,250	107.87	$2,047	$450,335	848,248	7,519	$173,303	$22.01
12	SMM06	HPS	250		29,250	107.87	$0	$0	19,098	169	$541	$3.19
13	SMM07	HPS	400 *	With Pole	46,800	166.16	$2,058	$315,519	903,995	5,245	$133,346	$23.78
14	SMM08	HPS	400		46,800	166.16	$0	$0	1,163,436	6,750	$32,386	$4.76
15	SMM09	HPS	1000 *	With Pole	117,000	389.94	$0	$0	0	0	$0	$37.74
16	SMM10	HPS	1000		117,000	389.94	$0	$0	0	0	$0	$11.82
18	SMM11	MV	175 *	With Pole	8,750	72.36	$0	$0	0	0	$0	$11.98
19	SMM12	MV	175		8,750	72.36	$0	$0	0	0	$0	$2.14
20	SMM13	MV	250 *	With Pole	12,500	100.84	$1,999	$20,020	34,404	322	$5,819	$16.34
21	SMM14	MV	250		12,500	100.84	$0	$0	0	0	$0	$2.76
22	SMM15	MV	400 *	With Pole	20,000	158.79	$2,063	$4,986	12,661	75	$1,577	$18.92
23	SMM16	MV	400		20,000	158.79	$0	$0	0	0	$0	$4.84
24	SMM17	MV	1000 *	With Pole	50,000	380.23	$0	$0	0	0	$0	$28.99
25	SMM18	MV	1000		50,000	380.23	$0	$0	0	0	$0	$8.80
27	SMM19	MH	175 *	With Pole	21,750	68.68	$1,968	$680	1,353	12	$249	$19.20
28	SMM20	MH	250 *	With Pole	20,000	97.15	$2,063	$4,274	12,203	70	$1,559	$20.55
29	SMM21	MH	400 *	With Pole	8,750	153.43	$0	$0	0	0	$0	$21.55
31	SLM45	LED	42*	With Pole		14.07	$126	$43	132	9	$231	$22.54
32	SLM50	LED	51*	With Pole		17.09	$126	$173	866	48	$1,049	$21.62
33	SLM07	LED	71			23.79	$0	$0	10,171	408	$348	$0.85
34	SLM53	LED	73*	With Pole		24.46	$126	$87	548	22	$524	$22.56
35	SLM55	LED	103*	With Pole		34.51	$126	$867	8,477	233	$5,989	$24.71
36	SLM11	LED	108			36.18	$0	$0	2,679	72	$94	$1.30
37	SLM57	LED	126*	With Pole		42.21	$126	$303	640	11	$266	$27.58
38	SLM15	LED	154			51.59	$0	$0	156,588	2,890	$5,357	$1.85
39	SLM63	LED	189*	With Pole		63.32	$126	$1,734	20,139	291	$11,596	$35.46
40	SLM20	LED	200			69.01	$0	$0	0	0	$0	$2.47
41	SLM22	LED	268			89.78	$0	$0	2,263	24	$77	$3.22
42	SLM67	LED	278*	With Pole		93.13	$126	$390	10,570	108	$4,250	$38.84
43	SLM70	LED	309*	With Pole		103.52	$126	$520	15,663	144	$6,114	$41.91
44	SLM75	LED	319*	With Pole		106.87	$126	$87	2,696	24	$1,043	$42.90
48							TOTAL	$1,137,522	3,727,307	31,308	$506,574	
49							CHECK TOTAL	$1,137,522	3,727,307	31,308	$506,574	
51							Company Owned	$1,137,522	2,284,541	19,736	$465,284	
52							Customer Owned	$0	1,442,766	11,572	$41,289	
53							Total	$1,137,522	3,727,307	31,308	$506,574	

59 NOTES:
60 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 5 - RATE 56 - U30 METAL POLE SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	B	ALLOCATED COSTS RESULTS				PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
2			Watts	ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
3	Rev Code		Company Owned (	UNITS	KWH	$0.00779	$0.00076	$0.01299	$0.02154	$0.13351	$0.11897	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
4			Customer Owned			$0.00550	$0.00054	$0.00917	$0.01521	$0.00000	$0.02988	Cap Adjustment Factors							
5												(0.26)	0.26						
6	SMM22	HPS	50		2,486	$13.68	$1.34	$22.80	$37.82	$0.00	$74.29								
7				48		$0.28	$0.03	$0.48	$0.79	$0.00	$1.55	$2.34	$0.92	$0.73	25.55%	$112	$44	$19	$25
8	SMM01	HPS	100 *		0	$0.39	$0.04	$0.64	$1.07	$6.62	$5.90								
9				0		$0.39	$0.04	$0.64	$1.07	$6.62	$5.90	$13.59	$23.94	$19.07	25.55%	$0	$0	$0	$0
10	SMM02	HPS	100		5,548	$30.52	$3.00	$50.88	$84.39	$0.00	$165.78								
11				107		$0.29	$0.03	$0.48	$0.79	$0.00	$1.55	$2.34	$1.86	$1.48	25.55%	$250	$199	$161	$38
12	SMM03	HPS	150 *		411,947	$3,209.07	$313.08	$5,351.20	$8,873.35	$54,999.10	$49,009.39								
13				5,603		$0.57	$0.06	$0.96	$1.58	$9.82	$8.75	$20.15	$24.35	$19.39	25.56%	$112,882	$136,414	$118,368	$18,046
14	SMM04	HPS	150		80,496	$442.73	$43.47	$738.15	$1,224.34	$0.00	$2,405.22								
15				1,104		$0.40	$0.04	$0.67	$1.11	$0.00	$2.18	$3.29	$2.61	$2.08	25.55%	$3,630	$2,883	$2,306	$577
16	SMM05	HPS	250 *		848,248	$6,607.85	$644.67	$11,018.74	$18,271.27	$113,249.62	$100,916.09								
17				7,519		$0.88	$0.09	$1.47	$2.43	$15.06	$13.42	$30.91	$27.63	$22.01	25.55%	$232,437	$207,769	$173,303	$34,465
18	SMM06	HPS	250		19,098	$105.04	$10.31	$175.12	$290.47	$0.00	$570.64								
19				169		$0.62	$0.06	$1.04	$1.72	$0.00	$3.38	$5.10	$4.00	$3.19	25.55%	$861	$677	$541	$136
20	SMM07	HPS	400 *		903,995	$7,042.12	$687.04	$11,742.89	$19,472.04	$120,692.32	$107,548.23								
21				5,245		$1.34	$0.13	$2.24	$3.71	$23.01	$20.50	$47.23	$29.85	$23.78	25.55%	$247,713	$156,588	$133,346	$23,242
22	SMM08	HPS	400		1,163,436	$6,398.90	$628.26	$10,668.70	$17,695.85	$0.00	$34,763.45								
23				6,750		$0.95	$0.09	$1.58	$2.62	$0.00	$5.15	$7.77	$5.98	$4.76	25.55%	$52,459	$40,338	$32,386	$7,952
24	SMM09	HPS	1000 *		0	$3.04	$0.30	$5.07	$8.40	$52.06	$46.39								
25				0		$3.04	$0.30	$5.07	$8.40	$52.06	$46.39	$106.85	$47.38	$37.74	25.55%	$0	$0	$0	$0
26	SMM10	HPS	1000		0	$2.14	$0.21	$3.58	$5.93	$0.00	$11.65								
27				0		$2.14	$0.21	$3.58	$5.93	$0.00	$11.65	$17.58	$14.84	$11.82	25.55%	$0	$0	$0	$0
28																			
29	SMM11	MV	175 *		0	$0.56	$0.05	$0.94	$1.56	$9.66	$8.61								
30				0		$0.56	$0.05	$0.94	$1.56	$9.66	$8.61	$19.83	$15.04	$11.98	25.55%	$0	$0	$0	$0
31	SMM12	MV	175		0	$0.40	$0.04	$0.66	$1.10	$0.00	$2.16								
32				0		$0.40	$0.04	$0.66	$1.10	$0.00	$2.16	$3.26	$2.69	$2.14	25.55%	$0	$0	$0	$0
33	SMM13	MV	250 *		34,404	$268.00	$26.15	$446.90	$741.06	$4,593.24	$4,093.01								
34				322		$0.83	$0.08	$1.39	$2.30	$14.26	$12.71	$29.28	$20.51	$16.34	25.55%	$9,427	$6,606	$5,819	$786
35	SMM14	MV	250		0	$0.55	$0.05	$0.92	$1.53	$0.00	$3.01								
36				0		$0.55	$0.05	$0.92	$1.53	$0.00	$3.01	$4.55	$3.47	$2.76	25.55%	$0	$0	$0	$0
37	SMM15	MV	400 *		12,661	$98.63	$9.62	$164.46	$272.71	$1,690.35	$1,506.26								
38				75		$1.32	$0.13	$2.19	$3.64	$22.54	$20.08	$46.26	$23.75	$18.92	25.55%	$3,469	$1,781	$1,577	$204
39	SMM16	MV	400		0	$0.87	$0.09	$1.46	$2.42	$0.00	$4.74								
40				0		$0.87	$0.09	$1.46	$2.42	$0.00	$4.74	$7.16	$6.08	$4.84	25.55%	$0	$0	$0	$0
41	SMM17	MV	1000 *		0	$2.96	$0.29	$4.94	$8.19	$50.76	$45.24								
42				0		$2.96	$0.29	$4.94	$8.19	$50.76	$45.24	$104.19	$36.40	$28.99	25.55%	$0	$0	$0	$0
43	SMM18	MV	1000		0	$2.09	$0.21	$3.49	$5.78	$0.00	$11.36								
44				0		$2.09	$0.21	$3.49	$5.78	$0.00	$11.36	$17.14	$11.05	$8.80	25.55%	$0	$0	$0	$0
45																			
46	SMM19	MH	175 *		1,353	$10.54	$1.03	$17.58	$29.14	$180.65	$160.97								
47				12		$0.88	$0.09	$1.46	$2.43	$15.05	$13.41	$30.90	$24.10	$19.20	25.55%	$371	$289	$249	$40
48	SMM20	MH	250 *		12,203	$95.06	$9.27	$158.51	$262.85	$1,629.18	$1,451.75								
49				70		$1.36	$0.13	$2.26	$3.75	$23.27	$20.74	$47.77	$25.80	$20.55	25.55%	$3,344	$1,806	$1,559	$247
50	SMM21	MH	400 *		0	$1.20	$0.12	$1.99	$3.30	$20.48	$18.25								
51				0		$1.20	$0.12	$1.99	$3.30	$20.48	$18.25	$42.04	$27.05	$21.55	25.55%	$0	$0	$0	$0
52																			
53	SLM45	LED	42*		132	$1.03	$0.10	$1.71	$2.84	$17.62	$15.70								
54				9		$0.11	$0.01	$0.19	$0.32	$1.96	$1.74	$4.02	$28.30	$22.54	25.55%	$36	$255	$231	$24
55	SLM50	LED	51*		866	$6.75	$0.66	$11.25	$18.65	$115.63	$103.03								
56				48		$0.14	$0.01	$0.23	$0.39	$2.41	$2.15	$4.94	$27.15	$21.62	25.55%	$237	$1,303	$1,049	$254
57	SLM07	LED	71		10,171	$55.94	$5.49	$93.27	$154.71	$0.00	$303.92								
58				408		$0.14	$0.01	$0.23	$0.38	$0.00	$0.74	$1.12	$1.07	$0.85	25.54%	$459	$436	$348	$88
59	SLM53	LED	73*		548	$4.27	$0.42	$7.12	$11.80	$73.16	$65.20								
60				22		$0.19	$0.02	$0.32	$0.54	$3.33	$2.96	$6.83	$28.32	$22.56	25.55%	$150	$623	$524	$99
61	SLM55	LED	103*		8,477	$66.04	$6.44	$110.12	$182.60	$1,131.79	$1,008.54								
62				233		$0.28	$0.03	$0.47	$0.78	$4.86	$4.33	$9.97	$31.02	$24.71	25.55%	$2,323	$7,227	$5,989	$1,238
63	SLM11	LED	108		2,679	$14.74	$1.45	$24.57	$40.75	$0.00	$80.06								
64				72		$0.20	$0.02	$0.34	$0.57	$0.00	$1.11	$1.68	$1.63	$1.30	25.54%	$121	$117	$94	$24
65	SLM57	LED	126*		640	$4.98	$0.49	$8.31	$13.78	$85.43	$76.13								
66				11		$0.45	$0.04	$0.76	$1.25	$7.77	$6.92	$15.94	$34.63	$27.58	25.55%	$175	$381	$266	$115
67	SLM15	LED	154		156,588	$861.24	$84.56	$1,435.92	$2,381.71	$0.00	$4,678.86								
68				2,890		$0.30	$0.03	$0.50	$0.82	$0.00	$1.62	$2.44	$2.32	$1.85	25.54%	$7,061	$6,712	$5,357	$1,356
69	SLM63	LED	189*		20,139	$156.88	$15.31	$261.60	$433.79	$2,688.72	$2,395.90								
70				291		$0.54	$0.05	$0.90	$1.49	$9.24	$8.23	$18.96	$44.51	$35.46	25.55%	$5,518	$12,953	$11,596	$1,357
71	SLM20	LED	200		0	$0.38	$0.04	$0.63	$1.05	$0.00	$2.06								
72				0		$0.38	$0.04	$0.63	$1.05	$0.00	$2.06	$3.11	$3.10	$2.47	25.54%	$0	$0	$0	$0
73	SLM22	LED	268		2,263	$12.45	$1.22	$20.75	$34.42	$0.00	$67.63								
74				24		$0.52	$0.05	$0.86	$1.43	$0.00	$2.82	$4.25	$4.04	$3.22	25.55%	$102	$97	$77	$20
75	SLM67	LED	278*		10,570	$82.34	$8.03	$137.30	$227.67	$1,411.14	$1,257.46								
76				108		$0.76	$0.07	$1.27	$2.11	$13.07	$11.64	$26.82	$48.76	$38.84	25.55%	$2,896	$5,267	$4,250	$1,017
77	SLM70	LED	309*		15,663	$122.01	$11.90	$203.46	$337.37	$2,091.10	$1,863.37								
78				144		$0.85	$0.08	$1.41	$2.34	$14.52	$12.94	$29.80	$52.62	$41.91	25.55%	$4,292	$7,577	$6,114	$1,463
79	SLM75	LED	319*		2,696	$21.00	$2.05	$35.02	$58.08	$359.97	$320.76								
80				24		$0.88	$0.09	$1.46	$2.42	$15.00	$13.37	$30.78	$53.86	$42.90	25.55%	$739	$1,293	$1,043	$250
81																			
82															Company Owned	$626,010	$548,130		
83															Customer Owned	$65,054	$51,503		
84	TOTAL			31,308	3,727,307			REV REQ	$71,194	$305,149	$314,902					$691,064	$599,633	$506,574	$93,060
85								CHECK	$71,153	$305,009	$314,902	$691,064				Present Revenues	$506,574		
86									$40	$140	$0					Increase	$93,060		
87								Difference due to no kWh in light units	$40	$140									
88	NOTES:																		
89	(1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.															$691,064	$599,633		
90	(2) Plant costs per lamp are not included in Customer-Owned rates.																		
91	(3) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7																		
92																			

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 6 - RATE 56 - U30 WOOD POLE SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	A	BILLING STATISTICS																	
4	Rev Code		Watts Company Owned (*)			Lumens	KWH/MO		SCALED TOT $ INSTALLED	NET PLANT	ANNUAL KWH	ANNUAL UNITS	ANNUAL BASE REVENUES	CURRENT MONTHLY CHARGE (1)					
6	SMW19	HPS	100 *		With Pole	11,700	49.58		$923	$91,150	144,235	2,747	$38,542	$11.03					
7	SMW20	HPS	100			11,700	49.58		$0	$0	0	0	$0	$1.48					
8	SMW21	HPS	150 *		With Pole	17,550	69.68		$948	$605,081	1,575,797	21,599	$257,533	$11.34					
9	SMW22	HPS	150			17,550	69.68		$0	$0	0	0	$0	$2.08					
10	SMW23	HPS	250 *		With Pole	29,250	107.87		$1,098	$187,246	659,966	5,860	$91,883	$15.18					
11	SMW24	HPS	250			29,250	107.87		$0	$0	0	0	$0	$3.19					
12	SMW25	HPS	400 *		With Pole	46,800	166.16		$1,108	$16,839	83,303	481	$8,790	$16.96					
13	SMW26	HPS	400			46,800	166.16		$0	$0	7,024	40	$244	$4.76					
14	SMW27	HPS	1000 *		With Pole	117,000	389.94		$0	$0	0	0	$0	$30.99					
15	SMW28	HPS	1000			117,000	389.94		$0	$0	0	0	$0	$11.82					
17	SMW29	MV	175 *		With Pole	8,750	72.36		$1,027	$512,235	1,284,974	16,975	$151,669	$8.39					
18	SMW30	MV	175			8,750	72.36		$0	$0	0	0	$0	$2.14					
19	SMW31	MV	250 *		With Pole	12,500	100.84		$1,050	$7,611	26,983	258	$3,557	$12.96					
20	SMW32	MV	250			12,500	100.84		$0	$0	0	0	$0	$2.76					
21	SMW33	MV	400 *		With Pole	20,000	158.79		$1,050	$8,698	42,998	261	$4,056	$14.32					
22	SMW34	MV	400			20,000	158.79		$0	$0	0	0	$0	$4.84					
23	SMW35	MV	1000 *		With Pole	50,000	380.23		$0	$0	0	0	$0	$20.43					
24	SMW36	MV	1000			50,000	380.23		$0	$0	0	0	$0	$8.80					
26	SMW37	MH	250 *		With Pole	21,750	97.15		$0	$0	558	5	$76	$15.51					
27	SMW38	MH	400 *		With Pole	20,000	153.43		$1,050	$3,262	15,802	92	$1,687	$17.36					
29	SLW45	LED	42*		With Pole	21,750	14.07		$126	$43	80	5	$182	$14.50					
30	SLW50	LED	51*		With Pole	20,000	17.09		$126	$347	1,143	64	$887	$13.58					
31	SLW51	LED	60*		With Pole	21,750	20.10		$126	$2,731	2,966	109	$2,589	$15.31					
32	SLW53	LED	73*		With Pole	20,000	24.46		$126	$520	3,010	117	$1,857	$14.52					
33	SLW57	LED	126*		With Pole	20,000	42.21		$126	$173	919	19	$434	$19.54					
34	SLW15	LED	154			21,750	51.59		$0	$0	8,457	156	$289	$1.85					
35	SLW63	LED	189*		With Pole	20,000	63.32		$126	$43	228	1,449	$110	$27.42					
38									TOTAL	$1,435,979	3,858,442	50,237	$564,385						
39									CHECK TOTAL	$1,435,979	3,858,442	50,237	$564,385						
41									Company Owned	$1,435,979	3,842,961	50,041	$563,852						
42									Customer Owned	$0	15,481	196	$532						
43									Total	$1,435,979	3,858,442	50,237	$564,385						

