Montana Public Service Commission
Docket No. 2024.05.053
Electric and Natural Gas Rate Review

DIRECT TESTIMONY- RATE DESIGN POLICY

OF CYNTHIA S. FANG

ON BEHALF OF NORTHWESTERN ENERGY

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Exhibits

Witness Information

Q. Please provide your name, employer, and title.

A. My name is Cynthia (Cyndee) S. Fang. I am NorthWestern Corporation d/b/a NorthWestern Energy's ("NorthWestern") Vice President of Regulatory.

Q. Please provide a description of your relevant employment experience and other professional qualifications.

A. As Vice President of Regulatory for NorthWestern, my primary responsibility is to oversee NorthWestern's regulatory affairs before its state regulatory commissions including the Montana Public Service Commission ("Commission"). Prior to joining NorthWestern in 2021, I held various leadership roles at San Diego Gas & Electric ("SDG&E") including Manager of Customer Pricing, overseeing rate strategy; Manager of Energy Research & Analysis, overseeing electric load forecasting, research and analysis; and Origination and Portfolio Design Manager, leading electric procurement efforts. Before SDG&E, I was a Public Utilities Rates Analyst with the Energy Division of the Minnesota Department of Commerce. I hold a Bachelor of Science degree in Political Economics of Natural Resources and have completed all the coursework for a Ph.D. in Economics.

Purpose of Testimony

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to:

- describe NorthWestern's ratemaking process,
- describe NorthWestern's rate design principles,
- present NorthWestern's moderation proposals for allocated cost of service ("ACOS") for base revenues between electric and natural gas customer classes,
- present NorthWestern's moderation proposals for the allocation of property tax revenues between electric and natural gas customer classes,
- present NorthWestern's moderation proposals for rate design for electric and natural gas service customers,
- discuss customer rate design potential with Advanced Metering Infrastructure ("AMI"), and
- discuss NorthWestern's need for a standby charge.

Ratemaking Process

Q. What are base rates?

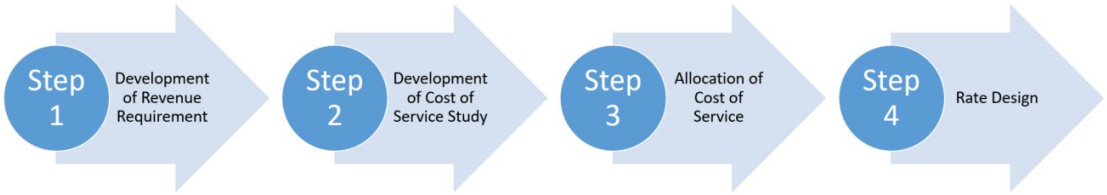
A. NorthWestern's electric base rates are designed to collect the operational costs to provide service to its customers as reflected in the electric base revenue requirements presented by the Direct Testimony of Elaine A. Rich.

The same design applies to natural gas base rates. For electric, this includes Transmission and Distribution (collectively "Delivery Services") and the fixed cost of owned Generation ("Generation Services") revenue requirements, which together comprise the electric base revenue requirements. For natural gas, base revenue requirements include Transmission, Distribution, and Storage, as well as Generation Services in the form of fixed costs of Natural Gas Production. These base revenue requirements, presented by Ms. Rich, provide the basis for NorthWestern's allocated cost of service studies, customer class revenue moderation, and rate design proposals.

Q. Please describe how the base revenue requirements, allocated cost of service studies, and base rate design proposals in this filing are related.

A. At a high level, NorthWestern incorporates four specific ratemaking steps in this filing, all of which are regular components of general rate filings. These steps are the same whether applied to electric or natural gas services.

Figure 1: Ratemaking Process



<u>Step 1: Development of Base Revenue Requirement</u> – This step determines the test year base revenue requirement based on operating expenses, taxes,

depreciation expense, and return on rate base. As described in detail by other NorthWestern witnesses, actual 2023 test year information is normalized and/or adjusted for known and measurable changes occurring through the 12 months ending December 31, 2024. This base revenue requirement represents the plant in-service and the operational costs NorthWestern incurred to provide customers energy services in 2023 with adjustments for known and measurable 2024 costs.

Step 2: Development of Cost of Service Studies – The cost of service studies provide the foundation to assign cost responsibility to customer groups and to functionalize costs of service for rate design purposes discussed further below. The Commission's administrative rules require both Embedded Cost of Service ("ECOS") and Marginal Cost of Service ("MCOS") studies (*see* ARM 38.5.176). For electric, NorthWestern presents both cost of service study methodologies in this filing – MCOS and ECOS studies. For natural gas, NorthWestern presents only ECOS.[1] ECOS studies focus on the assignment of historical accounting costs associated with investments that are currently serving customers, while MCOS studies provide a more forward look by reflecting the incremental costs of serving additional load or customers. Consistent with prior practice, NorthWestern will be using the ECOS as the basis for its proposal to allocate cost of service to its customers. In this case, NorthWestern presents both cost studies, MCOS and ECOS for

[1] On June 25, 2024, the Commission granted a waiver of the administrative rule requiring NorthWestern to prepare and file an MCOS for natural gas in this docket. *See* Doc. 4.

electric and ECOS for natural gas, and the resulting guidance for allocation in the Direct Testimony of Glenda J. Gibson.

Step 3: Allocation of Cost of Service – This step utilizes the cost of service studies to provide the cost basis for the allocation of costs of providing utility services that make up the base revenue requirements to the various customer classes (e.g., residential and non-residential) based on their use of the utility systems.

Step 4: Rate Design – This final step takes the class-assigned revenues and establishes the individual rates that are ultimately used to bill customers. NorthWestern rates are designed to collect the moderated revenues from customers on a class-by-class basis. Well-designed rates will perform two functions: (1) recover authorized costs, and (2) provide price incentives to incent economically efficient behavior. The development of a cost-based rate is discussed further below.