56 NOTES:
57 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 6 - RATE 56 - U30 WOOD POLE SUMMARY RESULTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	B	ALLOCATED COSTS RESULTS				PROD	TRANS	DIST	TOT PTDG	LIGHTING	LIGHTING	COST BASED	CAPPED		PERCENT	CALCULATED	PROPOSED	CURRENT	INCR/DECR
2			Watts	ANNUAL	ANNUAL	(Excl Fuel)		(WO LTG)	NOE	NOE	PLANT	CALCULATED	PROPOSED	EXISTING	INCREASE/	ANNUAL	ANNUAL	ANNUAL	ANNUAL
3	Rev Code		Company Owned (*)	UNITS	KWH	$0.00779	$0.00076	$0.01299	$0.02154	$0.13351	$0.11897	--- MONTHLY CHARGES (1) ---			DECREASE	REVENUES	REVENUES	REVENUES	REVENUES
4			Customer Owned			$0.00550	$0.00054	$0.00917	$0.01521	$0.00000	$0.02988	Cap Adjustment Factors							
5												(0.26)	0.26						
6	SMW19	HPS	100 *		144,235	$1,123.59	$109.62	$1,873.61	$3,106.82	$19,256.83	$17,159.65								
7				2,747		$0.41	$0.04	$0.68	$1.13	$7.01	$6.25	$14.39	$13.85	$11.03	25.55%	$39,523	$38,039	$38,542	($503)
8	SMW20	HPS	100		0	$0.27	$0.03	$0.45	$0.75	$0.00	$1.48								
9				0		$0.27	$0.03	$0.45	$0.75	$0.00	$1.48	$2.24	$1.86	$1.48	25.55%	$0	$0	$0	$0
10	SMW21	HPS	150 *		1,575,797	$12,275.46	$1,197.61	$20,469.60	$33,942.66	$210,384.63	$187,472.54								
11				21,599		$0.57	$0.06	$0.95	$1.57	$9.74	$8.68	$19.99	$14.24	$11.34	25.55%	$431,800	$307,501	$257,533	$49,968
12	SMW22	HPS	150		0	$0.38	$0.04	$0.64	$1.06	$0.00	$2.08								
13				0		$0.38	$0.04	$0.64	$1.06	$0.00	$2.08	$3.14	$2.61	$2.08	25.55%	$0	$0	$0	$0
14	SMW23	HPS	250 *		659,966	$5,141.14	$501.57	$8,572.96	$14,215.67	$88,112.08	$78,516.17								
15				5,860		$0.88	$0.09	$1.46	$2.43	$15.04	$13.40	$30.86	$19.06	$15.18	25.55%	$180,844	$111,678	$91,883	$19,796
16	SMW24	HPS	250		0	$0.59	$0.06	$0.99	$1.64	$0.00	$3.22								
17				0		$0.59	$0.06	$0.99	$1.64	$0.00	$3.22	$4.86	$4.00	$3.19	25.55%	$0	$0	$0	$0
18	SMW25	HPS	400 *		83,303	$648.93	$63.31	$1,082.10	$1,794.34	$11,121.76	$9,910.54								
19				481		$1.35	$0.13	$2.25	$3.73	$23.12	$20.60	$47.46	$21.29	$16.96	25.55%	$22,827	$10,242	$8,790	$1,452
20	SMW26	HPS	400		7,024	$38.63	$3.79	$64.41	$106.83	$0.00	$209.87								
21				40		$0.97	$0.09	$1.61	$2.67	$0.00	$5.25	$7.92	$5.98	$4.76	25.55%	$317	$239	$244	($4)
22	SMW27	HPS	1000 *		0	$3.04	$0.30	$5.07	$8.40	$52.06	$46.39								
23				0		$3.04	$0.30	$5.07	$8.40	$52.06	$46.39	$106.85	$38.91	$30.99	25.55%	$0	$0	$0	$0
24	SMW28	HPS	1000		0	$2.14	$0.21	$3.58	$5.93	$0.00	$11.65								
25				0		$2.14	$0.21	$3.58	$5.93	$0.00	$11.65	$17.58	$14.84	$11.82	25.55%	$0	$0	$0	$0
26																			
27	SMW29	MV	175 *		1,284,974	$10,009.95	$976.58	$16,691.81	$27,678.34	171,556.85	$152,873.33								
28				16,975		$0.59	$0.06	$0.98	$1.63	$10.11	$9.01	$20.74	$10.53	$8.39	25.55%	$352,109	$178,802	$151,669	$27,133
29	SMW30	MV	175		0	$0.40	$0.04	$0.66	$1.10	$0.00	$2.16								
30				0		$0.40	$0.04	$0.66	$1.10	$0.00	$2.16	$3.26	$2.69	$2.14	25.55%	$0	$0	$0	$0
31	SMW31	MV	250 *		26,983	$210.19	$20.51	$350.50	$581.21	$3,602.45	$3,210.12								
32				258		$0.81	$0.08	$1.36	$2.25	$13.96	$12.44	$28.66	$16.27	$12.96	25.55%	$7,394	$4,198	$3,557	$641
33	SMW32	MV	250		0	$0.55	$0.05	$0.92	$1.53	$0.00	$3.01								
34				0		$0.55	$0.05	$0.92	$1.53	$0.00	$3.01	$4.55	$3.47	$2.76	25.55%	$0	$0	$0	$0
35	SMW33	MV	400 *		42,998	$334.96	$32.68	$558.55	$926.19	$5,740.72	$5,115.53								
36				261		$1.28	$0.13	$2.14	$3.55	$22.00	$19.60	$45.14	$17.98	$14.32	25.55%	$11,782	$4,692	$4,056	$636
37	SMW34	MV	400		0	$0.87	$0.09	$1.46	$2.42	$0.00	$4.74								
38				0		$0.87	$0.09	$1.46	$2.42	$0.00	$4.74	$7.16	$6.08	$4.84	25.55%	$0	$0	$0	$0
39	SMW35	MV	1000 *		0	$2.96	$0.29	$4.94	$8.19	$50.76	$45.24								
40				0		$2.96	$0.29	$4.94	$8.19	$0.00	$0.00	$8.19	$25.65	$20.43	25.55%	$0	$0	$0	$0
41	SMW36	MV	1000		0	$2.09	$0.21	$3.49	$5.78	$0.00	$11.36								
42				0		$2.09	$0.21	$3.49	$5.78	$0.00	$11.36	$17.14	$11.05	$8.80	25.55%	$0	$0	$0	$0
43																			
44	SMW37	MH	250 *		558	$4.35	$0.42	$7.25	$12.01	$74.47	$66.36								
45				5		$0.87	$0.08	$1.45	$2.40	$14.89	$13.27	$30.57	$19.47	$15.51	25.55%	$153	$97	$76	$21
46	SMW38	MH	400 *		15,802	$123.10	$12.01	$205.27	$340.38	$2,109.73	$1,879.97								
47				92		$1.34	$0.13	$2.23	$3.70	$22.93	$20.43	$47.07	$21.79	$17.36	25.55%	$4,330	$2,005	$1,687	$318
48																			
49	SLW45	LED	42*		80	$0.62	$0.06	$1.04	$1.72	$10.68	$9.52								
50				5		$0.12	$0.01	$0.21	$0.34	$2.14	$1.90	$4.39	$18.20	$14.50	25.55%	$22	$91	$182	($91)
51	SLW50	LED	51*		1,143	$8.90	$0.87	$14.85	$24.62	$152.59	$135.98								
52				64		$0.14	$0.01	$0.23	$0.38	$2.38	$2.12	$4.89	$17.05	$13.58	25.55%	$313	$1,091	$887	$204
53	SLW51	LED	60*		2,966	$23.10	$2.25	$38.52	$63.88	$395.94	$352.82								
54				109		$0.21	$0.02	$0.35	$0.59	$3.63	$3.24	$7.46	$19.22	$15.31	25.55%	$813	$2,095	$2,589	($494)
55	SLW53	LED	73*		3,010	$23.45	$2.29	$39.10	$64.83	$401.85	$358.08								
56				117		$0.20	$0.02	$0.33	$0.55	$3.43	$3.06	$7.05	$18.23	$14.52	25.55%	$825	$2,133	$1,857	$276
57	SLW57	LED	126*		919	$7.16	$0.70	$11.94	$19.80	$122.70	$109.34								
58				19		$0.38	$0.04	$0.63	$1.04	$6.46	$5.75	$13.25	$24.53	$19.54	25.55%	$252	$466	$434	$32
59	SLW15	LED	154		8,457	$46.51	$4.57	$77.55	$128.63	$0.00	$252.70								
60				156		$0.30	$0.03	$0.50	$0.82	$0.00	$1.62	$2.44	$2.32	$1.85	25.54%	$381	$362	$289	$74
61	SLW63	LED	189*		228	$1.78	$0.17	$2.97	$4.92	$30.50	$27.17								
62				1,449		$0.00	$0.00	$0.00	$0.00	$0.02	$0.02	$0.04	$34.42	$27.42	25.55%	$63	$49,872	$110	$49,762
63																			
64															Company Owned	$1,053,048	$713,003		
65															Customer Owned	$698	$601		
66	TOTAL			50,237	3,858,442			REV REQ	$83,050	$513,177	$457,660					$1,053,746	$713,605	$564,385	$149,220
67								CHECK	$83,013	$513,074	$457,660	$1,053,746				Present Revenues	$564,385		
68									$37	$103	$0					Increase	$149,220		
69								Difference due to no kWh in light units	$37	$103									
70																$1,053,746	$713,605		

71 NOTES:
72 (1) Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
73 (2) Plant costs per lamp are not included in Customer-Owned rates.
74 (3) Revenue Codes with no annual kWh calculate monthly charges based on kWh/Mo rating from Table 7
75

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**RATE 19 - REDDY GUARD**																		
2														SCALED TO	SCALED			ANNUAL	CURRENT
3	**Rate U10 - Reddy-Guard - Residential Unmetered**							# UNITS			TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
4	Rev Code		Watts			Lumens	KWH/MO	YR END	BRACKET $	FIXTURE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
5	**RR001**	**HPS**	**35**			**4,095**	14.07	0	$76	$70	$0	$0	$0	$0	$0				$4.00
6	**RR002**	**HPS**	**50**			**5,850**	19.77	2	$76	$107	$183	$76	$366	$204	$102	**554**	**27**	**$113**	$4.15
7	**RR003**	**HPS**	**100**			**11,700**	49.58	130	$76	$213	$290	$7,856	$37,685	$20,982	$161	**104,185**	**2,063**	**$15,293**	$7.43
8	**RR004**	**HPS**	**150**			**17,550**	69.68	352	$76	$245	$321	$23,580	$113,114	$62,980	$179	**411,324**	**5,796**	**$44,812**	$7.75
9	**RR005**	**HPS**	**250**			**29,250**	107.87	44	$76	$427	$503	$4,614	$22,135	$12,324	$280	**66,751**	**605**	**$6,716**	$10.96
10	**RR006**	**HPS**	**400**			**46,800**	166.16	15	$76	$438	$514	$1,608	$7,714	$4,295	$286	**32,164**	**188**	**$2,437**	$12.94
11	**RR007**	**HPS**	**1000**			**117,000**	389.94		$115	$587	$0	$0	$0	$0	$0				$27.07
12																			
13	**RR010**	**MV**	**175**			**8,750**	72.36	642	$76	$344	$421	$56,328	$270,208	$150,447	$234	**800,865**	**10,865**	**$53,170**	$4.92
14	**RR011**	**MV**	**250**			**12,500**	100.84	14	$76	$374	$451	$1,315	$6,309	$3,513	$251	**19,767**	**191**	**$1,220**	$6.24
15	**RR012**	**MV**	**400**			**20,000**	158.79	0	$76	$454	$0	$0	$0	$0	$0				$9.26
16	**RR013**	**MV**	**1000**			**50,000**	380.23	0	$115	$645	$0	$0	$0	$0	$0				$17.56
17																			
18	**RR014**	**MH**	**175**			**15,225**	68.68	0	$76	$479	$0	$0	$0	$0	$0				$5.05
19	**RR015**	**MH**	**250**			**21,750**	97.15	4	$76	$579	$655	$546	$2,621	$1,459	$365	**5,313**	**48**	**$306**	$6.43
20	**RR016**	**MH**	**400**			**34,800**	153.43	3	$115	$1,384	$1,499	$937	$4,497	$2,504	$835	**7,830**	**46**	**$431**	$9.43
21			Company Owned																
22	**RR026**	**LED**	**60**				20.10	686	$153	$250	$403	$57,637	$276,487	$153,943	$224	**29,897**	**1,201**	**$7,488**	$8.88
23	**RR030**	**LED**	**66**				22.11	1	$153	$250	$403	$84	$403	$224	$224	**28**	**1**	**$17**	$9.77
24	**RR035**	**LED**	**73**				24.46	6	$153	$250	$403	$504	$2,418	$1,346	$224	**1,158**	**46**	**$455**	$9.34
25	**RR060**	**LED**	**126**				42.21	5	$153	$339	$492	$513	$2,461	$1,370	$274	**416**	**8**	**$71**	$13.61
26	**RR070**	**LED**	**189**				63.32	4	$153	$479	$632	$527	$2,526	$1,407	$352	**330**	**4**	**$35**	$20.41
27								1,206	Total			$156,126		$416,999					
28								1,206	Unmetered			$156,126	$748,945	$416,999		1,480,583	21,089	132,563	
29														RATIO	0.56				
30																			
31		Mercury Vapor														820,632	11,056	$54,390	
32		Other														659,951	10,033	$78,173	
33																			
34																			
35																			
36																			
37																			
38														SCALED TO	SCALED	ESTIMATED		ANNUAL	CURRENT
39	**Rate U10 - Reddy-Guard - Residential Metered**							# UNITS			TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
40	Rev Code		Watts			Lumens	KWH/MO	YR END	BRACKET $	FIXTURE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
41	**RR100**	**HPS**	**35**			**4,095**	14.07	0	$76	$70	$0	$0	$0	$0	0				$3.63
42	**RR101**	**HPS**	**50**			**5,850**	19.77	5	$76	$107	$183	$191	$916	$510	$102	**1,186**	**60**	**$219**	$3.63
43	**RR102**	**HPS**	**100**			**11,700**	49.58	44	$76	$213	$290	$2,659	$12,755	$7,102	$161	**27,616**	**557**	**$2,811**	$5.00
44	**RR103**	**HPS**	**150**			**17,550**	69.68	263	$76	$245	$321	$17,618	$84,514	$47,056	$179	**225,275**	**3,233**	**$19,203**	$5.88
45	**RR104**	**HPS**	**250**			**29,250**	107.87	6	$76	$427	$503	$629	$3,018	$1,681	$280	**8,630**	**80**	**$616**	$7.64
46	**RR105**	**HPS**	**400**			**46,800**	166.16	11	$76	$438	$514	$1,179	$5,657	$3,150	$286	**21,933**	**132**	**$1,072**	$8.05
47	**RR106**	**HPS**	**1000**			**117,000**	389.94	0	$115	$587	$0	$0	$0	$0	$0				$14.92
48																			
49	**RR110**	**MV**	**175**			**8,750**	72.36	556	$76	$344	$421	$48,782	$234,012	$130,293	$234	**494,002**	**6,827**	**$15,933**	$2.31
50	**RR111**	**MV**	**250**			**12,500**	100.84	3	$76	$374	$451	$282	$1,352	$753	$251	**3,630**	**36**	**$105**	$2.88
51	**RR112**	**MV**	**400**			**20,000**	158.79	0	$76	$454	$0	$0	$0	$0	$0				$3.63
52	**RR113**	**MV**	**1000**			**50,000**	380.23	0	$115	$645	$0	$0	$0	$0	$0				$7.10
53																			
54	**RR114**	**MH**	**175**			**15,225**	68.68	0	$76	$479	$0	$0	$0	$0	$0				$2.73
55	**RR115**	**MH**	**250**			**21,750**	97.15	2	$76	$579	$655	$273	$1,311	$730	$365	**2,332**	**24**	**$158**	$6.35
56	**RR116**	**MH**	**400**			**34,800**	153.43	0	$115	$1,384	$0	$0	$0	$0	$0				$8.05
57			Company Owned																
58	**RR125**	**LED**	**55**				18.54	2	$153	$248	$401	$167	$802	$447	$223	**241**	**13**	**$99**	$7.21
59	**RR126**	**LED**	**60**				20.10	38	$153	$250	$403	$3,193	$15,316	$8,527	$224	**1,246**	**62**	**$356**	$7.86
60	**RR160**	**LED**	**126**				42.21	1	$153	$339	$492	$103	$492	$274	$274	**42**	**1**	**$11**	$11.47
61	**RR170**	**LED**	**189**				63.32	1	$153	$479	$632	$132	$632	$352	$352	**63**	**1**	**$10**	$17.20
62								932	Total			$75,208		$200,873					
63								932	Metered			$75,208	$360,776	$200,873		786,196	11,026	$40,593	
64														RATIO	0.56				
65																			
66		Mercury Vapor														497,632	6,863	$16,038	
67		Other														288,564	4,163	$24,555	
68																			
69																			
70																			
71																		$173,156	
72																		$173,156	check
73																			
74																			
75																			
76																			
77																			
78																			
79																			
80																			
81																			
82																			

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
83	**Rate U20 - Reddy-Guard - Commercial Unmetered**													SCALED TO	SCALED			ANNUAL	CURRENT
84								# UNITS			TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
85	Rev Code		Watts			Lumens	KWH/MO	YR END	BRACKET $	FIXTURE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
86	**RC001**	**HPS**	**35**			**4,095**	14.07	0	$76	$70	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$4.00
87	**RC002**	**HPS**	**50**			**5,850**	19.77	1	$76	$107	$183	$38	$183	$102	$102	**168**	**9**	**$38**	$4.15
88	**RC003**	**HPS**	**100**			**11,700**	49.58	108	$76	$213	$290	$6,526	$31,308	$17,432	$161	**76,513**	**1,568**	**$11,710**	$7.43
89	**RC004**	**HPS**	**150**			**17,550**	69.68	466	$76	$245	$321	$31,217	$149,748	$83,377	$179	**490,128**	**7,158**	**$56,008**	$7.75
90	**RC005**	**HPS**	**250**			**29,250**	107.87	451	$76	$427	$503	$47,296	$226,881	$126,323	$280	**623,563**	**5,854**	**$65,140**	$10.96
91	**RC006**	**HPS**	**400**			**46,800**	166.16	346	$76	$438	$514	$37,093	$177,936	$99,072	$286	**783,524**	**4,827**	**$63,677**	$12.94
92	**RC007**	**HPS**	**1000**			**117,000**	389.94	7	$115	$587	$702	$1,024	$4,912	$2,735	$391	**32,427**	**84**	**$2,318**	$27.07
93																			
94	**RC010**	**MV**	**175**			**8,750**	72.36	683	$76	$344	$421	$59,925	$287,464	$160,055	$234	**738,513**	**10,383**	**$51,623**	$4.92
95	**RC011**	**MV**	**250**			**12,500**	100.84	35	$76	$374	$451	$3,288	$15,772	$8,782	$251	**49,067**	**493**	**$3,085**	$6.24
96	**RC012**	**MV**	**400**			**20,000**	158.79	11	$76	$454	$530	$1,216	$5,833	$3,248	$295	**22,730**	**145**	**$1,365**	$9.26
97	**RC013**	**MV**	**1000**			**50,000**	380.23	0	$115	$645	$0	$0	$0	$0	$0				$17.56
98																			
99	**RC014**	**MH**	**175**			**15,225**	68.68	0	$76	$479	$0	$0	$0	$0	$0				$5.05
100	**RC015**	**MH**	**250**			**21,750**	97.15	71	$76	$512	$588	$8,704	$41,756	$23,249	$327	**92,001**	**861**	**$5,531**	$6.43
101	**RC016**	**MH**	**400**			**34,800**	153.43	187	$76	$579	$655	$25,543	$122,532	$68,224	$365	**425,990**	**2,584**	**$24,254**	$9.43
102	**RC017**	**MH**	**1000**			**87,000**	380.23	27	$115	$1,384	$1,499	$8,436	$40,469	$22,533	$835	**174,998**	**469**	**$8,434**	$17.59
103		Company Owned																	
104	**RC026**	**LED**	**60**				20.10	516	$153	$250	$403	$43,354	$207,970	$115,794	$224	**20,926**	**839**	**$5,249**	$8.88
105	**RC030**	**LED**	**66**				22.11	1	$153	$250	$403	$84	$403	$224	$224	**211**	**10**	**$101**	$9.77
106	**RC035**	**LED**	**73**				24.46	3	$153	$250	$403	$252	$1,209	$673	$224	**397**	**15**	**$157**	$9.34
107	**RC060**	**LED**	**126**				42.21	62	$153	$339	$492	$6,362	$30,521	$16,993	$274	**5,150**	**103**	**$1,084**	$13.61
108	**RC070**	**LED**	**189**				63.32	122	$153	$479	$632	$16,064	$77,058	$42,904	$352	**17,756**	**239**	**$3,937**	$20.41
109	**RC080**	**LED**	**319**				106.87	8	$153	$942	$1,095	$1,826	$8,758	$4,876	$610	**6,295**	**57**	**$1,688**	$29.35
110								3,105	Total			$298,249		$796,594					
111								3,105	Unmetered			$298,249	$1,430,712	$796,594		3,560,355	35,698	$305,399	
112														RATIO	0.56				
113																			
114		Mercury Vapor														810,310	11,021	$56,074	
115		Other														2,750,045	24,677	$249,325	
116																			
117																			
118																			
119																			
120																			
121																			
122																			
123	**Rate U20 - Reddy-Guard - Commercial Metered**													SCALED TO	SCALED	ESTIMATED		ANNUAL	CURRENT
124								# UNITS			TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
125	Rev Code		Watts			Lumens	KWH/MO	YR END	BRACKET $	FIXTURE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
126	**RC100**	**HPS**	**35**			**4,095**	14.07	0	$76	$70	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$3.63
127	**RC101**	**HPS**	**50**			**5,850**	19.77	18	$76	$107	$183	$687	$3,297	$1,836	$102	**4,269**	**216**	**$795**	$3.63
128	**RC102**	**HPS**	**100**			**11,700**	49.58	51	$76	$213	$290	$3,082	$14,784	$8,232	$161	**32,326**	**652**	**$3,291**	$5.00
129	**RC103**	**HPS**	**150**			**17,550**	69.68	201	$76	$245	$321	$13,465	$64,591	$35,963	$179	**168,347**	**2,416**	**$14,389**	$5.88
130	**RC104**	**HPS**	**250**			**29,250**	107.87	252	$76	$427	$503	$26,427	$126,771	$70,584	$280	**350,685**	**3,251**	**$25,131**	$7.64
131	**RC105**	**HPS**	**400**			**46,800**	166.16	243	$76	$438	$514	$26,051	$124,967	$69,579	$286	**487,513**	**2,934**	**$23,834**	$8.05
132	**RC106**	**HPS**	**1000**			**117,000**	389.94	6	$115	$587	$702	$878	$4,210	$2,344	$391	**28,076**	**72**	**$1,087**	$14.92
133																			
134	**RC110**	**MV**	**175**			**8,750**	72.36	51	$76	$344	$421	$4,475	$21,465	$11,951	$234	**295,012**	**4,077**	**$9,518**	$2.31
135	**RC111**	**MV**	**250**			**12,500**	100.84	201	$76	$374	$451	$18,882	$90,576	$50,431	$251	**34,687**	**344**	**$1,004**	$2.88
136	**RC112**	**MV**	**400**			**20,000**	158.79	252	$76	$454	$530	$27,855	$133,622	$74,398	$295	**14,767**	**93**	**$342**	$3.63
137	**RC113**	**MV**	**1000**			**50,000**	380.23	243	$115	$645	$760	$38,491	$184,642	$102,805	$423	**4,563**	**12**	**$86**	$7.10
138																			
139	**RC114**	**MH**	**175**			**15,225**	68.68	0	$76	$479	$0	$0	$0	$0	$0				$2.73
140	**RC115**	**MH**	**250**			**21,750**	97.15	37	$76	$512	$588	$4,536	$21,760	$12,116	$327	**46,243**	**476**	**$3,048**	$6.35
141	**RC116**	**MH**	**400**			**34,800**	153.43	85	$76	$579	$655	$11,611	$55,696	$31,011	$365	**153,890**	**1,003**	**$8,154**	$8.05
143	**RC117**	**MH**	**1000**			**87,000**	22.11	5	$153	$250	$403	$420	$2,015	$1,122	$224	**1,327**	**60**	**$905**	$17.56
142		Company Owned																	
144	**RC126**	**LED**	**60**				20.10	13	$153	$250	$403	$1,092	$5,240	$2,917	$224	**442**	**22**	**$147**	$7.86
145	**RC130**	**LED**	**66**				22.11	2	$153	$339	$492	$205	$985	$548	$274	**531**	**24**	**$210**	$8.65
146	**RC160**	**LED**	**126**				42.21	5	$153	$479	$632	$658	$3,158	$1,758	$352	**253**	**6**	**$41**	$11.47
147	**RC170**	**LED**	**189**				63.32	3	$153	$942	$1,095	$685	$3,284	$1,829	$610	**380**	**6**	**$75**	$17.20
148								1,668				$179,499		$479,424					
149								1,668	Metered			$179,499	$861,064	$479,424		1,623,312	15,664	$92,057	
150														RATIO	0.56				
151																			
152		Mercury Vapor														349,029	4,526	$10,950	
153		Other														1,274,283	11,138	$81,106	
154																			
155																			
156																			
157																		$397,456	
158																		$397,456	check
159																			
160																			
161																			
162																			
163																			
164																			
141																			
142																			

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
143	**Rate U30 - Public Lighting - Unmetered**													SCALED TO	SCALED			ANNUAL	CURRENT
144								# UNITS			TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
145	Rev Code		Watts			Lumens	KWH/MO	YR END	BRACKET $	FIXTURE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
146	**RM001**	**HPS**	**35**			**4,095**	14.07	0	$76	$77	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$4.00
147	**RM002**	**HPS**	**50**			**5,850**	19.77	0	$76	$116	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$4.15
148	**RM003**	**HPS**	**100**			**11,700**	49.58	0	$76	$233	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$7.43
149	**RM004**	**HPS**	**150**			**17,550**	69.68	4	$115	$264	$378	$316	$1,514	$843	$211	**5,370**	**75**	**$555**	$7.75
150	**RM005**	**HPS**	**250**			**29,250**	107.87	2	$115	$446	$560	$234	$1,121	$624	$312	**2,706**	**24**	**$266**	$10.96
151	**RM006**	**HPS**	**400**			**46,800**	166.16	1	$115	$459	$573	$120	$573	$319	$319	**2,087**	**12**	**$157**	$12.94
152	**RM007**	**HPS**	**1000**			**117,000**	389.94	0	$115	$912	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$27.07
153																			
154	**RM010**	**MV**	**175**			**8,750**	72.36	3	$115	$359	$474	$296	$1,422	$792	$264	**2,495**	**32**	**$157**	$4.92
155	**RM011**	**MV**	**250**			**12,500**	100.84	0	$115	$387	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$6.24
156	**RM012**	**MV**	**400**			**20,000**	158.79	0	$115	$465	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$9.26
157	**RM013**	**MV**	**1000**			**50,000**	380.23	0	$115	$678	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$17.56
158																			
159	**RM014**	**MH**	**175**			**15,225**	68.68	0	$76	$479	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$5.05
160	**RM015**	**MH**	**250**			**21,750**	97.15	4	$115	$597	$712	$594	$2,847	$1,585	$396	**4,271**	**39**	**$242**	$6.43
161	**RM016**	**MH**	**400**			**34,800**	153.43	1	$115	$1,429	$1,544	$322	$1,544	$859	$859	**2,087**	**12**	**$112**	$9.43
158		Company Owned																	
159	**RM026**	**LED**	**60**				20.10	3	$153	$250	$403	$252	$1,209	$673	$224	**380**	**14**	**$61**	$8.88
160	**RM035**	**LED**	**73**				24.46	1	$153	$250	$403	$84	$403	$224	$224	**307**	**12**	**$114**	$9.34
162								15 Total				$2,217		$5,920					
163								15 Unmetered				$2,217	$10,633	$5,920		19,703	220	$1,663	
164														RATIO	0.56				
165																			
166		Mercury Vapor														2,495	32	$157	
167		Other														17,208	188	$1,506	
168																			
169																			
170																			
171																			
172																			
173	**Rate U30 - Public Lighting - Metered**													SCALED TO	SCALED	ESTIMATED		ANNUAL	CURRENT
174								# UNITS			TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
175	Rev Code		Watts			Lumens	KWH/MO	YR END	BRACKET $	FIXTURE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
176	**RM100**	**HPS**	**35**			**4,095**	14.07	0	$76	$77	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$3.63
177	**RM101**	**HPS**	**50**			**5,850**	19.77	0	$76	$116	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$3.63
178	**RM102**	**HPS**	**100**			**11,700**	49.58	2	$76	$233	$309	$129	$619	$345	$172	**1,190**	**24**	**$121**	$5.00
179	**RM103**	**HPS**	**150**			**17,550**	69.68	2	$115	$264	$378	$158	$757	$421	$211	**1,672**	**24**	**$143**	$5.88
180	**RM104**	**HPS**	**250**			**29,250**	107.87	0	$115	$446	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$7.64
181	**RM105**	**HPS**	**400**			**46,800**	166.16	0	$115	$459	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$8.05
182	**RM106**	**HPS**	**1000**			**117,000**	389.94	0	$115	$912	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$14.92
183																			
184	**RM110**	**MV**	**175**			**8,750**	72.36	1	$115	$359	$474	$99	$474	$264	$264	**507**	**7**	**$15**	$2.31
185	**RM111**	**MV**	**250**			**12,500**	100.84	0	$115	$387	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.88
186	**RM112**	**MV**	**400**			**20,000**	158.79	0	$115	$465	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$3.63
187	**RM113**	**MV**	**1000**			**50,000**	380.23	0	$115	$678	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$7.10
188																			
189	**RM114**	**MH**	**175**			**15,225**	68.68	0	$76	$479	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.73
190	**RM115**	**MH**	**250**			**21,750**	97.15	0	$115	$597	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$6.35
191	**RM116**	**MH**	**400**			**34,800**	153.43	0	$115	$1,429	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$8.05
188		Company Owned																	
189	**RM126**	**LED**	**60**				20.10	1	$153	$250	$403	$84	$403	$224	$224	**20**	**1**	**$6**	$7.86
192								6 Total				$470		$1,254					
193								6 Metered				$470	$2,253	$1,254		3,389	56	$285	
194														RATIO	0.56				
195																			
196		Mercury Vapor														507	7	$15	
197		Other														2,882	49	$270	
198																			
199																			
200																			
201																		$1,948	
202																		$1,948	check
203																			
204																		$572,560	
205																			
206																			
207																			
208																			
209																			
210																			
211																			
212																			
213																			

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

RATE 19 - REDDY GUARD SUMMARY

RATE 19 - REDDY GUARD	Year End Metered Units	Year End Unmetered Units	Year End No. of Units	Estimated Gross Plant Cost	Est Plt Cost % of Total $	Gross Plant	Net Plant	Unmetered Annual kWh	Estimated Metered Annual kWh	Total Rate 19 Annual kWh	Annual Units	Present Annual Rev	**Cost Based Calculated Annual Rev**	**Proposed Annual Rev**
Rate U10 - Reddy-Guard - Residential Unmetered			1,206	$748,945	21.94%	$416,999	$156,126	1,480,583		1,480,583	21,089	$132,563	$153,877	$164,699
Rate U10 - Reddy-Guard - Residential Metered			932	$360,776	10.57%	$200,873	$75,208		786,196	786,196	11,026	$40,593	$64,572	$48,794
Rate U20 - Reddy-Guard - Commercial Unmetered			3,105	$1,430,712	41.90%	$796,594	$298,249	3,560,355		3,560,355	35,698	$305,399	$370,028	$369,494
Rate U20 - Reddy-Guard - Commercial Metered			1,668	$861,064	25.22%	$479,424	$179,499		1,623,312	1,623,312	15,664	$92,057	$116,371	$110,451
Rate U30 - Public Lighting - Unmetered			15	$10,633	0.31%	$5,920	$2,217	19,703		19,703	220	$1,663	$2,048	$2,126
Rate U30 - Public Lighting - Metered			6	$2,253	0.07%	$1,254	$470		3,389	3,389	56	$285	$278	$345
Total Rate 19	2606	4,326	6,932	$3,414,382	100.00%	$1,901,066	$711,768	5,060,641	2,412,897	7,473,538	83,753	$572,560	$707,174	$695,908
Total Unmetered						$1,219,513	$456,591					$439,625	$461,104	$136,096
Total Metered						$681,552	$255,176					$132,935	$157,019	$76,060
												COS Study		
Average Unit Installation Cost (2)				**$492.55**		**$274.24**						$570,629	$618,123	$618,123
												1,930	$89,051	$77,786

	Net Operating Expenses (3)	Plant (4)	Revenue Incr/Decr
Rate U10 - Reddy-Guard - Residential Unmetered			19.51%
Rate U10 - Reddy-Guard - Residential Metered			16.81%
Rate U20 - Reddy-Guard - Commercial Unmetered			17.35%
Rate U20 - Reddy-Guard - Commercial Metered			16.65%
Rate U30 - Public Lighting - Unmetered			21.79%
Rate U30 - Public Lighting - Metered			17.41%
Total Rate 19	$405,967	$212,156	
Total Unmetered	$325,008	$136,096	
Total Metered	$80,959	$76,060	

NOTES:
1. Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
2. Includes Bracket & Fixture
3. Net Operating Expense (NOE) = Total Operating Expenses less Other Operating Revenues & Wholesale Revenues Excl Fuel and External Transmission
4. Plant recovery cost is calculated as difference between Proposed Revenue less Net Operating Expenses

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**RATE 56 - COMPANY OR CUSTOMER OWNED HIGHWAY, STREET AND AREA LIGHTING SYSTEMS**																		
2																			
3	**Rate U30 - Distribution Pole Mounting**													SCALED TO	SCALED			ANNUAL	CURRENT
4			Watts					# UNITS	INSTALL &	FIXTURE &	TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
5	Rev Code		Company Owned (*)			Lumens	KWH/MO	YR END	POLE $	EYE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
6	**SMD37**	**HPS**	**100 ***		**With Pole**	**11,700**	49.58	136	$738	$386	$1,124	$125,526	$152,900	$125,526	$923	**75,480**	**1,449**	**$7,282**	$4.22
7	**SMD38**	**HPS**	**100**			**11,700**	49.58	40			$0	$0	$0	$0	$0	**24,864**	**480**	**$714**	$1.48
8	**SMD39**	**HPS**	**150 ***		**With Pole**	**17,550**	69.68	1,501	$738	$417	$1,155	$1,423,308	$1,733,691	$1,423,308	$948	**1,299,120**	**17,820**	**$138,071**	$7.53
9	**SMD40**	**HPS**	**150**			**17,550**	69.68	13			$0	$0	$0	$0	$0	**11,309**	**155**	**$327**	$2.08
10	**SMD41**	**HPS**	**250 ***		**With Pole**	**29,250**	107.87	261	$738	$599	$1,337	$286,505	$348,984	$286,505	$1,098	**348,657**	**3,093**	**$34,501**	$10.66
11	**SMD42**	**HPS**	**250**			**29,250**	107.87	116			$0	$0	$0	$0	$0	**163,451**	**1,445**	**$4,722**	$3.19
12	**SMD43**	**HPS**	**400 ***		**With Pole**	**46,800**	166.16	32	$738	$612	$1,350	$35,467	$43,201	$35,467	$1,108	**68,774**	**404**	**$5,672**	$12.58
13	**SMD44**	**HPS**	**400**			**46,800**	166.16	209			$0	$0	$0	$0	$0	**428,488**	**2,468**	**$12,604**	$4.76
14	**SMD45**	**HPS**	**1000 ***		**With Pole**	**117,000**	389.94	0	$738	$1,065	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$26.32
15	**SMD46**	**HPS**	**1000**			**117,000**	389.94	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$11.82
16																			
17	**SMD47**	**MV**	**175 ***		**With Pole**	**8,750**	72.36	1,942	$738	$512	$1,250	$1,993,689	$2,428,456	$1,993,689	$1,027	**1,749,803**	**23,128**	**$115,880**	$4.79
18	**SMD48**	**MV**	**175**			**8,750**	72.36	14			$0	$0	$0	$0	$0	**12,823**	**169**	**$375**	$2.14
19	**SMD49**	**MV**	**250 ***		**With Pole**	**12,500**	100.84	26	$738	$540	$1,279	$27,291	$33,242	$27,291	$1,050	**30,620**	**288**	**$1,914**	$6.06
20	**SMD50**	**MV**	**250**			**12,500**	100.84	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.76
21	**SMD51**	**MV**	**400 ***		**With Pole**	**20,000**	158.79	16	$738	$618	$1,356	$17,812	$21,696	$17,812	$1,113	**27,839**	**167**	**$1,681**	$9.01
22	**SMD52**	**MV**	**400**			**20,000**	158.79	5			$0	$0	$0	$0	$0	**9,224**	**55**	**$299**	$4.84
23	**SMD53**	**MV**	**1000 ***		**With Pole**	**50,000**	380.23	0	$738	$831	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$17.07
24	**SMD54**	**MV**	**1000**			**50,000**	380.23	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$8.80
25																			
26	**SMD55**	**MH**	**250 ***		**With Pole**	**21,750**	97.15	2	$738	$684	$1,423	$2,336	$2,846	$2,336	$1,168	**2,706**	**24**	**$263**	$10.99
27	**SMD56**	**MH**	**250**			**21,750**	97.15	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$3.52
28	**SMD57**	**MH**	**400 ***		**With Pole**	**34,800**	153.43	2	$738	$750	$1,488	$2,444	$2,977	$2,444	$1,222	**3,946**	**23**	**$305**	$12.98
29	**SMD58**	**MH**	**400**			**34,800**	153.43	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$4.48
30																			
31	**SLD45**	**LED**	**42***		**With Pole**		14.07	1	$0	$153	$153	$126	$153	$126	$126	**100**	**6**	**$109**	$10.71
32	**SLD51**	**LED**	**60***		**With Pole**		20.10	43	$0	$153	$153	$5,397	$6,574	$5,397	$126	**2,149**	**79**	**$1,128**	$12.13
33	**SLD53**	**LED**	**73***		**With Pole**		24.46	6	$0	$153	$153	$753	$917	$753	$126	**1,281**	**48**	**$576**	$10.73
34	**SLD57**	**LED**	**126***		**With Pole**		42.21	4	$0	$153	$153	$502	$612	$502	$126	**332**	**6**	**$103**	$15.75
35	**SLD63**	**LED**	**189***		**With Pole**		63.32	3	$0	$153	$153	$377	$459	$377	$126	**875**	**12**	**$295**	$23.63
36																			
37								4,372	Total			$3,921,532		$3,921,532		4,261,841	51,319	$326,820	
38								3,918	Company Owned			$3,921,532	$4,776,707	$3,921,532		$3,611,682	$46,547	$307,780	
39								397	Customer Owned			$0	$0	$0		650,159	4,772	19,040	
40									Check			$3,921,532	$4,776,707	$3,921,532					
41														RATIO	0.82				
42																			
43		Mercury Vapor - Company Owned														1,808,262	23,583	$119,474	
44		Mercury Vapor - Customer Owne														22,047	224	$673	
45		Other - Company Owned														1,803,420	22,964	$188,306	
46		Other - Customer Owned														628,112	4,548	$18,367	
47																			
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NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
72	**Rate U30 - Metal Pole Mounting**													SCALED TO	SCALED			ANNUAL	CURRENT
73			Watts					# UNITS	INSTALL &	FIXTURE &	TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
74	Rev Code		Company Owned (*)			Lumens	KWH/MO	YR END	POLE $	EYE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
99	**SMM22**	**HPS**	**50**			**5,850**	24.79	4			$0	$0	$0	$0	$0	**2,486**	**48**	**$19**	$0.73
75	**SMM01**	**HPS**	**100 ***		**With Pole**	**11,700**	49.58	0	$1,895	$386	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$19.07
76	**SMM02**	**HPS**	**100**			**11,700**	49.58	9			$0	$0	$0	$0	$0	**5,548**	**107**	**$161**	$1.48
77	**SMM03**	**HPS**	**150 ***		**With Pole**	**17,550**	69.68	515	$1,895	$417	$2,312	$337,504	$1,190,579	$977,429	$1,898	**411,947**	**5,603**	**$118,368**	$19.39
78	**SMM04**	**HPS**	**150**			**17,550**	69.68	92			$0	$0	$0	$0	$0	**80,496**	**1,104**	**$2,306**	$2.08
79	**SMM05**	**HPS**	**250 ***		**With Pole**	**29,250**	107.87	637	$1,895	$599	$2,494	$450,335	$1,588,603	$1,304,195	$2,047	**848,248**	**7,519**	**$173,303**	$22.01
80	**SMM06**	**HPS**	**250**			**29,250**	107.87	17			$0	$0	$0	$0	$0	**19,098**	**169**	**$541**	$3.19
81	**SMM07**	**HPS**	**400 ***		**With Pole**	**46,800**	166.16	444	$1,895	$612	$2,507	$315,519	$1,113,027	$913,761	$2,058	**903,995**	**5,245**	**$133,346**	$23.78
82	**SMM08**	**HPS**	**400**			**46,800**	166.16	562			$0	$0	$0	$0	$0	**1,163,436**	**6,750**	**$32,386**	$4.76
83	**SMM09**	**HPS**	**1000 ***		**With Pole**	**117,000**	389.94	0	$1,895	$1,065	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$37.74
84	**SMM10**	**HPS**	**1000**			**117,000**	389.94	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$11.82
85																			
86	**SMM11**	**MV**	**175 ***		**With Pole**	**8,750**	72.36	0	$1,895	$512	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$11.98
87	**SMM12**	**MV**	**175**			**8,750**	72.36	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.14
88	**SMM13**	**MV**	**250 ***		**With Pole**	**12,500**	100.84	29	$1,895	$540	$2,435	$20,020	$70,624	$57,980	$1,999	**34,404**	**322**	**$5,819**	$16.34
89	**SMM14**	**MV**	**250**			**12,500**	100.84	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.76
90	**SMM15**	**MV**	**400 ***		**With Pole**	**20,000**	158.79	7	$1,895	$618	$2,513	$4,986	$17,589	$14,440	$2,063	**12,661**	**75**	**$1,577**	$18.92
91	**SMM16**	**MV**	**400**			**20,000**	158.79	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$4.84
92	**SMM17**	**MV**	**1000 ***		**With Pole**	**50,000**	380.23	0	$1,895	$831	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$28.99
93	**SMM18**	**MV**	**1000**			**50,000**	380.23	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$8.80
94																			
95	**SMM19**	**MH**	**175 ***		**With Pole**	**21,750**	68.68	1	$1,895	$502	$2,397	$680	$2,397	$1,968	$1,968	**1,353**	**12**	**$249**	$19.20
96	**SMM20**	**MH**	**250 ***		**With Pole**	**20,000**	97.15	6	$1,895	$618	$2,513	$4,274	$15,077	$12,377	$2,063	**12,203**	**70**	**$1,559**	$20.55
97	**SMM21**	**MH**	**400 ***		**With Pole**	**8,750**	153.43	0	$1,895	$512	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$21.55
98																			
101	**SLM45**	**LED**	**42***		**With Pole**		14.07	1	$0	$153	$153	$43	$153	$126	$126	**132**	**9**	**$231**	$22.54
101	**SLM50**	**LED**	**51***		**With Pole**		17.09	4	$0	$153	$153	$173	$612	$502	$126	**866**	**48**	**$1,049**	$21.62
101	**SLM07**	**LED**	**71**				23.79	34			$0	$0	$0	$0	$0	**10,171**	**408**	**$348**	$0.85
101	**SLM53**	**LED**	**73***		**With Pole**		24.46	2	$0	$153	$153	$87	$306	$251	$126	**548**	**22**	**$524**	$22.56
101	**SLM55**	**LED**	**103***		**With Pole**		34.51	20	$0	$153	$153	$867	$3,058	$2,510	$126	**8,477**	**233**	**$5,989**	$24.71
101	**SLM11**	**LED**	**108**				36.18	8			$0	$0	$0	$0	$0	**2,679**	**72**	**$94**	$1.30
101	**SLM57**	**LED**	**126***		**With Pole**		42.21	7	$0	$153	$153	$303	$1,070	$879	$126	**640**	**11**	**$266**	$27.58
101	**SLM15**	**LED**	**154**				51.59	242			$0	$0	$0	$0	$0	**156,588**	**2,890**	**$5,357**	$1.85
101	**SLM63**	**LED**	**189***		**With Pole**		63.32	40	$0	$153	$153	$1,734	$6,116	$5,021	$126	**20,139**	**291**	**$11,596**	$35.46
101	**SLM20**	**LED**	**200**				69.01	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.47
101	**SLM22**	**LED**	**268**				89.78	2			$0	$0	$0	$0	$0	**2,263**	**24**	**$77**	$3.22
101	**SLM67**	**LED**	**278***		**With Pole**		93.13	9	$0	$153	$153	$390	$1,376	$1,130	$126	**10,570**	**108**	**$4,250**	$38.84
101	**SLM70**	**LED**	**309***		**With Pole**		103.52	12	$0	$153	$153	$520	$1,835	$1,506	$126	**15,663**	**144**	**$6,114**	$41.91
101	**SLM75**	**LED**	**319***		**With Pole**		106.87	2	$0	$153	$153	$87	$306	$251	$126	**2,696**	**24**	**$1,043**	$42.90
102																			
103								2,706	Total			$1,137,522		$3,294,326		3,727,307	31,308	$506,574	
104								1,732	Company Owned			$1,137,522	$4,012,726	$3,294,326		2,284,541	19,736	$465,284	
105								974	Customer Owned			$0	$0	$0		1,442,766	11,572	$41,289	
106								2,706	Check			$1,137,522	$4,012,726	$3,294,326					
107														RATIO	0.82				
108																			
109		Mercury Vapor - Company Owned														47,065	397	$7,397	
110		Mercury Vapor - Customer Owne														0	0	$0	
111		Other - Company Owned														2,237,476	19,339	$457,887	
112		Other - Customer Owned														1,442,766	11,572	$41,289	
113																			
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NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
143	**Rate U30 - Wood Pole Mounting**													SCALED TO	SCALED			ANNUAL	CURRENT
144			Watts					# UNITS	INSTALL &	FIXTURE &	TOTAL $		ESTIMATED	GROSS PLT	TOT $	ANNUAL	ANNUAL	BASE	MONTHLY
145	Rev Code		Company Owned (*)			Lumens	KWH/MO	YR END	POLE $	EYE $	INSTALLED	NET PLANT	PLT COSTS	COSTS	INSTALLED	KWH	UNITS	REVENUES	CHARGE (1)
146	**SMW19**	**HPS**	**100 ***		**With Pole**	**11,700**	49.58	286	$738	$386	$1,124	$91,150	$321,540	$263,975	$923	**144,235**	**2,747**	**$38,542**	$11.03
147	**SMW20**	**HPS**	**100**			**11,700**	49.58	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$1.48
148	**SMW21**	**HPS**	**150 ***		**With Pole**	**17,550**	69.68	1,848	$738	$417	$1,155	$605,081	$2,134,484	$1,752,347	$948	**1,575,797**	**21,599**	**$257,533**	$11.34
149	**SMW22**	**HPS**	**150**			**17,550**	69.68	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.08
150	**SMW23**	**HPS**	**250 ***		**With Pole**	**29,250**	107.87	494	$738	$599	$1,337	$187,246	$660,528	$542,274	$1,098	**659,966**	**5,860**	**$91,883**	$15.18
151	**SMW24**	**HPS**	**250**			**29,250**	107.87	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$3.19
152	**SMW25**	**HPS**	**400 ***		**With Pole**	**46,800**	166.16	44	$738	$612	$1,350	$16,839	$59,402	$48,767	$1,108	**83,303**	**481**	**$8,790**	$16.96
153	**SMW26**	**HPS**	**400**			**46,800**	166.16	4			$0	$0	$0	$0	$0	**7,024**	**40**	**$244**	$4.76
154	**SMW27**	**HPS**	**1000 ***		**With Pole**	**117,000**	389.94	0	$1,025	$1,065	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$30.99
155	**SMW28**	**HPS**	**1000**			**117,000**	389.94	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$11.82
156																			
157	**SMW29**	**MV**	**175 ***		**With Pole**	**8,750**	72.36	1,445	$738	$512	$1,250	$512,235	$1,806,961	$1,483,460	$1,027	**1,284,974**	**16,975**	**$151,669**	$8.39
158	**SMW30**	**MV**	**175**			**8,750**	72.36	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.14
159	**SMW31**	**MV**	**250 ***		**With Pole**	**12,500**	100.84	21	$738	$540	$1,279	$7,611	$26,849	$22,042	$1,050	**26,983**	**258**	**$3,557**	$12.96
160	**SMW32**	**MV**	**250**			**12,500**	100.84	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$2.76
161	**SMW33**	**MV**	**400 ***		**With Pole**	**20,000**	158.79	24	$738	$540	$1,279	$8,698	$30,685	$25,191	$1,050	**42,998**	**261**	**$4,056**	$14.32
162	**SMW34**	**MV**	**400**			**20,000**	158.79	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$4.84
163	**SMW35**	**MV**	**1000 ***		**With Pole**	**50,000**	380.23	0	$1,025	$831	$0	$0	$0	$0	$0	**0**	**0**	**$0**	$20.43
164	**SMW36**	**MV**	**1000**			**50,000**	380.23	0			$0	$0	$0	$0	$0	**0**	**0**	**$0**	$8.80
165																			
166	**SMW37**	**MH**	**250 ***		**With Pole**	**21,750**	97.15	0	$738	$540	$0	$0	$0	$0	$0	**558**	**5**	**$76**	$15.51
167	**SMW38**	**MH**	**400 ***		**With Pole**	**20,000**	153.43	9	$738	$540	$1,279	$3,262	$11,507	$9,447	$1,050	**15,802**	**92**	**$1,687**	$17.36
165																			
166	**SLW45**	**LED**	**42***		**With Pole**	**21,750**	14.07	1	$0	$153	$153	$43	$153	$126	$126	**80**	**5**	**$182**	$14.50
167	**SLW50**	**LED**	**51***		**With Pole**	**20,000**	17.09	8	$0	$153	$153	$347	$1,223	$1,004	$126	**1,143**	**64**	**$887**	$13.58
166	**SLW51**	**LED**	**60***		**With Pole**	**21,750**	20.10	63	$0	$153	$153	$2,731	$9,632	$7,908	$126	**2,966**	**109**	**$2,589**	$15.31
167	**SLW53**	**LED**	**73***		**With Pole**	**20,000**	24.46	12	$0	$153	$153	$520	$1,835	$1,506	$126	**3,010**	**117**	**$1,857**	$14.52
167	**SLW57**	**LED**	**126***		**With Pole**	**20,000**	42.21	4	$0	$153	$153	$173	$612	$502	$126	**919**	**19**	**$434**	$19.54
166	**SLW15**	**LED**	**154**			**21,750**	51.59	13			$0	$0	$0	$0	$0	**8,457**	**156**	**$289**	$1.85
167	**SLW63**	**LED**	**189***		**With Pole**	**20,000**	63.32	1	$0	$153	$153	$43	$153	$126	$126	**228**	**1,449**	**$110**	$27.42
168																			
169								4,277				$1,435,979		$4,158,674		3,858,442	50,237	$564,385	
170								4,260	Company Owned			$1,435,979	$5,065,564	$4,158,674		3,842,961	50,041	$563,852	
171								17	Customer Owned			$0	$0	$0		15,481	196	$532	
172									Check			$1,435,979	$5,065,564	$4,158,674					
173														RATIO	0.82				
174																			
175		Mercury Vapor - Company Owned														1,354,955	17,494	$159,282	
176		Mercury Vapor - Customer Owne														0	0	$0	
177		Other - Company Owned														2,488,007	32,547	$404,571	
178		Other - Customer Owned														15,481	196	$532	
179																			
180																			
181																			
182																			
183																		$1,399,414	
184																		$1,399,414	check
185																			
186																			
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NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 7 - COST CALCUATION DETAILS SUPPORTING TABLES 1-6

Line No. A B C D E F G H I J K L M N O P Q R S

RATE 56 - COMPANY OR CUSTOMER OWNED HIGHWAY, STREET AND AREA LIGHTING SYSTEMS SUMMARY

RATE 56 - COMPANY OR CUSTOMER OWNED HIGHWAY, STREET AND AREA LIGHTING SYSTEMS	Year End Units	Year End # of Units	Estimated Plant Cost	Estimated Plant Cost %	Gross Plant	Net Plant	Co Owned Annual kWh	Cust Owned Annual kWh	Rate 56 Annual kWh	Annual Units	Present Annual Rev	**Cost Based Calculated Annual Rev**	**Proposed Annual Rev**
Rate U30 - Distribution Pole Mounting Company Own	3,918	3,918	$4,776,707	34.48%	$3,921,532	$1,354,095	3,611,682		3,611,682	46,547	$307,780	$989,673	$370,187
Rate U30 - Distribution Pole Mounting Customer Own	397	397	$0	0.00%	$0	$0		650,159	650,159	4,772	$19,040	$29,316	$22,621
Rate U30 - Metal Pole Mounting Company Owned	1,732	1,732	$4,012,726	28.96%	$3,294,326	$1,137,522	2,284,541		2,284,541	19,736	$465,284	$626,010	$548,130
Rate U30 - Metal Pole Mounting Customer Owned	974	974	$0	0.00%	$0	$0		1,442,766	1,442,766	11,572	$41,289	$65,054	$51,503
Rate U30 - Wood Pole Mounting Company Owned	4,260	4,260	$5,065,564	36.56%	$4,158,674	$1,435,979	3,842,961		3,842,961	50,041	$563,852	$1,053,048	$713,003
Rate U30 - Wood Pole Mounting Customer Owned	17	17	$0	0.00%	$0	$0		15,481	15,481	196	$532	$698	$601
Rate U30 - STKLR (Kaylor Cust Owned)	47	47						0	0	567	$1,635		
Total Rate 56	11,345	11,345	$13,854,998	100.00%	$11,374,532	$3,927,597	9,739,184	2,108,406	11,847,590	133,431	$1,399,414	$2,763,799	$1,706,046
Total Company Owned	9,910	9,910	$13,854,998		$11,374,532	$3,927,597	9,739,184	0	9,739,184	116,324	$1,336,917	$2,668,731	$1,631,321
Total Customer Owned	1,435	1,435	$0		$0	$0	0	2,108,406	2,108,406	17,107	$62,497	$95,068	$74,725
											COS Study		
Company Owned Average Unit Installation Cost			**$1,221.24**		**$1,002.60**						$1,401,401	$2,381,214	$2,381,214
											(1,987)	$382,585	($675,168)
											-0.14%		

	Net Operating Expenses (3)	Plant (4)	Revenue Incr/Decr
Rate U30 - Distribution Pole Mounting Company Owned			16.86%
Rate U30 - Distribution Pole Mounting Customer Owned			15.83%
Rate U30 - Metal Pole Mounting Company Owned			15.11%
Rate U30 - Metal Pole Mounting Customer Owned			19.83%
Rate U30 - Wood Pole Mounting Company Owned			20.92%
Rate U30 - Wood Pole Mounting Customer Owned			11.48%
Total Rate 56	$1,542,108	$839,106	
Total Company Owned	$1,510,030	$776,771	
Total Customer Owned	$32,078	$62,335	

NOTES:
1. Current monthly charge excludes fuel, ad valorem, and transmission by others charge.
2. Rate U30 kWh are estimated based kwh/Month * No of Units
3. Net Operaatin Expense (NOE) = Total Operating Expenses less Other Operating Revenues & Wholesale Revenues Excl Fuel and External Transmission
4. Plant Recovery cost is calculated as difference between Proposed Revenue less Net Operating Expenses

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 8 - FUNCTIONAL SYSTEM COSTS SUMMARY PER KWH

Line No.	A	B	C	D	E	F	F	G	H	I	J	K	L	M
		CURRENT REVENUE @ 4.44%	PROPOSED REVENUE (Target)		KWH (COS)		PROPOSED REVENUE $/KWH					PROPOSED REVENUE @ 7.54%		
1	Reddy-Guard (Rate 19)													
2	Production	$68,011	$77,760		5,060,641		$0.01537					$77,760		
3	Transmission	$16,728	$20,577		5,060,641		$0.00407					$20,577		
4	Distribution													
5	Substations & Primary	$68,951	$77,443		5,060,641		$0.01530					$77,443		
6	Secondary & Line Transfrs	$41,180	$46,856		5,060,641		$0.00926					$46,856		
7	Total Distribution	$110,131	$124,299				$0.02456					$124,299		
8	Services, Meters, & Meter Rdg	$0	$0		5,060,641		$0.00000					$0		
9	Street Lighting	$269,313	$284,905		5,060,641		$0.05630					$284,905		
10	Customer Rec & Other	$105,156	$108,917		5,060,641		$0.02152					$108,917		
11	Energy (non fuel)	$1,290	$1,665		5,060,641		$0.00033					$1,665		
12	Fuel	$0	$0									$0		
13	Subtotal Rate 19 (Excl Fuel) - COS Rev	$570,629	$618,123				$0.12214	System Charges per kWh				$618,123		
14	Subtotal Rate 19 (Excl Fuel) - Input Rev	$572,560												
15	Subtotal Rate 19 (Excl Fuel) - Proposed Rev		$695,908											
16														
17	Highway, Street & Area Lighting (Rate 56)													
18	Production	$64,747	$213,159		11,867,293		$0.01796					$213,159		
19	Transmission	$12	$58,658		11,867,293		$0.00494					$58,658		
20	Distribution													
21	Substations & Primary	$75,574	$196,333		11,867,293		$0.01654					$196,333		
22	Secondary & Line Transfrs	$38,953	$119,679		11,867,293		$0.01008					$119,679		
23	Total Distribution	$114,527	$316,012				$0.02663					$316,012		
24	Services, Meters, & Meter Rdg	$0	$0		11,867,293		$0.00000					$0		
25	Street Lighting	$1,207,804	$1,769,884		11,867,293		$0.14914					$1,769,884		
26	Customer Rec & Other	$15,114	$18,959		11,867,293		$0.00160					$18,959		
27	Energy (non fuel)	-$804	$4,541		11,867,293		$0.00038					$4,541		
28	Fuel	$0	$0									$0		
29	Subtotal Rate 56 (Excl Fuel) - COS Rev	$1,401,401	$2,381,214				$0.20065	System Charges per kWh				$2,381,214		
30	Subtotal Rate 56 (Excl Fuel) - Input Rev	$1,399,414												
31	Subtotal Rate 56 (Excl Fuel) - Proposed Rev		$1,706,046											
32														
33	Total Lighting - COS Revenue	$1,972,030	$2,999,337	$1,027,307	Increase									
34	Total Lighting - Input Revenue	$1,971,974												
35	Total Lighting - Proposed Lighting Study Rev		$2,401,954											
36			$597,382	Difference										
37														

Line No.		COMPANY OWNED							CUSTOMER OWNED					
38	SUMMARY OF CALCULATED COSTS PER KWH													
39		RATE 19	RATE 19		RATE 19	RATE 56	RATE 56		RATE 19	RATE 19		RATE 56	RATE 56	
40		PLANT	NOE	RATE 19	NOE	PLANT	NOE	RATE 56	PLANT (1)	NOE	RATE 19	PLANT (1)	NOE	RATE 56
41	DATA SOURCE:	TABLE 9	TABLE 11A	TOTAL	TABLE 11A	TABLE 9	TABLE 11A	TOTAL	TABLE 9	TABLE 11B	TOTAL	TABLE 9	TABLE 11B	TOTAL
42		UNMETERED		UNMETERED	METERED									
43	PRODUCTION	$0.00848	$0.00942	$0.00942		$0.01541	$0.00779	$0.02320			$0.00000	$0.01541	$0.00550	$0.02091
44														
45	TRANSMISSION	$0.00327	$0.00092	$0.00092		$0.00594	$0.00076	$0.00670			$0.00000	$0.00594	$0.00054	$0.00648
46														
47	DISTRIBUTION	$0.01235	$0.01681	$0.01681		$0.02098	$0.01299	$0.03397			$0.00000	$0.02098	$0.00917	$0.03015
48														
49	REDDY LIGHTING (Rate 19) - UNMETERED	$0.03971	$0.03707	$0.07678		$0.00000	$0.00000	$0.00000			$0.00000		$0.00000	$0.00000
50	METERED	$0.04858			$0.03355									
51	HIGHWAY, ST, & SGNL LTG (Rate 56)		$0.00000	$0.00000		$0.10720	$0.13351	$0.24071			$0.00000	$0.00000	$0.00000	$0.00000
52														
53	SUBTOTAL		$0.06422	$0.10393	$0.03355	$0.14953	$0.15505	$0.30458	$0.00000	$0.00000	$0.00000	$0.04233	$0.01521	$0.05754
54						$0.11897						$0.02988		
55				UNMETERED	METERED									
56	SYSTEM CHARGES PER KWH APPILCABLE TO LIGHTING KWH ESTIMATES			$0.10393	$0.08213			$0.27402						$0.04509
57														
58	LED Energy Costs:	Metered LED	$0.08832	Unmetered LED	$0.03355	Company Owned LED - 56		$0.06387				Customer Owned LED - 56		$0.05754

59 Notes:
60 (1) Plant costs for customer-owned lighting are not included in metered rates since customer has incurred the costs.
61 (2) Net Operating Expenses (NOE) are calculated as Total Operating Expense less Other Operating Revenue and Wholesale Revenue.

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 9 - NET PLANT AND FUNCTIONAL COST DEVELOPMENT

Line No.	A	B UMETERED RATE 19 NET PLT	C METERED RATE 19 NET PLT	D Co Owned RATE 56 NET PLT (5)	E Cust Owned RATE 56 NET PLT (5)	F TOTAL LIGHTING NET PLT	G TOTAL RATE 19 LTG PLT REV RECOVERY	H Co Owned RATE 56 LTG PLT REV RECOVERY	I Cust Owned RATE 56 LTG PLT REV RECOVERY	J RATE 19 SALES	K Co Owned RATE 56 SALES	L Cust Owned RATE 56 SALES	M RATE 19 $/KWH	N Co Owned RATE 56 --- UNIT COSTS --- $/KWH	O Cust Owned RATE 56 $/KWH
1															
2	**PROPROSED REVENUE FACTOR**									9.73%	17.82%	17.82%			
3	**PRODUCTION (1)**														
4	PRODUCTION	$440,870		$842,158	$182,316	$1,465,344	$42,910	$150,073	$32,489	5,060,641	9,739,184	2,108,406	$0.00848	$0.01541	$0.01541
5															
6	**TRANSMISSION (2)**														
7	TRANSMISSION	$170,053		$324,839	$70,323	$565,216	$16,551	$57,886	$12,532	5,060,641	9,739,184	2,108,406	$0.00327	$0.00594	$0.00594
8															
9	**DISTRIBUTION (3)**														
10	PRIMARY SUBSTATIONS	$130,127		$232,245	$50,278	$412,650	$12,665	$41,386	$8,960	5,060,641	9,739,184	2,108,406	$0.00250	$0.00425	$0.00425
11															
12	PRIMARY LINES	$255,019		$455,145	$98,533	$808,697	$24,821	$81,107	$17,559	5,060,641	9,739,184	2,108,406	$0.00490	$0.00833	$0.00833
13															
14	SECONDARY LINES	$146,507		$261,479	$56,607	$464,593	$14,260	$46,596	$10,087	5,060,641	9,739,184	2,108,406	$0.00282	$0.00478	$0.00478
15															
16	TRANSFORMERS	$110,724		$197,615	$42,781	$351,119	$10,777	$35,215	$7,624	5,060,641	9,739,184	2,108,406	$0.00213	$0.00362	$0.00362
17															
18	SERVICES	$0		$0	$0	$0									
19															
20	METERS	$0		$0	$0	$0									
21															
22	**LIGHTING**														
23															
24	371 - INSTALL ON CUST PREM-UNMET (7)	$456,591		$0	$0	$711,768	$44,440	$0	$0	3,427,204			$0.01297	$0.00000	$0.00000
25	371 - INSTALL ON CUST PREM-METERED (7)		$255,176				$24,836			1,565,730			$0.01586		
26															
27	372 - LEASED PROPERTY	$0		$0	$0	$0	$0	$0	$0						
28															
29	373 - ST LTG & SIGNAL SYS (7)	$0		$3,927,597	$0	$3,927,597	$0	$699,898	$0		6,528,902	2,086,359	$0.00000	$0.10720	$0.00000
30															
31	SUBTOTAL LIGHTING	$456,591	$255,176	$3,927,597	$0	$4,639,364	$69,276	$699,898	$0						
32															
33															
34	**TOTAL NET PLANT**	$1,709,892	$255,176	$6,241,077	$500,838	$8,706,984	$191,260	$1,112,160	$89,249				$0.05293	$0.14953	$0.04233
35	**TOTAL NET PLANT (COS STUDY CHECK)**	**$1,965,068**		**$6,741,915**		**$8,706,984**									
36	**TOTAL CALCULATED PORTION OF NET PLANT**	$136,096	$76,060	$776,771	$62,335										
37				$839,106											
38															

Line No.		REVENUE	REVENUE EXCLUDING O&M FUEL & ET	TOTAL COMPANY NET PLANT	REVENUE PER NET PLANT $ (4)
39	**BASE REVENUE FACTORS**				
42	RATE 19 - REDDY-GUARD				
43	PRESENT	$570,629	$65,990	$1,965,068	3.36%
44	PROPOSED	$695,906	$191,267	$1,965,068	9.73%
45	INCREASE	$125,277	$125,277		
46	PERCENT INCREASE BASE	21.95%	189.84%		
47	TOTAL O&M W/O FUEL & EXTERNAL TRAN	$504,639			
48					
49	RATE 56 - HIGHWAY, STREET & AREA LIGHTING				
50	PRESENT	$1,401,401	($153,282)	$6,741,915	-2.27%
51	PROPOSED	$1,706,045	$1,201,406	$6,741,915	17.82%
52	INCREASE	$304,644	$1,354,688		
53	PERCENT INCREASE BASE	21.74%	-883.79%		
54	TOTAL O&M W/O FUEL & EXTERNAL TRAN	$1,554,683			
55					

SUMMARY OF PLANT CHARGES	RATE 19 PER KWH UNMETERED	RATE 19 PER KWH METERED	RATE 56 PER KWH CO OWNED	RATE 56 PER KWH CUST OWNED
PRODUCTION (1)	$0.00848		$0.01541	$0.01541
TRANSMISSION (2)	$0.00327		$0.00594	$0.00594
DISTRIBUTION (3)	$0.01235		$0.02098	$0.02098
REDDY-GUARD LIGHTING	$0.01297	$0.01586	$0.00000	$0.00000
HIGHWAY, ST, & SGNL LTG	$0.00000		$0.10720	$0.00000
TOTAL PLANT	$0.03707	$0.01586	$0.14953	$0.04233
TOTAL CALCULATED PLANT (5)	$0.03971	$0.04858	$0.11897	$0.02988

Note: kWh charge rounded to 5 decimals.

56 Notes:
57 (1) Production kWh charge excludes base fuel expenses.
58 (2) Transmission kWh charge excludes external transmission expenses.
59 (3) Distribution kWh charge excludes services, meters, and meter reading expenses.
60 (4) Factor is calculated as (Total Present Revenues less Operating Expense) divided by Total Net Plant, rounded to 5 decimals
61 (5) Total plant charges are calculated using net plant (Table 7) divided by kWh sales
61 (6) KWh sales for mercury vapor units are not included

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 10 - FUNCTIONAL GROSS PLANT, ACCUMULATED DEPRECIATION, & NET PLANT

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Line		GROSS PLANT			ACCUM DEPRECIATION			NET CUSTOMER DISTRIBUTION			NET PLANT			TOTAL LTG
No.		Rate 19	Rate 56	Total Ltg	Rate 19	Rate 56	Total Ltg	Rate 19	Rate 56	Total Ltg	Rate 19	Rate 56	Total Ltg	% DEP
1	**PRODUCTION**													
2	PRODUCTION	$593,850	$1,496,286	$2,090,135	$188,896	$475,950	$664,846	$35,916.88	$4,138.42	$40,055	$440,870	$1,024,474	$1,465,344	31.81%
3														
4														
5	**TRANSMISSION**													
6	TRANSMISSION	$238,527	$601,002	$839,529	$82,328	$207,436	$289,764	$13,853.93	$1,596.28	$15,450	$170,053	$395,162	$565,216	34.52%
7														
8														
9	**DISTRIBUTION**													
10	PRIMARY SUBSTATIONS	$167,278	$393,797	$561,075	$47,752	$112,415	$160,167	$10,601.23	$1,141.27	$11,742	$130,127	$282,523	$412,650	28.55%
11														
12	PRIMARY LINES	$380,943	$896,796	$1,277,740	$146,701	$345,355	$492,055	$20,775.91	$2,236.61	$23,013	$255,019	$553,678	$808,697	38.51%
13														
14	SECONDARY LINES	$213,090	$501,644	$714,734	$78,518	$184,843	$263,362	$11,935.66	$1,284.92	$13,221	$146,507	$318,086	$464,593	36.85%
15														
16	TRANSFORMERS	$140,037	$329,667	$469,703	$38,333	$90,242	$128,576	$9,020.46	$971.09	$9,992	$110,724	$240,396	$351,119	27.37%
17														
18	SERVICES	$0	$0	$0	$0	$0	$0	$0.00	$0.00	$0	$0	$0	$0	
19														
20	METERS	$0	$0	$0	$0	$0	$0	$0.00	$0.00	$0	$0	$0	$0	
21														
22	**LIGHTING**													
23														
24	371 - INSTALL ON CUST PREM	$1,901,066	$0	$1,901,066	$1,247,284	$0	$1,247,284	$57,986.39	$0.00	$57,986	$711,768	$0	$711,768	65.61%
25														
26	372 - LEASED PROPERTY	$0	$0	$0	$0	$0	$0	$0.00	$0.00	$0	$0	$0	$0	
27														
28	373 - ST LTG & SIGNAL SYS	$0	$11,374,532	$11,374,532	$0	$7,462,802	$7,462,802	$0.00	$15,865.73	$15,866	$0	$3,927,597	$3,927,597	65.61%
29														
30	SUBTOTAL LIGHTING	$1,901,066	$11,374,532	$13,275,598	$1,247,284	$7,462,802	$8,710,086	$57,986	$15,866	$73,852	$711,768	$3,927,597	$4,639,364	65.61%
31														
32														
33	**CUSTOMER DISTRIBUTION (1)**													
34	CUSTOMER METER READING	$0	$0	$0	$0	$0	$0							
35	CUSTOMER RECORDS	$34,784	$5,857	$40,641	$12,365	$2,082	$14,447							35.55%
36	CUSTOMER SERVICE & INFO	$213,602	$36,398	$250,000	$75,931	$12,939	$88,870							35.55%
37	SUBTOTAL CUSTOMER DISTRIBUTION	$248,386	$42,255	$290,642	$88,296	$15,021	$103,317	$160,090	$27,234	$187,325				35.55%
38														
39														
40	**TOTAL**	$3,883,177	$15,635,979	$19,519,156	$1,918,108	$8,894,064	$10,812,172	$160,090	$27,234	**$187,325**			$0.01	55.39%
41														
42														
43	**TOTAL EXCL CUSTOMER DISTRIBUTION**	$3,634,790	$15,593,724	$19,228,514	$1,829,812	$8,879,043	$10,708,855				$1,965,068	$6,741,915	$8,706,984	
44														
45													$8,519,659	
46													**$187,325**	check (Net Customer
47														
48														
49														
50														
51	Notes:													
52	(1) Customer Distribution is allocated to Production, Transmission and Distribution Plant based on line item net plant.													
53	(2) Source for Gross Plant and Accumulated Depreciation from file "TY2022 Adjusted NWE SD Elec Embedded ACOS Rev @ 06-09-23.xls"													
54														
55														

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 11A - FUNCTIONAL NET OPERATING EXPENSE DETAIL AND UNIT COSTS (COMPANY OWNED)

Line No.	A	B RATE 19 LIGHTING NET OPER EXPENSE (4)	C RATE 56 LIGHTING NET OPER EXPENSE (4)	D RATE 19 CUSTOMER DIST EXPENSE	E RATE 56 CUSTOMER DIST EXPENSE	F RATE 19 TOTAL LIGHTING NOE	G RATE 56 CO OWNED TOTAL LIGHTING NOE	H RATE 19 SALES KWH (5)	I RATE 56 CO OWNED SALES KWH (5)	J RATE 19 UNMETERED COSTS PER KWH	K RATE 19 METERED COSTS PER KWH (6)	L RATE 56 UNIT NOE COSTS PER KWH
1	**PRODUCTION**											
2	GROSS PRODUCTION EXPENSE	$187,765	$388,981									
3	BASE FUEL	$153,621	$313,832									
4	= BASE AND ENERGY	$34,143	$75,149	$13,518	$687	$47,661	$75,837	5,060,641	9,739,184	$0.00942		$0.00779
5												
6												
7	**TRANSMISSION**											
8	TRANSMISSION	$3,349	$7,371	$1,326	$67	$4,675	$7,438	5,060,641	9,739,184	$0.00092		$0.00076
9	EXTERNAL TRANSMISSOIN	$70,002	$143,951									
10												
11	**DISTRIBUTION**											
12	PRIMARY SUBSTATIONS	$9,276	$19,075	$3,673	$174	$12,949	$19,250	5,060,641	9,739,184	$0.00256		$0.00198
13												
14	PRIMARY LINES	$30,195	$62,092	$11,954	$568	$42,149	$62,660	5,060,641	9,739,184	$0.00833		$0.00643
15												
16	SECONDARY LINES	$16,421	$33,767	$6,501	$309	$22,922	$34,076	5,060,641	9,739,184	$0.00453		$0.00350
17												
18	LINE TRANSFORMERS	$5,052	$10,388	$2,000	$95	$7,052	$10,483	5,060,641	9,739,184	$0.00139		$0.00108
19												
20	SERVICES	$0	$0									
21												
22	METERS	$0	$0									
23												
24	**LIGHTING**											
25	REDDY-GUARD - UNMETERED	$134,393	$0	$53,208	$0	$187,601	$0	5,060,641		$0.03707		$0.00000
26	REDDY-GUARD - METERED	$80,959						2,412,897			$0.03355	
27	HIGHWAY, STREET, & AREA LIGHTING	$0	$1,288,503	$0	$11,783	$0	$1,300,287		9,739,184	$0.00000		$0.13351
28	TOTAL LIGHTING	$215,352	$1,288,503									
29												
30	TOTAL DIST OPERATING EXP EXPENSE	$276,296	$1,413,826	$77,336	$12,930	$272,672	$1,426,756					
31	TOT DIST EXCL SERV, METERS, & LTG	$60,943	$125,323			$85,072	$126,469					
32												
33												
34	**CUSTOMER DISTRIBUTION**											
35	CUSTOMER METER READING	$0	$0									
36	CUSTOMER RECORDS	$20,692	$3,044									
37	CUSTOMER SERVICE & INFO	$71,488	$10,641									
38	TOTAL CUSTOMER DISTRIBUTION	$92,179	$13,684									
39	TOTAL CUST DIST EXCL MET READING	$92,179	$13,684	$92,179	$13,684	$325,008	$1,510,030					
40												
41	**TOTAL NET OPER EXP EXPENSE (7)**	$629,590	$1,967,813									
42	**TOTAL NET OPER EXP EXPENSE (COS Check)**	$629,590										
43												
44	**TOTAL NOE EXCL BASE FUEL & EXT TRANSM**	$405,967	$1,510,030									
45												
46	**TOTAL NET OPER EXP EXCL FUEL, EXT TRANSM,**	$232,829	$1,496,346									
47	**SERVICES, METERS, MET LTG & CUST DIST**											
48												
49												

SUMMARY OF OPERATING EXP CHARGES

	RATE 19 PER KWH UNMETERED	RATE 19 PER KWH METERED	RATE 56 PER KWH CO OWNED
PRODUCTION (1)	$0.00942		$0.00779
TRANSMISSION (2)	$0.00092		$0.00076
DISTRIBUTION (3)	$0.01681		$0.01299
REDDY-GUARD LIGHTING	$0.03707	$0.03355	$0.00000
HIGHWAY, ST, & SGNL LTG	$0.00000		$0.13351
TOTAL OPERATING EXP	$0.06422	$0.03355	$0.15505

Note: kWh charge rounded to 5 decimals.

50 Notes:
51 (1) Production kWh charge excludes peak production and base fuel expenses.
52 (2) Transmission kWh charge excludes external transmission expenses.
53 (3) Distribution kWh charge excludes services, meters, and meter reading expenses.
54 (4) Detail Net Operating Expense (NOE) from Workpaper 4
55 (5) kWh Sales are actual consumption for these units. The kWh for customer owned are not included in COS model in the lighting rate but are booked in class where owned
56 (6) Metered Unit Cost includes Net Operating Expenses associated with only metered units
57 (7) Net Operating Expense (NOE) exclude Ad Valorem Expenses
58

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 11B - FUNCTIONAL NET OPERATING EXPENSE DETAIL AND UNIT COSTS (CUSTOMER OWNED)

Line No.	A	B TOTAL RATE 56 STREET LTG OPER EXP	C CUST OWNED RATE 56 STREET LTG OPER EXP	E RATE 56 CUSTOMER DISTRIBUTION EXPENSE	F RATE 56 TOTAL LIGHTING NOE (4)	G RATE 56 CUST OWNED SALES KWH (5)	H RATE 56 UNIT NOE COSTS PER KWH
1	**PRODUCTION**						
2	PRODUCTION EXPENSE	$445,307	$56,326				
3	BASE FUEL	**$359,275**	**$45,444**				
4	= BASE AND ENERGY	**$86,031**	**$10,882**	$716	$11,598	2,108,406	$0.00550
5							
6							
7	**TRANSMISSION**						
8	TRANSMISSION	**$8,438**	**$1,067**	$70	$1,138	2,108,406	$0.00054
9	EXTERNAL TRANSMISSOIN	**$164,796**	**$20,845**				
10							
11	**DISTRIBUTION**						
12	PRIMARY SUBSTATIONS	**$21,837**	**$2,762**	$182	$2,944	2,108,406	$0.00140
13							
14	PRIMARY LINES	**$71,083**	**$8,991**	$592	$9,583	2,108,406	$0.00455
15							
16	SECONDARY LINES	**$38,657**	**$4,890**	$322	$5,212	2,108,406	$0.00247
17							
18	LINE TRANSFORMERS	**$11,893**	**$1,504**	$99	$1,603	2,108,406	$0.00076
19							
20	SERVICES	**$0**	**$0**				
21							
22	METERS	**$0**	**$0**				
23							
24	**LIGHTING**						
25	REDDY-GUARD - UNMETERED	**$0**	**$0**	$0	$0		$0.00000
26	REDDY-GUARD - METERED						
27	HIGHWAY, STREET, & AREA LIGHTING	**$1,288,503**	**$0**	$0	$0	2,108,406	$0.00000
28	TOTAL LIGHTING	$1,288,503	$0				
29							
30	TOTAL DIST OPERATING EXP EXPENSE	$1,431,973	$18,147	$1,195	$19,342		
31	TOT DIST EXCL SERV, METERS, & LTG	$143,470	$18,147		$19,342		
32							
33							
34	**CUSTOMER DISTRIBUTION**						
35	CUSTOMER METER READING	**$0**	**$0**				
36	CUSTOMER RECORDS	**$3,484**	**$441**				
37	CUSTOMER SERVICE & INFO	**$12,181**	**$1,541**				
38	TOTAL CUSTOMER DISTRIBUTION	$15,666	$1,982				
39	TOTAL CUST DIST EXCL MET READING	$15,666	$1,982	$1,982	$32,078		
40							
41	**TOTAL NET OPER EXP EXPENSE (6)**	$2,066,179	$98,366				
42	**TOTAL NET OPER EXP EXPENSE (Check)**	**$2,066,179**		$0			
43							
44	**TOTAL NOE EXP EXCL BASE FUEL & EXT TRANSM**	$1,542,108	$32,078				
45							
46	**TOTAL NOE EXCL FUEL, EXTERNAL TRANSM,**	$1,526,442	$30,096				
47	**SERVICES, METERS, & CUSTOMER DIST**						
48							
49	**PERCENT OF CUSTOMER OWNED UNITS**		12.65%				
50							
51	Notes:						
52	(1) Production kWh charge excludes fuel expenses.						
53	(2) Transmission kWh charge excludes external transmission expenses.						
54	(3) Distribution kWh charge excludes services, meters, and meter reading expenses.						
55	(4) Detail Net Operating Expense (NOE) from Workpaper 4						
56	(5) Source: Table 13						
57	(6) Net Operating Expense excludes Ad Valorem Expenses						
58							

SUMMARY OF OPERATING EXP CHARGES	RATE 56 PER KWH CUST OWNED
PRODUCTION (1)	$0.00550
TRANSMISSION (2)	$0.00054
DISTRIBUTION (3)	$0.00917
REDDY-GUARD LIGHTING	$0.00000
HIGHWAY, ST, & SGNL LTG	$0.00000
TOTAL OPERATING EXP	$0.01521

Note: kWh charge rounded to 5 decimals.

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 12 - LIGHTING INSTALLED COST ESTIMATES
LIGHTING SCHEDULE RESULTS FOR GROSS PLANT DERIVATION

Line No.	A	B	C	D	E	F	G	H	I	J	K
1	**Lights - Street Light and Reddy Guard**										
2						30.00%	Installation Adder				
3	**Light Fixture**	**Watt**	**Fixture Cost**	**Bulb Cost**	**Total Cost**	**Fixture Cost**	**Bulb Cost**	**Total Installed Cost**			
4	HPS	35	$54.18	$4.96	$59.14	$70.43	$6.45	$76.88			**LEGEND**
5	HPS	50	$82.09	$7.52	$89.61	$106.72	$9.77	$116.49		HPS	High Pressure Sodiu
6	HPS	100	$164.18	$15.03	$179.21	$213.43	$19.54	$232.97		MV	Mercury Vapor
7	HPS	150	$188.38	$14.49	$202.87	$244.89	$18.84	$263.73		MH	Metal Halide
8	HPS	250	$328.16	$14.77	$342.93	$426.61	$19.20	$445.81		LED	Light Emitting Diode
9	HPS	400	$336.78	$16.10	$352.88	$437.81	$20.93	$458.74			
10	HPS	250/400	$451.54	$16.10	$467.64	$587.00	$20.93	$607.93			
11	HPS	1000	$677.31	$24.15	$701.46	$880.50	$31.40	$911.90			
12											
13	MV	175	$264.95	11.36	$276.31	$344.43	$14.77	$359.20	ED 28 Mogul Base		
14	MV	250	$287.83	$10.05	$297.88	$374.17	$13.07	$387.24	ED 28 Mogul Base		
15	MV	400	$349.07	$8.38	$357.45	$453.79	$10.89	$464.69	BT 37 Mogul		
16	MV	1000	$496.28	$25.00	$521.28	$645.17	$32.50	$677.67	E39 Mogul Base	Ballast Kit $148.45	
17											
18	MH	175	$368.57	$10.72	$379.29	$479.14	$13.94	$493.08			
19	MH	250/400	$393.58	$15.32	$408.90	$511.65	$19.92	$531.57			
20	MH	400	$445.23	$14.12	$459.35	$578.80	$18.36	$597.16			
21	MH	1000	$1,064.76	$34.39	$1,099.15	$1,384.19	$44.71	$1,428.90			
22											
23											
24											
25					**Crew with**						
26	**Luminaire (1)**	**Watt**	**Luminaire Cost**	**Eye**	**Loaded Capital**	**Total Installed Cost**					
27	LED C	42	$156.06	$12.88	$79.15	$248.09					
28	LED C	55	$156.06	$12.88	$79.15	$248.09					
29	LED I	60	$158.12	$12.88	$79.15	$250.15					
30	LED I	66	$158.12	$12.88	$79.15	$250.15					
31	LED D	73	$158.12	$12.88	$79.15	$250.15					
32	LED E	93	$198.80	$12.88	$79.15	$290.83					
33	LED F	126	$247.35	$12.88	$79.15	$339.38					
34	LED F Flood	130	$405.51	$12.88	$79.15	$497.54					
35	LED J	189	$386.70	$12.88	$79.15	$478.73					
36	LED J Flood	191	$759.12	$12.88	$79.15	$851.15					
37	LED M	319	$849.81	$12.88	$79.15	$941.84					
38											
39	Notes										
40	(1) Luminaires include lamp, photovoltaic electric relay (PER), and photocell,				A complete lighting unit consisting of light emitting diode (LED)-based light emitting elements and a matched driver together with						
41											
42											
43											
44											
45	**Poles**										
46		**Type**	**Size (Feet)**	**2022 Pole Cost**	**Installation Cost**	**Total Pole Install**		**Bracket/Support**			
47		Wood	Class 4 / 30'	$330	$317	$647		$152.89			
48		Wood	Class 4 / 35'	$422	$317	$738		$152.89			
49		Wood	Class 2 / 40'	$708	$317	$1,025		$152.89			
50		Wood	Class 2 / 45'	$862	$317	$1,179		$152.89			
51											
52		Aluminum	Blk Anodized 20'	$1,579	$317	$1,895		$152.89			
53											
54		Distribution Pole	same as above	$422	$317	$738		$152.89			
55											
56											
57	**Brackets/Support**										
58		**Feet**	**2022 Cost**	**Installed Cost**							
59		4	$58.81	$76.45							
60		6	$88.21	$114.67							
61		8	$117.61	$152.89							
62		10	$243.04	$315.95							
63											
64											
65	**Crew**		**2022 Rates**								
66	1.2 hours per light X Journeyman loaded capita		$79.15								
67											
68											

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 13 - KWH SALES AND UNIT COUNT

Line No.	A Rate Class (1)	D kWh (Meter)	G Average Annual Customers
1	10 - Residential Basic	**395,117,244**	**39,134**
2	11 - Residential w/Sp Htg	**184,884,645**	**10,896**
3	14 - Residential Sp Htg & Cooling	**14,804,756**	**1,032**
4	15 - Residential Dual-Fuel	**88,752**	**7**
5	16,18 - Irrigation Interruptible Service	**2,645,297**	**68**
6	17 - Irrigation Service	**358,611**	**16**
7	21 - Commercial Gen Serv	**73,224,645**	**8,763**
8	23 - Commercial Sep Mtr Space Htg	**566,638**	**59**
9	24 - Commercial Sp Htg & Cooling	**42,249,519**	**586**
10	25 - Commercial All-Inclusive Comm	**40,430,746**	**802**
11	33 - Commercial & Industrial	**161,418,897**	**2,095**
12	34 - Comercial & Industrial Large	**788,770,509**	**488**
13	41 - Municipal Pumping	**7,274,425**	**274**
14	19 - Reddy-Guard Lighting	**5,041,019**	**3,363**
15	56 - Highway, Street, & Area Lighting	**11,867,293**	**142**
16	70 - Controlled Off-Peak	**834,798**	**6**
17	Total SD	1,729,577,794	67,730

Line No.							
24	**kWh Source: Table 7**		**Estimated**				
25		**Unmetered**	**Metered**	**Total**	**Total**	**Total**	**COS**
26		**kWh**	**kWh**	**kWh**	**CP**	**Non CP**	
27	19 - Reddy-Guard Lighting						
28	Input	5,060,641		5,060,641			
29	Mercury Vapor	1,633,437	847,167				
30	Other	3,427,204	1,565,730				
31	Total Reddy-Guard Lighting	5,060,641		5,060,641	297	1,324	5,041,019
32							Does not incluc
33							19,622
34		**Co Owned**	**Cust Owned**				
35		**kWh**	**kWh**				
36	56 - Highway, Street, & Area Lighting						
37	Input	9,739,184	2,108,406	11,847,590			
38	Mercury Vapor	3,210,282	22,047	3,232,328			
39	Other	6,528,902	2,086,359	8,615,261			
40	Total Highway, Street, & Area Lig	9,739,184	2,108,406	11,847,590	749	3,117	11,867,293
41							Includes U30-F
42	Total Lighting						(19,703)
43	Input	14,799,825	2,108,406	16,908,231			
44	Total Lighting	14,799,825	2,108,406	16,908,231			
46	Total Unmetered kWh			16,908,231			16,908,312

Line No.					
49	**Annual Number of Units**	**Co Owned**	**Cust Owned**	**Total**	**Avg # of Cust**
50	**Source: Table 7**	**EOY Units**	**EOY Units**	**EOY Units**	**COS**
51	19 - Reddy-Guard Lighting	6,932		6,932	3,363
52	56 - Highway, Street, & Area Ligh	9,910	1,435	11,345	142
53	Total Lighting	16,842	1,435	18,277	3,505

58 Notes:
59 (1) Source file "TY2022 Adjusted NWE SD Elec Embedded ACOS Rev @ 06-09-23.xls"

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE 14 - LIGHT-EMITTING DIODE (LED) RATE DEVELOPMENT
LAMPS: 120-240 VOLTS

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**PLANT INVESTMENT**				4042.9							TOTAL	LUMINAIRE
2		LIFE			BURNING HRS					EFFECTIVE	7.54%	EFFECTIVE	MONTHLY
3		EXPECTANCY				LUMINAIRE	EYE	INSTALL	EQUIPMENT	ACCRUAL	EFFECTIVE	RATE	INVESTMENT
4	LIGHT USE	YEARS	WATTS		KWH/MO	COST $	COST $	COST $	INVEST $	RATE	ROR	col J + col K	DOLLARS
6	Rate 19 (1)												
7	LED C	20	42		14.15	$248.09	$12.88	$79.15	$340.12	5.05%	9.54%	14.60%	$4.14
8	LED C	20	55		18.53	$248.09	$12.88	$79.15	$340.12	5.05%	9.54%	14.60%	$4.14
9	LED I	20	60		20.21	$250.15	$12.88	$79.15	$342.18	5.05%	9.54%	14.60%	$4.16
10	LED I	20	66		22.24	$250.15	$12.88	$79.15	$342.18	5.05%	9.54%	14.60%	$4.16
11	LED D	20	73		24.59	$250.15	$12.88	$79.15	$342.18	5.05%	9.54%	14.60%	$4.16
12	LED E	20	93		31.33	$290.83	$12.88	$79.15	$382.86	5.05%	9.54%	14.60%	$4.66
13	LED F	20	126		42.45	$339.38	$12.88	$79.15	$431.41	5.05%	9.54%	14.60%	$5.25
14	LED F Flood	20	126		42.45	$497.54	$12.88	$79.15	$589.57	5.05%	9.54%	14.60%	$7.17
15	LED J	20	189		63.68	$478.73	$12.88	$79.15	$570.76	5.05%	9.54%	14.60%	$6.94
16	LED J Flood	20	189		63.68	$851.15	$12.88	$79.15	$943.18	5.05%	9.54%	14.60%	$11.47
17	LED M	20	319		107.47	$941.84	$12.88	$79.15	$1,033.87	5.05%	9.54%	14.60%	$12.58
19	Rate 56 (2)												
20	LED C	20	42		14.15	$248.09	$12.88	$79.15	$340.12	5.05%	9.54%	14.60%	$4.14
21	LED C	20	55		18.53	$248.09	$12.88	$79.15	$340.12	5.05%	9.54%	14.60%	$4.14
22	LED I	20	60		20.21	$250.15	$12.88	$79.15	$342.18	5.05%	9.54%	14.60%	$4.16
23	LED I	20	66		22.24	$250.15	$12.88	$79.15	$342.18	5.05%	9.54%	14.60%	$4.16
24	LED D	20	73		24.59	$250.15	$12.88	$79.15	$342.18	5.05%	9.54%	14.60%	$4.16
25	LED E	20	93		31.33	$290.83	$12.88	$79.15	$382.86	5.05%	9.54%	14.60%	$4.66
26	LED F	20	126		42.45	$339.38	$12.88	$79.15	$431.41	5.05%	9.54%	14.60%	$5.25
27	LED J	20	189		63.68	$478.73	$12.88	$79.15	$570.76	5.05%	9.54%	14.60%	$6.94
28	LED M	20	319		107.47	$941.84	$12.88	$79.15	$1,033.87	5.05%	9.54%	14.60%	$12.58

Line No.	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
33	**PLANT AND EXPENSE ADDERS**												
34				COMPANY OWNED / METERED						CUSTOMER OWNED / COMPANY OWNED UNMETERED			
35				NET OPERATING	TOTAL	ADDERS	TOTAL			NET OPERATING	TOTAL	ADDERS	TOTAL
36			PLANT	EXPENSE	ADDERS	$/MONTH	$/MONTH		PLANT	EXPENSE	ADDERS	$/MONTH	$/MONTH
37	LIGHT USE	WATTS	ADDER (3)	ADDER (4),(5)	PER kWh	col R * col E	col S + col M		ADDER (6)	ADDER (7)	PER kWh	col X * col E	col Y + col M (1)
38													col Y (2)
39	Rate 19 (1)												
40	LED C	42		$0.03355	$0.03355	$0.47477	$4.61		$0.02410	$0.06422	$0.08832	$1.25	$5.39
41	LED C	55		$0.03355	$0.03355	$0.62173	$4.76		$0.02410	$0.06422	$0.08832	$1.64	$5.77
42	LED I	60		$0.03355	$0.03355	$0.67825	$4.84		$0.02410	$0.06422	$0.08832	$1.79	$5.95
43	LED I	66		$0.03355	$0.03355	$0.74607	$4.91		$0.02410	$0.06422	$0.08832	$1.96	$6.13
44	LED D	73		$0.03355	$0.03355	$0.82520	$4.99		$0.02410	$0.06422	$0.08832	$2.17	$6.33
45	LED E	93		$0.03355	$0.03355	$1.05129	$5.71		$0.02410	$0.06422	$0.08832	$2.77	$7.42
46	LED F	126		$0.03355	$0.03355	$1.42432	$6.67		$0.02410	$0.06422	$0.08832	$3.75	$9.00
47	LED F Flood	126		$0.03355	$0.03355	$1.42432	$8.60		$0.02410	$0.06422	$0.08832	$3.75	$10.92
48	LED J	189		$0.03355	$0.03355	$2.13648	$9.08		$0.02410	$0.06422	$0.08832	$5.62	$12.57
49	LED J Flood	189		$0.03355	$0.03355	$2.13648	$13.61		$0.02410	$0.06422	$0.08832	$5.62	$17.10
50	LED M	319		$0.03355	$0.03355	$3.60602	$16.18		$0.02410	$0.06422	$0.08832	$9.49	$22.07
52	Rate 56 (2)												
53	LED C	42	$0.04233	$0.02154	$0.06387	$0.90377	$5.04		$0.04233	$0.01521	$0.05754	$0.81	$0.81
54	LED C	55	$0.04233	$0.02154	$0.06387	$1.18351	$5.32		$0.04233	$0.01521	$0.05754	$1.07	$1.07
55	LED I	60	$0.04233	$0.02154	$0.06387	$1.29110	$5.45		$0.04233	$0.01521	$0.05754	$1.16	$1.16
56	LED I	66	$0.04233	$0.02154	$0.06387	$1.42021	$5.58		$0.04233	$0.01521	$0.05754	$1.28	$1.28
57	LED D	73	$0.04233	$0.02154	$0.06387	$1.57084	$5.73		$0.04233	$0.01521	$0.05754	$1.42	$1.42
58	LED E	93	$0.04233	$0.02154	$0.06387	$2.00121	$6.66		$0.04233	$0.01521	$0.05754	$1.80	$1.80
59	LED F	126	$0.04233	$0.02154	$0.06387	$2.71131	$7.96		$0.04233	$0.01521	$0.05754	$2.44	$2.44
60	LED J	189	$0.04233	$0.02154	$0.06387	$4.06697	$11.01		$0.04233	$0.01521	$0.05754	$3.66	$3.66
61	LED M	319	$0.04233	$0.02154	$0.06387	$6.86435	$19.44		$0.04233	$0.01521	$0.05754	$6.18	$6.18

64 Notes
65 (1) Rate 19 - Ready Guard Compatible
66 (2) Rate 56 - Company or Customer Owned Highway, Street and Area Lighting Systems Compatible
67 (3) Adders for Plant Investment exclude peak production, services, meters, and lighting, Table 8. Not applicable to Rate 19 compatible LED lights
68 (4) Net Operating Expenses adder for Rate 56 compatible units exclude peak production, fuel, services, meters, meter reading and lighting expenses (Table 8)
69 Net Operating Expenses are calculated using Total Operating Expense less Other Operating Revenue and Wholesale Revenue
70 (5) Net Operating Expense adders for Rate 19 compatible units include only lighting related expenses
71 (6) Plant adder includes only production, transmission, and distribution investment, as shown on Table 8
72 (7) Net Operating Expenses include only production, transmission, and distribtion for Rate 56 compatible units and PTD and lighting expense for Rate 19 compatible, Table 8

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 1 - SYSTEM OVERALL REVENUE REQUIREMENT DETAILS

Line No.		PRESENT	BASE INCREASE	PROPOSED
1	GROSS PLANT	$19,519,156		$19,519,156
2				
3	TOTAL SALES RATE REVENUES EXCL FUEL (1)	**$119,514,621**	**25.83%**	**$150,388,295**
4				
5	O&M EXCL FUEL	$87,929,366		$87,929,366
6				
7	BASE REV W/O O&M	$31,585,255		$62,458,930
8				
9	BASE REV TO GROSS PLANT	$1.61817		$3.19988
10				
11	TOTAL REVENUE TO GROSS PLANT	$6.12294		$7.70465
12				
13				
14				
15				
16				
17				
18				
19				
20	**REVIEW**			
21				
22	RATE REVENUE FROM COST OF SERVICE MODEL	CURRENT	INCREASE (5)	PROPOSED
23	LIGHTING RATE 19 REVENUE	**$570,629**	**$125,277**	$695,906
24	LIGHTING RATE 56 REVENUE	**$1,401,401**	**$304,644**	$1,706,045
25	TOTAL LIGHTING REVENUE	**$1,972,030**	$429,921	$2,401,951
26				
27				
28	PRESENT RATE REVENUE WITHIN LIGHTING STUDY (2)		Caclculated	
29	LIGHTING RATE 19 REVENUE (3)	$572,560	$123,346	$695,906
30	LIGHTING RATE 56 REVENUE (4)	$1,397,779	$308,266	$1,706,045
31	Rate U30 - STKLR (Kaylor Cust Owned)	$1,635		
32	TOTAL LIGHTING REVENUE	$1,971,974	$431,612	$2,401,951
33		($56)		
34				
35	RATE REVENUE CALCULATED WITH NEW RATES			
36	LIGHTING RATE 19 REVENUE		$125,279	$695,908
37	LIGHTING RATE 56 REVENUE		$304,645	$1,706,046
38	TOTAL LIGHTING REVENUE		$429,924	$2,401,954
39				
40	LIGHTING REVENUE DIFFERENCE (Line 25-Line 38)		$3	$3
41				
42				
43				
44				
45	Notes:			
46	(1) Source for current and proposed rate revenue from file "TY20224 Adjusted NWE SD Elec Embedded ACOS Rev @ 06-09-23.xls"			
47	(2) Source current rate revenues and kWh from Table 7 files "DG1 U10 Reddy - Residential", "DG1 U20 Reddy - Commercial", and "DG1 U			
48	(3) Source for calculated proposed rate revenue from Tables 1, 2 and 3.			
49	(4) Source for calculated proposed rate revenue from Tables 4, and 5.			
50	(5) Source for Revenue Increase is Row 74 of the Rate Moderation file			

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 2 - LIGHTING SCHEDULE RATE DETAIL

								November 2022 RATE		$0.032830			
							$0.020290	**$0.003410**	**$0.009130**			2022	2022
Line No.		Rev Code	Watts/Hour	Monthly kWh per Unit	Company Owned Rate (Present Rate)	Customer Owned Rate (Present Rate)	Cost of Fuel	Ad Valorem	Transm. By Others	Co Own Unit Rate Per Month with Fuel, Ad Valorem, Transm	Cust Owned Unit Rate Per Month with Fuel, Ad Valorem, Transm	End of Year Number of Units	Annual kWh
1	**RATE 19 - REDDY GUARD**												
2													
3	**Rate U10 - Reddy-Guard - Residential Unmetered**												
4		**HPS**											
5	4095 HPS 35 WATT - 14 KWH/MO	RR001	**42**	**14.07**	**$4.000**		$0.285480	$0.047980	$0.128460	$4.46192		**0**	**0**
6	5850 HPS 50 WATT - 20 KWH/MO	RR002	**59**	**19.77**	**$4.150**		$0.401030	$0.067400	$0.180450	$4.79888		**2**	**554**
7	11700 HPS 100 WATT - 50 KWH/MO	RR003	**148**	**49.58**	**$7.430**		$1.005980	$0.169070	$0.452670	$9.05772		**130**	**104,185**
8	17550 HPS 150 WATT - 70 KWH/MO	RR004	**208**	**69.68**	**$7.750**		$1.413810	$0.237610	$0.636180	$10.03760		**352**	**411,324**
9	29250 HPS 250 WATT - 108 KWH/MO	RR005	**322**	**107.87**	**$10.960**		$2.188680	$0.367840	$0.984850	$14.50137		**44**	**66,751**
10	46800 HPS 400 WATT - 166 KWH/MO	RR006	**496**	**166.16**	**$12.940**		$3.371390	$0.566610	$1.517040	$18.39504		**15**	**32,164**
11	117000 HPS 1000 WATT - 390 KWH/M(	RR007	**1164**	**389.94**	**$27.070**		$7.911880	$1.329700	$3.560150	$39.87173		**0**	**0**
12		**Mercury Vapor**											
13	8750 MV 175 WATT - 72 KWH/MO	RR010	**216**	**72.36**	**$4.920**		$1.468180	$0.246750	$0.660650	$7.29558		**642**	**800,865**
14	12500 MV 250 WATT - 101 KWH/MO	RR011	**301**	**100.84**	**$6.240**		$2.045940	$0.343850	$0.920620	$9.55041		**14**	**19,767**
15	20000 MV 400 WATT - 159 KWH/MO	RR012	**474**	**158.79**	**$9.260**		$3.221850	$0.541470	$1.449750	$14.47307		**0**	**0**
16	50000 MV 1000 WATT - 380 KWH/MO	RR013	**1135**	**380.23**	**$17.560**		$7.714770	$1.296570	$3.471450	$30.04279		**0**	**0**
17		**Metal Halide**											
18	15225 MH 175 WATT - 69 KWH/MO	RR014	**205**	**68.68**	**$5.050**		$1.393420	$0.234180	$0.627000	$7.30460		**0**	**81**
19	21750 MH 250 WATT - 97 KWH/MO	RR015	**290**	**97.15**	**$6.430**		$1.971170	$0.331280	$0.886980	$9.61943		**4**	**5,313**
20	34800 MH 400 WATT - 153 KWH/MO	RR016	**458**	**153.43**	**$9.430**		$3.113090	$0.523200	$1.400820	$14.46711		**3**	**7,830**
21		**LED**											
22	LED - 60	RR026	**60**	**20.10**	**$8.880**		$0.407830	$0.068540	$0.183510	$9.53988		**686**	**29,897**
23	LED - 66	RR030	**66**	**22.11**	**$9.768**		$0.448610	$0.075400	$0.201860	$10.49387		**1**	**28**
24	LED - 73	RR035	**73**	**24.46**	**$9.344**		$0.496190	$0.083390	$0.223270	$10.14685		**6**	**1,158**
25	LED - 126	RR060	**126**	**42.21**	**$13.608**		$0.856440	$0.143940	$0.385380	$14.99376		**5**	**416**
26	LED - 189	RR070	**189**	**63.32**	**$20.412**		$1.284660	$0.215900	$0.578070	$22.49063		**4**	**330**
27													
28													
29													
30	**Rate U10 - Reddy-Guard - Residential Metered**												
31		**HPS**											
32	4095 HPS 35 WATT - 14 KWH/MO	RR100	**42**	**14.07**		**$3.63**				$3.63		**0**	**0**
33	5850 HPS 50 WATT - 20 KWH/MO	RR101	**59**	**19.77**		**$3.63**				$3.63		**5**	**1,186**
34	11700 HPS 100 WATT - 50 KWH/MO	RR102	**148**	**49.58**		**$5.00**				$5.00		**44**	**26,178**
35	17550 HPS 150 WATT - 70 KWH/MO	RR103	**208**	**69.68**		**$5.88**				$5.88		**263**	**219,910**
36	29250 HPS 250 WATT - 108 KWH/MO	RR104	**322**	**107.87**		**$7.64**				$7.64		**6**	**7,767**
37	46800 HPS 400 WATT - 166 KWH/MO	RR105	**496**	**166.16**		**$8.05**				$8.05		**11**	**21,933**
38	117000 HPS 1000 WATT - 390 KWH/M(	RR106	**1164**	**389.94**		**$14.92**				$14.92		**0**	**0**
39		**Mercury Vapor**											
40	8750 MV 175 WATT - 72 KWH/MO	RR110	**216**	**72.36**		**$2.31**				$2.31		**556**	**482,786**
41	12500 MV 250 WATT - 101 KWH/MO	RR111	**301**	**100.84**		**$2.88**				$2.88		**3**	**3,630**
42	20000 MV 400 WATT - 159 KWH/MO	RR112	**474**	**158.79**		**$3.63**				$3.63		**0**	**0**
43	50000 MV 1000 WATT - 380 KWH/MO	RR113	**1135**	**380.23**		**$7.10**				$7.10		**0**	**0**
44		**Metal Halide**											
45	15225 MH 175 WATT - 69 KWH/MO	RR114	**205**	**68.68**		**$2.73**				$2.73		**0**	**0**
46	21750 MH 250 WATT - 97 KWH/MO	RR115	**290**	**97.15**		**$6.35**				$6.35		**2**	**2,346**
47	34800 MH 400 WATT - 153 KWH/MO	RR116	**458**	**153.43**		**$8.05**				$8.05		**0**	**0**
48		**LED**											
49	LED - 55	RR125	**55**	**18.54**	**$7.205**					$0.00		**2**	**445**
50	LED - 60	RR126	**60**	**20.10**	**$7.860**					$0.00		**38**	**9,223**
51	LED - 126	RR160	**126**	**42.21**	**$11.466**					$0.00		**1**	**507**
52	LED - 189	RR170	**189**	**63.32**	**$17.199**					$0.00		**1**	**760**
53													
54		U10										2,840	2,257,335
55													

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 2 - LIGHTING SCHEDULE RATE DETAIL

Line No.		Rev Code	Watts/Hour	Monthly kWh per Unit	Company Owned Rate (Present Rate)	Customer Owned Rate (Present Rate)	Cost of Fuel	Ad Valorem	Transm. By Others	Co Own Unit Rate Per Month with Fuel, Ad Valorem, Transm	Cust Owned Unit Rate Per Month with Fuel, Ad Valorem, Transm	End of Year Number of Units	Annual kWh
							November 2022 RATE			$0.032830			
							$0.020290	$0.003410	$0.009130			2022	2022
56	**Rate U20 - Reddy-Guard - Commercial Unmetered**												
57		**HPS**											
58	4095 HPS 35 WATT - 14 KWH/MO	RC001	42	14.07	$4.000		$0.285480	$0.047979	$0.128459	$4.46192		0	0
59	5850 HPS 50 WATT - 20 KWH/MO	RC002	59	19.77	$4.150		$0.401032	$0.067399	$0.180454	$4.79888		1	168
60	11700 HPS 100 WATT - 50 KWH/MO	RC003	148	49.58	$7.430		$1.005978	$0.169068	$0.452665	$9.05771		108	76,513
61	17550 HPS 150 WATT - 70 KWH/MO	RC004	208	69.68	$7.750		$1.413807	$0.237609	$0.636178	$10.03759		466	490,128
62	29250 HPS 250 WATT - 108 KWH/MO	RC005	322	107.87	$10.960		$2.188682	$0.367837	$0.984853	$14.50137		451	623,563
63	46800 HPS 400 WATT - 166 KWH/MO	RC006	496	166.16	$12.940		$3.371386	$0.566606	$1.517041	$18.39503		346	783,524
64	117000 HPS 1000 WATT - 390 KWH/M(	RC007	1164	389.94	$27.070		$7.911883	$1.329695	$3.560152	$39.87173		7	32,427
65		**Mercury Vapor**											
66	8750 MV 175 WATT - 72 KWH/MO	RC010	216	72.36	$4.920		$1.468184	$0.246748	$0.660647	$7.29558		683	738,513
67	12500 MV 250 WATT - 101 KWH/MO	RC011	301	100.84	$6.240		$2.045942	$0.343847	$0.920624	$9.55041		35	49,067
68	20000 MV 400 WATT - 159 KWH/MO	RC012	474	158.79	$9.260		$3.221849	$0.541474	$1.449753	$14.47308		11	22,730
69	50000 MV 1000 WATT - 380 KWH/MO	RC013	1135	380.23	$17.560		$7.714765	$1.296567	$3.471454	$30.04279		0	0
70		**Metal Halide**											
71	15225 MH 175 WATT - 69 KWH/MO	RC014	205	68.68	$5.050		$1.393416	$0.234182	$0.627003	$7.30460		0	0
72	21750 MH 250 WATT - 97 KWH/MO	RC015	290	97.15	$6.430		$1.971174	$0.331282	$0.886980	$9.61943		71	92,001
73	34800 MH 400 WATT - 153 KWH/MO	RC016	458	153.43	$9.430		$3.113095	$0.523196	$1.400816	$14.46711		187	425,990
74	87000 MH 1000 WATT - 380 KWH/MO	RC017	1135	380.23	$17.590		$7.714765	$1.296567	$3.471454	$30.07279		27	174,998
75		**LED**											
76	LED - 60	RC026	60	20.10	$8.880		$0.407829	$0.068541	$0.183513	$9.53988		516	20,926
77	LED - 66	RC030	66	22.11	$9.768		$0.448612	$0.075395	$0.201864	$10.49387		1	211
78	LED - 73	RC035	73	24.46	$9.344		$0.496192	$0.083392	$0.223274	$10.14686		3	397
79	LED - 126	RC060	126	42.21	$13.608		$0.856441	$0.143936	$0.385377	$14.99375		62	5,150
80	LED - 189	RC070	189	63.32	$20.412		$1.284661	$0.215904	$0.578066	$22.49063		122	17,756
81	LED - 319	RC080	319	106.87	$29.348		$2.168291	$0.364410	$0.975677	$32.85638		8	6,295
82													
83													
84													
85	**Rate U20 - Reddy-Guard - Commercial Metered**												
86		**HPS**											
87	4095 HPS 35 WATT - 14 KWH/MO	RC100	42	14.07		$3.63				$3.63		0	0
88	5850 HPS 50 WATT - 20 KWH/MO	RC101	59	19.77		$3.63				$3.63		18	4,269
89	11700 HPS 100 WATT - 50 KWH/MO	RC102	148	49.58		$5.00				$5.00		51	30,343
90	17550 HPS 150 WATT - 70 KWH/MO	RC103	208	69.68		$5.88				$5.88		201	168,068
91	29250 HPS 250 WATT - 108 KWH/MO	RC104	322	107.87		$7.64				$7.64		252	326,199
92	46800 HPS 400 WATT - 166 KWH/MO	RC105	496	166.16		$8.05				$8.05		243	484,523
93	117000 HPS 1000 WATT - 390 KWH/M(	RC106	1164	389.94		$14.92				$14.92		6	28,076
94		**Mercury Vapor**											
95	8750 MV 175 WATT - 72 KWH/MO	RC110	216	72.36		$2.31				$2.31		51	44,284
96	12500 MV 250 WATT - 101 KWH/MO	RC111	301	100.84		$2.88				$2.88		201	243,214
97	20000 MV 400 WATT - 159 KWH/MO	RC112	474	158.79		$3.63				$3.63		252	480,181
98	50000 MV 1000 WATT - 380 KWH/MO	RC113	1135	380.23		$7.10				$7.10		243	1,108,736
99		**Metal Halide**											
100	15225 MH 175 WATT - 69 KWH/MO	RC114	205	68.68		$2.73				$2.73		0	0
101	21750 MH 250 WATT - 97 KWH/MO	RC115	290	97.15		$6.35				$6.35		37	43,406
102	34800 MH 400 WATT - 153 KWH/MO	RC116	458	153.43		$8.05				$8.05		85	157,485
103													
104		**LED**											
105	LED - 66	RC117	66	22.11	$17.560							5	22,814
106	LED - 60	RC126	60	20.10	$7.860					$0.00		13	3,136
107	LED - 66	RC130	66	22.11	$8.650					$0.00		2	531
108	LED - 126	RC160	126	42.21	$11.466					$0.00		5	2,533
109	LED - 189	RC170	189	63.32	$17.199					$0.00		3	2,279
110													
111		U20										4,773	6,710,431
112													

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 2 - LIGHTING SCHEDULE RATE DETAIL

Line No.		Rev Code	Watts/Hour	Monthly kWh per Unit	Company Owned Rate (Present Rate)	Customer Owned Rate (Present Rate)	Cost of Fuel	Ad Valorem	Transm. By Others	Co Own Unit Rate Per Month with Fuel, Ad Valorem, Transm	Cust Owned Unit Rate Per Month with Fuel, Ad Valorem, Transm	End of Year Number of Units	Annual kWh
								November 2022 RATE		$0.032830			
							$0.020290	$0.003410	$0.009130			2022	2022
113	**Rate U30 - Public Lighting - Unmetered**												
114		**HPS**											
115	4095 HPS 35 WATT - 14 KWH/MO	RM001	42	14.07	$4.000		$0.285480	$0.047979	$0.128459	$4.46192		0	0
116	5850 HPS 50 WATT - 20 KWH/MO	RM002	59	19.77	$4.150		$0.401032	$0.067399	$0.180454	$4.79888		0	0
117	11700 HPS 100 WATT - 50 KWH/MO	RM003	148	49.58	$7.430		$1.005978	$0.169068	$0.452665	$9.05771		0	0
118	17550 HPS 150 WATT - 70 KWH/MO	RM004	208	69.68	$7.750		$1.413807	$0.237609	$0.636178	$10.03759		4	5,370
119	29250 HPS 250 WATT - 108 KWH/MO	RM005	322	107.87	$10.960		$2.188682	$0.367837	$0.984853	$14.50137		2	2,706
120	46800 HPS 400 WATT - 166 KWH/MO	RM006	496	166.16	$12.940		$3.371386	$0.566606	$1.517041	$18.39503		1	2,087
121	117000 HPS 1000 WATT - 390 KWH/M(	RM007	1164	389.94	$27.070		$7.911883	$1.329695	$3.560152	$39.87173		0	0
122		**Mercury Vapor**											
123	8750 MV 175 WATT - 72 KWH/MO	RM010	216	72.36	$4.920		$1.468184	$0.246748	$0.660647	$7.29558		3	2,495
124	12500 MV 250 WATT - 101 KWH/MO	RM011	301	100.84	$6.240		$2.045942	$0.343847	$0.920624	$9.55041		0	0
125	20000 MV 400 WATT - 159 KWH/MO	RM012	474	158.79	$9.260		$3.221849	$0.541474	$1.449753	$14.47308		0	0
126	50000 MV 1000 WATT - 380 KWH/MO	RM013	1135	380.23	$17.560		$7.714765	$1.296567	$3.471454	$30.04279		0	0
127		**Metal Halide**											
128	15225 MH 175 WATT - 69 KWH/MO	RM014	205	68.68	$5.050		$1.393416	$0.234182	$0.627003	$7.30460		0	0
129	21750 MH 250 WATT - 97 KWH/MO	RM015	290	97.15	$6.430		$1.971174	$0.331282	$0.886980	$9.61943		4	4,271
130	34800 MH 400 WATT - 153 KWH/MO	RM016	458	153.43	$9.430		$3.113095	$0.523196	$1.400816	$14.46711		1	2,087
131		**LED**											
132	LED - 60	RM026	60	20.10	$8.880		$0.407829	$0.068541	$0.183513	$9.53988		3	380
133	LED - 73	RM035	73	24.46	$9.344		$0.496192	$0.083392	$0.223274	$10.14686		1	307
134													
135													
136													
137	**Rate U30 - Public Lighting - Metered**												
138		**HPS**											
139	4095 HPS 35 WATT - 14 KWH/MO	RM100	42	14.07		$3.63				$3.63		0	0
140	5850 HPS 50 WATT - 20 KWH/MO	RM101	59	19.77		$3.63				$3.63		0	0
141	11700 HPS 100 WATT - 50 KWH/MO	RM102	148	49.58		$5.00				$5.00		2	1,190
142	17550 HPS 150 WATT - 70 KWH/MO	RM103	208	69.68		$5.88				$5.88		2	1,672
143	29250 HPS 250 WATT - 108 KWH/MO	RM104	322	107.87		$7.64				$7.64		0	0
144	46800 HPS 400 WATT - 166 KWH/MO	RM105	496	166.16		$8.05				$8.05		0	0
145	117000 HPS 1000 WATT - 390 KWH/M(	RM106	1164	389.94		$14.92				$14.92		0	0
146		**Mercury Vapor**											
147	8750 MV 175 WATT - 72 KWH/MO	RM110	216	72.36		$2.31				$2.31		1	868
148	12500 MV 250 WATT - 101 KWH/MO	RM111	301	100.84		$2.88				$2.88		0	0
149	20000 MV 400 WATT - 159 KWH/MO	RM112	474	158.79		$3.63				$3.63		0	0
150	50000 MV 1000 WATT - 380 KWH/MO	RM113	1135	380.23		$7.10				$7.10		0	0
151		**Metal Halide**											
152	15225 MH 175 WATT - 69 KWH/MO	RM114	205	68.68		$2.73				$2.73		0	0
153	21750 MH 250 WATT - 97 KWH/MO	RM115	290	97.15		$6.35				$6.35		0	0
154	34800 MH 400 WATT - 153 KWH/MO	RM116	458	153.43		$8.05				$8.05		0	0
155		**LED**											
156	LED - 60	RM126	60	20.10	$7.860					$0.00		1	243
157													
158												25	23,676
159													

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 2 - LIGHTING SCHEDULE RATE DETAIL

Line No.		Rev Code	Watts/Hour	Monthly kWh per Unit	Company Owned Rate (Present Rate)	Customer Owned Rate (Present Rate)	Cost of Fuel	Ad Valorem	Transm. By Others	Co Own Unit Rate Per Month with Fuel, Ad Valorem, Transm	Cust Owned Unit Rate Per Month with Fuel, Ad Valorem, Transm	End of Year Number of Units	Annual kWh
								November 2022 RATE		$0.032830			
							$0.020290	$0.003410	$0.009130			2022	2022
160	**RATE 56 - COMPANY OR CUSTOMER OWNED HIGHWAY, STREET AND AREA LIGHTING SYSTEMS**												
161													
162	**Rate U30 - Metal Pole Mounting**												
163		**HPS**											
164	5850 HPS 50 WATT - 25 KWH/MO	SMM22	74	24.79		$0.73	$0.502989	$0.084534	$0.226333		$1.54386	4	2,486
165	11700 HPS With Pole 100 * WATT - 50 K	SMM01	148	49.58	$19.07		$1.005978	$0.169068	$0.452665	$20.69771		0	0
166	11700 HPS 100 WATT - 50 KWH/MO	SMM02	148	49.58		$1.48	$1.005978	$0.169068	$0.452665		$3.10771	9	5,548
167	17550 HPS With Pole 150 * WATT - 70 K	SMM03	208	69.68	$19.39		$1.413807	$0.237609	$0.636178	$21.67759		515	411,947
168	17550 HPS 150 WATT - 70 KWH/MO	SMM04	208	69.68		$2.08	$1.413807	$0.237609	$0.636178		$4.36759	92	80,496
169	29250 HPS With Pole 250 * WATT - 108	SMM05	322	107.87	$22.01		$2.188682	$0.367837	$0.984853	$25.55137		637	848,248
170	29250 HPS 250 WATT - 108 KWH/MO	SMM06	322	107.87		$3.19	$2.188682	$0.367837	$0.984853		$6.73137	17	19,098
171	46800 HPS With Pole 400 * WATT - 166	SMM07	496	166.16	$23.78		$3.371386	$0.566606	$1.517041	$29.23503		444	903,995
172	46800 HPS 400 WATT - 166 KWH/MO	SMM08	496	166.16		$4.76	$3.371386	$0.566606	$1.517041		$10.21503	562	1,163,436
173	117000 HPS With Pole 1000 * WATT - 3!	SMM09	1164	389.94	$37.74		$7.911883	$1.329695	$3.560152	$50.54173		0	0
174	117000 HPS 1000 WATT - 390 KWH/M(	SMM10	1164	389.94		$11.82	$7.911883	$1.329695	$3.560152		$24.62173	0	0
175		**Mercury Vapor**											
176	8750 MV With Pole 175 * WATT - 72 KW	SMM11	216	72.36	$11.98		$1.468184	$0.246748	$0.660647	$14.35558		0	0
177	8750 MV 175 WATT - 72 KWH/MO	SMM12	216	72.36		$2.14	$1.468184	$0.246748	$0.660647		$4.51558	0	0
178	12500 MV With Pole 250 * WATT - 101 K	SMM13	301	100.84	$16.34		$2.045942	$0.343847	$0.920624	$19.65041		29	34,404
179	12500 MV 250 WATT - 101 KWH/MO	SMM14	301	100.84		$2.76	$2.045942	$0.343847	$0.920624		$6.07041	0	0
180	20000 MV With Pole 400 * WATT - 159 K	SMM15	474	158.79	$18.92		$3.221849	$0.541474	$1.449753	$24.13308		7	12,661
181	20000 MV 400 WATT - 159 KWH/MO	SMM16	474	158.79		$4.84	$3.221849	$0.541474	$1.449753		$10.05308	0	0
182	50000 MV With Pole 1000 * WATT - 380	SMM17	1135	380.23	$28.99		$7.714765	$1.296567	$3.471454	$41.47279		0	0
183	50000 MV 1000 WATT - 380 KWH/MO	SMM18	1135	380.23		$8.80	$7.714765	$1.296567	$3.471454		$21.28279	0	0
184		**Metal Halide**											
185	21750 MH With Pole 175 * WATT - 69 K\	SMM19	290	68.68	$19.20	$0.00	$1.393416	$0.234182	$0.627003	$21.45460	$2.25460	1	1,353
186	20000 MH With Pole 250 * WATT - 97 K\	SMM20	458	97.15	$20.55	$3.52	$1.971174	$0.331282	$0.886980	$23.73943	$6.70943	6	12,203
187	8750 MH With Pole 400 * WATT - 153 K\	SMM21	205	153.43	$21.55	$4.48	$3.113095	$0.523196	$1.400816	$26.58711	$9.51711	0	0
188		**LED**											
189	LED - 42	SLM45	42	14.07	$22.54		$0.285480	$0.047979	$0.128459	$23.00192		1	132
190	LED - 51	SLM50	51	17.09	$21.62	$0.61	$0.346655	$0.058260	$0.155986	$22.18290	$1.17090	4	866
191	LED - 71	**SLM07**	71	23.79		$0.85	$0.482598	$0.081107	$0.217157		$1.63286	34	10,171
192	LED - 73	SLM53	73	24.46	$22.56		$0.496192	$0.083392	$0.223274	$23.36386		2	548
193	LED - 103	SLM55	103	34.51	$24.71	$1.24	$0.700106	$0.117662	$0.315031	$25.83780	$2.37280	20	8,477
194	LED - 108	**SLM11**	108	36.18		$1.30	$0.734092	$0.123374	$0.330323		$2.48379	8	2,679
195	LED - 126	SLM57	126	42.21	$27.58		$0.856441	$0.143936	$0.385377	$28.96575		7	640
196	LED - 155	**SLM15**	143	51.59		$1.85	$1.046761	$0.175922	$0.471017	$1.69370		242	156,588
197	LED - 189	SLM63	189	63.32	$35.46		$1.284661	$0.215904	$0.578066	$37.53363		40	20,139
198	LED - 200	**SLM20**	194	69.01		$2.47	$1.400213	$0.235324	$0.630061		$4.73560	0	0
199	LED - 268	**SLM22**	268	89.78		$3.22	$1.821636	$0.306150	$0.819691		$6.16348	2	2,263
200	LED - 278	SLM67	278	93.13	$38.84		$1.889608	$0.317573	$0.850277	$41.89946		9	10,570
201	LED - 309	SLM70	309	103.52	$41.91	$3.71	$2.100319	$0.352986	$0.945092	$45.30940	$7.10840	12	15,663
202	LED - 319	SLM75	319	106.87	$42.90		$2.168291	$0.364410	$0.975677	$46.40938		2	2,696
203													
204													
205													

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 2 - LIGHTING SCHEDULE RATE DETAIL

Line No.		Rev Code	Watts/Hour	Monthly kWh per Unit	Company Owned Rate (Present Rate)	Customer Owned Rate (Present Rate)	Cost of Fuel	Ad Valorem	Transm. By Others	Co Own Unit Rate Per Month with Fuel, Ad Valorem, Transm	Cust Owned Unit Rate Per Month with Fuel, Ad Valorem, Transm	End of Year Number of Units	Annual kWh
								November 2022 RATE		$0.032830			
							$0.020290	$0.003410	$0.009130			2022	2022
206	**Rate U30 - Wood Pole Mounting**												
207		**HPS**											
208	11700 HPS With Pole 100 * WATT - 50 K	SMW19	148	49.58	$11.03		$1.005978	$0.169068	$0.452665	$12.65771		286	144,235
209	11700 HPS 100 WATT - 50 KWH/MO	SMW20	148	49.58		$1.48	$1.005978	$0.169068	$0.452665		$3.10771	0	0
210	17550 HPS With Pole 150 * WATT - 70 K	SMW21	208	69.68	$11.34		$1.413807	$0.237609	$0.636178	$13.62759		1,848	1,575,797
211	17550 HPS 150 WATT - 70 KWH/MO	SMW22	208	69.68		$2.08	$1.413807	$0.237609	$0.636178		$4.36759	0	0
212	29250 HPS With Pole 250 * WATT - 108	SMW23	322	107.87	$15.18		$2.188682	$0.367837	$0.984853	$18.72137		494	659,966
213	29250 HPS 250 WATT - 108 KWH/MO	SMW24	322	107.87		$3.19	$2.188682	$0.367837	$0.984853		$6.73137	0	0
214	46800 HPS With Pole 400 * WATT - 166	SMW25	496	166.16	$16.96		$3.371386	$0.566606	$1.517041	$22.41503		44	83,303
215	46800 HPS 400 WATT - 166 KWH/MO	SMW26	496	166.16		$4.76	$3.371386	$0.566606	$1.517041		$10.21503	4	7,024
216	117000 HPS With Pole 1000 * WATT - 3!	SMW27	1164	389.94	$30.99		$7.911883	$1.329695	$3.560152	$43.79173		0	0
217	117000 HPS 1000 WATT - 390 KWH/M(	SMW28	1164	389.94		$11.82	$7.911883	$1.329695	$3.560152		$24.62173	0	0
218		**Mercury Vapor**											
219	8750 MV With Pole 175 * WATT - 72 KW	SMW29	216	72.36	$8.39		$1.468184	$0.246748	$0.660647	$10.76558		1,445	1,284,974
220	8750 MV 175 WATT - 72 KWH/MO	SMW30	216	72.36		$2.14	$1.468184	$0.246748	$0.660647		$4.51558	0	0
221	12500 MV With Pole 250 * WATT - 101 K	SMW31	301	100.84	$12.96		$2.045942	$0.343847	$0.920624	$16.27041		21	26,983
222	12500 MV 250 WATT - 101 KWH/MO	SMW32	301	100.84		$2.76	$2.045942	$0.343847	$0.920624		$6.07041	0	0
223	20000 MV With Pole 400 * WATT - 159 K	SMW33	474	158.79	$14.32		$3.221849	$0.541474	$1.449753	$19.53308		24	42,998
224	20000 MV 400 WATT - 159 KWH/MO	SMW34	474	158.79		$4.84	$3.221849	$0.541474	$1.449753		$10.05308	0	0
225	50000 MV With Pole 1000 * WATT - 380	SMW35	1135	380.23	$20.43		$7.714765	$1.296567	$3.471454	$32.91279		0	0
226	50000 MV 1000 WATT - 380 KWH/MO	SMW36	1135	380.23		$8.80	$7.714765	$1.296567	$3.471454	$21.28279		0	0
227		**Metal Halide**											
228	21750 MH With Pole 250 * WATT - 97 K\	SMW37	290	97.15	$15.51	$3.52	$1.971174	$0.331282	$0.886980	$18.69943	$6.70943	0	558
229	20000 MH With Pole 400 * WATT - 153 K	SMW38	458	153.43	$17.36	$4.48	$3.113095	$0.523196	$1.400816	$22.39711	$9.51711	9	15,802
230		**LED**											
231	LED - 42	SLW45	42	14.07	$14.50		$0.285480	$0.047979	$0.128459	$14.96192		1	80
232	LED - 51	SLW50	51	17.09	$13.58	$0.61	$0.346655	$0.058260	$0.155986	$14.14290	$1.17090	8	1,143
233	LED - 60	SLW51	60	20.10	$15.31		$0.407829	$0.068541	$0.183513	$15.96988		63	2,966
234	LED - 73	SLW53	73	24.46	$14.52		$0.496192	$0.083392	$0.223274	$15.32386		12	3,010
235	LED - 126	SLW57	126	42.21	$19.54		$0.856441	$0.143936	$0.385377	$20.92575		4	919
236	LED - 154	**SLW15**	154	51.59		$1.85	$1.046761	$0.175922	$0.471017		$3.54370	13	8,457
237	LED - 189	SLW63	189	63.32	$27.42		$1.284661	$0.215904	$0.578066	$29.49363		1	228
238													
239		SLW63 is not in U30											
240													
241	**Rate U30 - Distribution Pole Mounting**												
242	11700 HPS With Pole 100 * WATT - 50 K	SMD37	148	49.58	$4.22		$1.005978	$0.169068	$0.452665	$5.84771		136	75,480
243	11700 HPS 100 WATT - 50 KWH/MO	SMD38	148	49.58		$1.48	$1.005978	$0.169068	$0.452665		$3.10771	40	24,864
244	17550 HPS With Pole 150 * WATT - 70 K	SMD39	208	69.68	$7.53		$1.413807	$0.237609	$0.636178	$9.81759		1,501	1,299,120
245	17550 HPS 150 WATT - 70 KWH/MO	SMD40	208	69.68		$2.08	$1.413807	$0.237609	$0.636178		$4.36759	13	11,309
246	29250 HPS With Pole 250 * WATT - 108	SMD41	322	107.87	$10.66		$2.188682	$0.367837	$0.984853	$14.20137		261	348,657
247	29250 HPS 250 WATT - 108 KWH/MO	SMD42	322	107.87		$3.19	$2.188682	$0.367837	$0.984853		$6.73137	116	163,451
248	46800 HPS With Pole 400 * WATT - 166	SMD43	496	166.16	$12.58		$3.371386	$0.566606	$1.517041	$18.03503		32	68,774
249	46800 HPS 400 WATT - 166 KWH/MO	SMD44	496	166.16		$4.76	$3.371386	$0.566606	$1.517041		$10.21503	209	428,488
250	117000 HPS With Pole 1000 * WATT - 3!	SMD45	1164	389.94	$26.32		$7.911883	$1.329695	$3.560152	$39.12173		0	0
251	117000 HPS 1000 WATT - 390 KWH/M(	SMD46	1164	389.94		$11.82	$7.911883	$1.329695	$3.560152		$24.62173	0	0
252													
253	8750 MV With Pole 175 * WATT - 72 KW	SMD47	216	72.36	$4.79		$1.468184	$0.246748	$0.660647	$7.16558		1,942	1,749,803
254	8750 MV 175 WATT - 72 KWH/MO	SMD48	216	72.36		$2.14	$1.468184	$0.246748	$0.660647		$4.51558	14	12,823
255	12500 MV With Pole 250 * WATT - 101 K	SMD49	301	100.84	$6.06		$2.045942	$0.343847	$0.920624	$9.37041		26	30,620
256	12500 MV 250 WATT - 101 KWH/MO	SMD50	301	100.84		$2.76	$2.045942	$0.343847	$0.920624		$6.07041	0	0
257	20000 MV With Pole 400 * WATT - 159 K	SMD51	474	158.79	$9.01		$3.221849	$0.541474	$1.449753	$14.22308		16	27,839
258	20000 MV 400 WATT - 159 KWH/MO	SMD52	474	158.79		$4.84	$3.221849	$0.541474	$1.449753		$10.05308	5	9,224
259	50000 MV With Pole 1000 * WATT - 380	SMD53	1135	380.23	$17.07		$7.714765	$1.296567	$3.471454	$29.55279		0	0
260	50000 MV 1000 WATT - 380 KWH/MO	SMD54	1135	380.23		$8.80	$7.714765	$1.296567	$3.471454		$21.28279	0	0
261													
262	21750 MH With Pole 250 * WATT - 97 K\	SMD55	290	97.15	$10.99		$1.971174	$0.331282	$0.886980	$14.17943		2	2,706
263	21750 MH 250 WATT - 97 KWH/MO	SMD56	290	97.15		$3.52	$1.971174	$0.331282	$0.886980		$6.70943	0	0
264	34800 MH With Pole 400 * WATT - 153 K	SMD57	458	153.43	$12.98		$3.113095	$0.523196	$1.400816	$18.01711		2	3,946
265	34800 MH 400 WATT - 153 KWH/MO	SMD58	458	153.43		$4.48	$3.113095	$0.523196	$1.400816		$9.51711	0	0
266													
267	LED - 42	SLD45	42	14.07	$10.71		$0.285480	$0.047979	$0.128459	$11.17192		1	100
268	LED - 60	SLD51	60	20.10	$11.52	$0.61	$0.407829	$0.068541	$0.183513	$12.17988	$1.26988	43	2,149
269	LED - 73	SLD53	73	24.46	$10.73		$0.496192	$0.083392	$0.223274	$11.53386		6	1,281
270	LED - 126	SLD57	126	42.21	$15.75		$0.856441	$0.143936	$0.385377	$17.13575		4	332
271	LED - 189	SLD63	189	63.32	$23.63		$1.284661	$0.215904	$0.578066	$25.70363		3	875
272													
273		U30										11,380	11,871,266
274													
275													
276	**NOTES:**												
277	1. Source file: light2211 rates.xlsx												
278													
279													
280													

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 3 - COMPANY BURNING HOURS

	Daily	Monthly
JANUARY	13.9	430.9
FEBRUARY	12.8	358.4
MARCH	11.3	350.3
APRIL	9.7	291.0
MAY	8.4	260.4
JUNE	7.7	231.0
JULY	8.1	251.1
AUGUST	9.2	285.2
SEPTEMBER	10.7	321.0
OCTOBER	13.3	412.3
NOVEMBER	13.6	408.0
DECEMBER	14.3	443.3
ANNUAL		4,042.9
MONTHLY AVERAGE		336.9

NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 4 - NET OPERATING EXPENSE FUNCTIONAL DETAIL

	A	B	C	D	E	F	G	H	I	J	K	L	M
Line No.	**RATE 19**	**METERED OPERATING EXPENSE(1) (Col E- Col N)**	**NET ADJ OPERATING EXPENSE (Col E- Col N)**	**Operating Expenses Reddy-Guard**	**Total Expenses (Col H to Col M)**	**Operation O&M Exp**	**Maintenance O&M Exp**	**O&M Exp**	**Depreciation Expense**	**Regulatory Credits**	**TOIT**	**Income Taxes**	**Adjust to Taxes**
1	**Reddy-Guard A&G**												
2	**PRODUCTION**												
3	PRODUCTION EXPENSE	$0	$187,765										
4	BASE FUEL		$153,621	Fuel	$153,621	$153,621	$0	**$153,621**	**$0**	**$0**	**$0**	**$0**	**$0**
5	= BASE		$34,143	Production Base + Energy	$35,472	$9,457	$9,457	**$18,913**	**$21,259**	**$0**	**$327**	**$0**	**($5,028)**
6													
7													
8	**TRANSMISSION**												
9	TRANSMISSION		$3,349	Transmission	$10,101	$1,878	$1,878	**$3,756**	**$7,470**	**$0**	**$170**	**$0**	**($1,295)**
10	EXTERNAL TRANSMISSION		$70,002	External Transmission	$70,002	$70,002	$0	**$70,002**	**$0**	**$0**	**$0**	**$0**	**$0**
11													
12	**DISTRIBUTION**												
13	PRIMARY SUBSTATIONS		$9,276	Distribution Substations	$9,391	$4,786	$39	**$4,826**	**$5,698**	**$0**	**$273**	**$0**	**($1,405)**
14													
15	PRIMARY LINES		$30,195	Distribution Primary	$30,795	$4,900	$9,954	**$14,854**	**$18,786**	**$0**	**$677**	**$0**	**($3,522)**
16													
17	SECONDARY LINES		$16,421	Distribution Secondary	$16,738	$2,655	$5,394	**$8,049**	**$10,270**	**$0**	**$373**	**$0**	**($1,954)**
18													
19	LINE TRANSFORMERS		$5,052	Distribution - Transformers	$5,140	$536	$1,089	**$1,626**	**$4,375**	**$0**	**$154**	**$0**	**($1,015)**
20													
21	SERVICES		$0	Services	$0	$0	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
22													
23	METERS		$0	Meters	$0	$0	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
24													
25	**LIGHTING**												
26	REDDY-GUARD	$215,352	$215,352	Reddy Guard	$216,229	$23,786	$85,552	**$109,339**	**$120,946**	**$0**	**$4,805**	**$0**	**($18,861)**
27	HIGHWAY, STREET, & AREA		$0	Highway, Street, & Area Ltg	$0								
28	TOTAL LIGHTING	$0	$215,352	Total Street Lighting	$216,229	$23,786	$85,552	**$109,339**					
29													
30	TOTAL DIST OPERATING EXP EXPENSE	$215,352	$276,296		$278,292								
31	TOT DIST EXCL SERV, METERS, & LTG	$0	$60,943		$62,063								
32													
33													
34	**CUSTOMER DISTRIBUTION**												
35	CUSTOMER METER READING		$0	Customer Meter Reading	$0	$0	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
36	CUSTOMER RECORDS		$20,692	Customer Records	$20,797	$0	$0	**$19,352**	**$2,539**	**$0**	**$374**	**$0**	**($1,468)**
37	CUSTOMER SERVICE & INFO		$71,488	Customer Other	$71,840	$6,822	$0	**$59,559**	**$15,589**	**$0**	**$2,170**	**$0**	**($5,478)**
38	TOTAL CUSTOMER DISTRIBUTION		$92,179										
39	TOTAL CUST DIST EXCL MET READING		$92,179										
40				Ad Valorem	$18,136			**$0**	**$0**	**($80)**	**$18,215**	**$0**	**$0**
41	**TOTAL OPER EXP EXPENSE (2)**	$215,352	$629,590	Total Operating Expenses	**$658,260**	$278,445	$113,363	$463,897	$206,931	($80)	$27,538	$0	($40,027)
42	**TOTAL NOE EXCL AD VALOREM (COS Ck)**		$640,124	Total Oper Exp Excl Ad Valor	$640,124								
43					**$658,260** ck								
44	**TOTAL ADJ EXP EXCL BASE FUEL & EXT TRANSM**	$215,352	$405,967		$504,639								
45													
46	**TOTAL ADJ EXP EXCL FUEL, EXT TRANSM,**	$215,352	$313,788		$323,865								
47	**SERVICES, METERS, & CUSTOMER DIST**												
48													
49													
50													
51													
52													
53													
54													

55 Notes:
56 (1) Customer Owned Operating Expenses exclude O&M Maintenance and Depreciation Expense
57 (2) Total Operating Expense excludes Ad Valorem
58 (3) Net Operating Expense (NOE) equals Total Operating Expenses less Other Operating Revenue and Wholesale Sales Revenue
59 (4) Source for Operating Expense data is file TY2014 NWE SD Elec Embedded ACOS Rev @ 05-31-23.xls, sheets "ByClass" and "ByFunction"
60
61
62
63
64

NWE SD LIGHTING CO
TABLE WP 4 - NET OPERATING

Line No.	A RATE 19	N Total Other Revenues (Col O + Col P)	O Other Operating Revenues	P Wholesale Revenues
1	**Reddy-Guard A&G**			
2	**PRODUCTION**			
3	PRODUCTION EXPENSE			
4	BASE FUEL	$0	**$0**	**$0**
5	= BASE	$1,328	**$1,328**	**$0**
6				
7				
8	**TRANSMISSION**			
9	TRANSMISSION	$6,752	**$6,752**	**$0**
10	EXTERNAL TRANSMISSION	$0	**$0**	**$0**
11				
12	**DISTRIBUTION**			
13	PRIMARY SUBSTATIONS	$115	**$115**	**$0**
14				
15	PRIMARY LINES	$600	**$600**	**$0**
16				
17	SECONDARY LINES	$317	**$317**	**$0**
18				
19	LINE TRANSFORMERS	$88	**$88**	**$0**
20				
21	SERVICES	$0	**$0**	**$0**
22				
23	METERS	$0	**$0**	**$0**
24				
25	**LIGHTING**			
26	REDDY-GUARD	$877	**$877**	**$0**
27	HIGHWAY, STREET, & AREA			
28	TOTAL LIGHTING			
29				
30	TOTAL DIST OPERATING EXP EXPENSE			
31	TOT DIST EXCL SERV, METERS, & LTG			
32				
33				
34	**CUSTOMER DISTRIBUTION**			
35	CUSTOMER METER READING	$0	**$0**	**$0**
36	CUSTOMER RECORDS	$105	**$105**	**$0**
37	CUSTOMER SERVICE & INFO	$352	**$352**	**$0**
38	TOTAL CUSTOMER DISTRIBUTION			
39	TOTAL CUST DIST EXCL MET READING			
40		$0	**$0**	**$0**
41	**TOTAL OPER EXP EXPENSE (2)**	$10,534	$10,534	$0
42	**TOTAL NOE EXCL AD VALOREM (COS Ck)**	$0	$0	$0
43				
44	**TOTAL ADJ EXP EXCL BASE FUEL & EXT TRANSM**			
45				
46	**TOTAL ADJ EXP EXCL FUEL, EXT TRANSM,**			
47	**SERVICES, METERS, & CUSTOMER DIST**			
48				
49				
50				
51				
52				
53				
54				

55 Notes:
56 (1) Customer Owned Operating Expenses exclude O&M Maintenance
57 (2) Total Operating Expense excludes Ad Valorem
58 (3) Net Operating Expense (NOE) equals Total Operating Expenses le
59 (4) Source for Operating Expense data is file TY2014 NWE SD Elec E
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NWE SD LIGHTING COST ANALYSIS - 12/31/22
TABLE WP 4 - NET OPERATING EXPENSE FUNCTIONAL DETAIL

	A	B	C	D	E	F	G	H	I	J	K	L	M
Line No.	**RATE 56**	**NET CUST OWN OPERATING EXPENSE(1) (Col E- Col N)**	**NET OPERATING EXPENSE (Col E- Col N)**	**Operating Expenses Highway, Street, & Area Lighting**	**Total Expenses (Col H to Col M)**	**Operation O&M Exp**	**Maintenance O&M Exp**	**O&M Exp**	**Depreciation Expense**	**Regulatory Credits**	**TOIT**	**Income Taxes**	**Adjust to Taxes**
1	**Highway, Street, & Area Lighting A&G**												
2	**PRODUCTION**												
3	PRODUCTION EXPENSE	$445,307	$445,307										
4	BASE FUEL	$359,275	$359,275	Fuel	$359,275	$359,275	$0	**$359,275**	**$0**	**$0**	**$0**	**$0**	**$0**
5	= BASE	$86,031	$86,031	Production Base + Energy	$89,377	$23,827	$23,827	**$47,654**	**$53,566**	**$0**	**$810**	**$0**	**($12,652)**
6													
7													
8	**TRANSMISSION**												
9	TRANSMISSION	$8,438	$8,438	Transmission	$25,450	$4,732	$4,732	**$9,463**	**$18,822**	**$0**	**$428**	**$0**	**($3,263)**
10	EXTERNAL TRANSMISSION	$164,796	$164,796	External Transmission	$164,796	$164,796	$0	**$164,796**	**$0**	**$0**	**$0**	**$0**	**$0**
11													
12	**DISTRIBUTION**												
13	PRIMARY SUBSTATIONS	$21,837	$21,837	Distribution Substations	$22,108	$11,268	$93	**$11,361**	**$13,413**	**$0**	**$643**	**$0**	**($3,308)**
14													
15	PRIMARY LINES	$71,083	$71,083	Distribution Primary	$72,495	$11,536	$23,433	**$34,970**	**$44,224**	**$0**	**$1,593**	**$0**	**($8,292)**
16													
17	SECONDARY LINES	$38,657	$38,657	Distribution Secondary	$39,403	$6,251	$12,697	**$18,948**	**$24,177**	**$0**	**$878**	**$0**	**($4,601)**
18													
19	LINE TRANSFORMERS	$11,893	$11,893	Distribution - Transformers	$12,100	$1,262	$2,564	**$3,827**	**$10,298**	**$0**	**$364**	**$0**	**($2,389)**
20													
21	SERVICES	$0	$0	Services	$0	$0	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
22													
23	METERS	$0	$0	Meters	$0	$0	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
24													
25	**LIGHTING**												
26	REDDY-GUARD		$0	Reddy Guard	$0								
27	HIGHWAY, STREET, & AREA		$1,288,503	Highway, Street, & Area Ltg	$1,293,749	$142,320	$511,879	**$654,199**	**$723,650**	**$0**	**$28,750**	**$0**	**($112,850)**
28	TOTAL LIGHTING	$0	$1,288,503	Total Street Lighting	$1,293,749	$142,320	$511,879	$654,199					
29													
30	TOTAL DIST OPERATING EXP EXPENSE	$143,470	$1,431,973		$1,439,855								
31	TOT DIST EXCL SERV, METERS, & LTG	$143,470	$143,470		$146,106								
32													
33													
34	**CUSTOMER DISTRIBUTION**												
35	CUSTOMER METER READING	$0	$0	Customer Meter Reading	$0	$0	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
36	CUSTOMER RECORDS	$3,484	$3,484	Customer Records	$3,502	$0	$0	**$3,259**	**$427**	**$0**	**$63**	**$0**	**($247)**
37	CUSTOMER SERVICE & INFO	$12,181	$12,181	Customer Other	$12,241	$1,163	$0	**$10,149**	**$2,656**	**$0**	**$370**	**$0**	**($933)**
38	TOTAL CUSTOMER DISTRIBUTION	$15,666	$15,666										
39	TOTAL CUST DIST EXCL MET READING	$15,666	$15,666										
40				Ad Valorem	$42,694			**$0**	**$0**	**($188)**	**$42,882**	**$0**	**$0**
41	**TOTAL OPER EXP EXPENSE (2)**	$777,675	$2,066,179	Total Operating Expenses	**$2,137,191**	$726,429	$579,225	$1,317,899	$891,235	($188)	$76,780	$0	($148,535)
42	**TOTAL NOE EXCL AD VALOREM (COS Ck)**		$2,094,497	Total Oper Exp Excl Ad Valor	$2,094,497								
43					**$2,137,191** ck								
44	**TOTAL OPER EXP EXCL BASE FUEL & EXT TRANS**	$253,605	$1,542,108		$1,777,916								
45													
46	**TOTAL OPER EXP EXCL FUEL, EXT TRANSM,**		$1,526,442		$1,554,683								
47	**SERVICES, METERS, & CUSTOMER DIST**												
48					$2,795,451								
49													
50													
51													
52													
53													
54													
55	Notes:												
56	(1) Net Customer Owned Operating Expenses exclude Lighting Expenses												
57	(2) Total Operating Expense excludes Ad Valorem												
58	(3) Net Operating Expense (NOE) equals Total Operating Expenses less Other Operating Revenue and Wholesale Sales Revenue												
59	(4) Source for Operating Expense data is file TY2014 NWE SD Elec Embedded ACOS Rev @ 05-31-23.xls, sheets "ByClass" and "ByFunction"												
60													
61													
62													
63													
64													
65													

NWE SD LIGHTING CO
TABLE WP 4 - NET OPERATING

Line No.	A RATE 56	N Total Other Revenues	O Other Operating Revenues	P Wholesale Revenues
1	**Highway, Street, & Area Lighting A&G**	**(Col O + Col P)**		
2	**PRODUCTION**			
3	PRODUCTION EXPENSE			
4	BASE FUEL	$0	**$0**	**$0**
5	= BASE	$3,346	**$3,346**	**$0**
6				
7				
8	**TRANSMISSION**			
9	TRANSMISSION	$17,013	**$17,013**	**$0**
10	EXTERNAL TRANSMISSION	$0	**$0**	**$0**
11				
12	**DISTRIBUTION**			
13	PRIMARY SUBSTATIONS	$270	**$270**	**$0**
14				
15	PRIMARY LINES	$1,412	**$1,412**	**$0**
16				
17	SECONDARY LINES	$746	**$746**	**$0**
18				
19	LINE TRANSFORMERS	$208	**$208**	**$0**
20				
21	SERVICES	$0	**$0**	**$0**
22				
23	METERS	$0	**$0**	**$0**
24				
25	**LIGHTING**			
26	REDDY-GUARD			
27	HIGHWAY, STREET, & AREA	$5,245	**$5,245**	**$0**
28	TOTAL LIGHTING			
29				
30	TOTAL DIST OPERATING EXP EXPENSE			
31	TOT DIST EXCL SERV, METERS, & LTG			
32				
33				
34	**CUSTOMER DISTRIBUTION**			
35	CUSTOMER METER READING	$0	**$0**	**$0**
36	CUSTOMER RECORDS	$18	**$18**	**$0**
37	CUSTOMER SERVICE & INFO	$60	**$60**	**$0**
38	TOTAL CUSTOMER DISTRIBUTION			
39	TOTAL CUST DIST EXCL MET READING			
40		$0	**$0**	**$0**
41	**TOTAL OPER EXP EXPENSE (2)**	$28,318	$28,318	$0
42	**TOTAL NOE EXCL AD VALOREM (COS Ck)**	$0	$0	$0
43				
44	**TOTAL OPER EXP EXCL BASE FUEL & EXT TRANS**			
45				
46	**TOTAL OPER EXP EXCL FUEL, EXT TRANSM,**			
47	**SERVICES, METERS, & CUSTOMER DIST**			
48				
49				
50				
51				
52				
53				
54				
55	Notes:			
56	(1) Net Customer Owned Operating Expenses exclude Lighting Expen			
57	(2) Total Operating Expense excludes Ad Valorem			
58	(3) Net Operating Expense (NOE) equals Total Operating Expenses le			
59	(4) Source for Operating Expense data is file TY2014 NWE SD Elec E			
60				
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NorthWestern Corporation, dba NorthWestern Energy
Class Cost of Service Study
Income Statement-Present Rates
South Dakato Electric
Test Year Ended December31, 2022
Rate 34 - Large Commercial & Industrial Standby Rate

Line	**Rev Req $ Equal Claimed ROR**	**Total Rate 34 Revenue** (a)	**Production** (b)	**Transmission** (c)	**Distribution** (d)	**Standby Charge Revenues** (e)	
2	Percentage applied to function		10.00%	10.00%	25.00%		
3							
4	Production	31,948,099	3,194,810			3,194,810	
5	Transmission	8,472,183		847,218		847,218	
6	Distribution Substations	2,392,285			598,071	598,071	
7	Distribution Primary	5,978,876			1,494,719	1,494,719	
8	Distribution Secondary	0					
9	Distribution - Transformers (secondary)	1,731,361					
10	Services	658,628					
11	Meters	127,659					
12	Customer Meter Reading	10,785					
13	Customer Records	13,447					
14	Customer Other	756,965					
15	Street Lighting	0					
16	Energy Related	261,980					
17	Fuel	0					
18	External Transmission	0					
19	Ad Valorem	0					
20	Total Rev Claimed ROR	52,352,269	3,194,810	847,218	2,092,790	6,134,818	
21							
22	12 CP Rate 34					1,460,016	
23	Monthly kW Charge (based on 12CP)		$2.19	$0.58	$1.43	$4.20	kW
24							
25	12 NCP Rate 34					1,519,200	
26	Monthly kW Charge (based on NCP)		$2.10	$0.56	$1.38	$4.04	kW
27							
28	Billing Demands Rate 34					1,894,141	
29	Monthly kW Charge (based on billing demands)		$1.69	$0.45	$1.10	$3.24	kW
30							
31	All calculations are based on billing demand units						
32							
33	Transmission Rate		$1.69	$0.45		$2.13	kW
34							
35	Distribution Primary Rate		$1.69	$0.45	$0.32	$2.45	kW

40 Notes:
41 Source data is file "TY2022 Adjusted NWE SD Elec Embedded ACOS Rev Adjusted @ 5-31-23.xls", sheet Income Taxes Equal ROR
42 Line 2 uses estimated forced outage rate of 10% for Production and Transmission.