Q. Do customers pay other for other costs in addition to what's included in base rates?

A. Yes. In addition to the costs of utility services recovered through base rates, customer's bills include the recovery of flow-through costs, such as those related to market energy costs and property taxes. These flow-through costs make up approximately 40% of a typical residential customer's monthly bill,

42% for electric service and 37% for natural gas service based on current effective rates.[2] Ms. Gibson presents the updated flow-through rates for the Power Costs and Credits Adjustment Mechanism ("PCCAM") and discusses property taxes. The Direct Testimony of Charles R. Lane presents NorthWestern's proposed base rates and proposed total rates, which reflect updated base rates and flow-through rates.

Q. Does NorthWestern intend to implement the requested base rates nine months after the filing of this docket as provided for under § 69-3-302(2), MCA?

A. Yes, NorthWestern proposes to implement its proposed base rates effective April 10, 2025, nine months from today's filing date of July 10, 2024.[3]

Q. Is that when total rates, including flow-through rates, would be effective?

A. No. NorthWestern proposes to implement flow-through and interim rates as follows:

- NorthWestern proposes interim electric and natural gas base rates effective October 1, 2024,[4]

[2] Includes base and flow-through rates in effective on July 1, 2024.
[3] *See* § 69-3-302(2), MCA.
[4] *See also* NorthWestern's Application for Interim Rate Increases and Bridge Rate, filed concurrently with this Rate Review Application.

- NorthWestern proposes to implement PCCAM Base rates effective with interim rates on October 1, 2024, to reflect the updated PCCAM base for the PCCAM period beginning July 1, 2024,
- NorthWestern proposes the requested bridge rate to address cost recovery gaps for Yellowstone County Generating Station to be effective October 1 with interim rates, and
- NorthWestern will implement interim electric and natural gas property tax rates effective January 1, 2025, as part of its 2025 annual property tax tracker filing.

Figure 2: Timeline for Proposed Rate Implementation - Electric

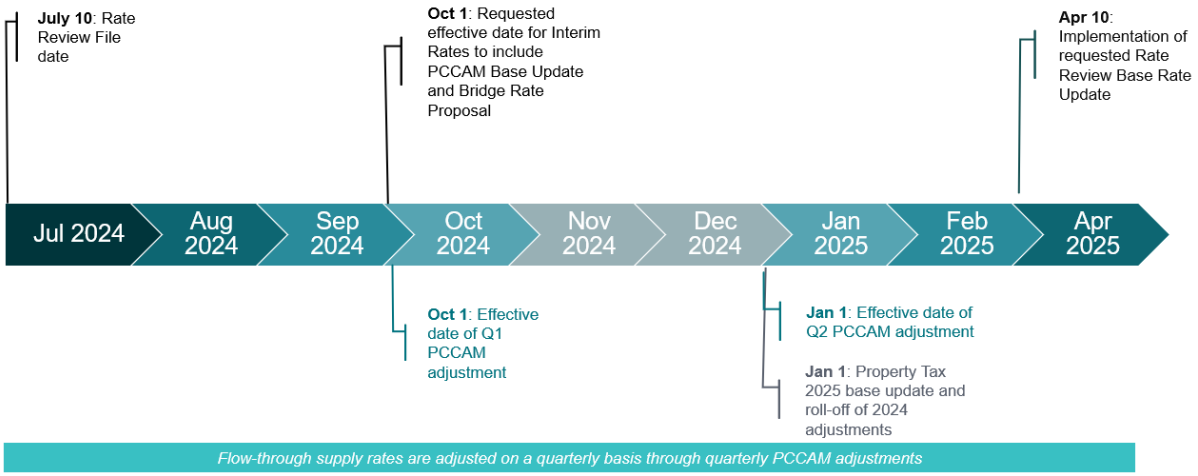
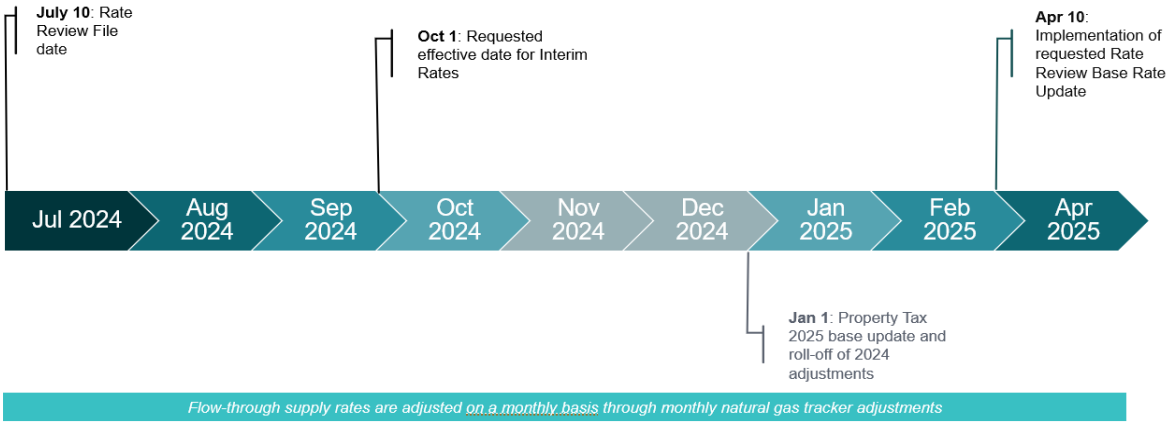


Figure 3: Timeline for Proposed Rate Implementation – Natural Gas



NorthWestern's Rate Design Principles

Q. What are NorthWestern's Rate Design Principles?

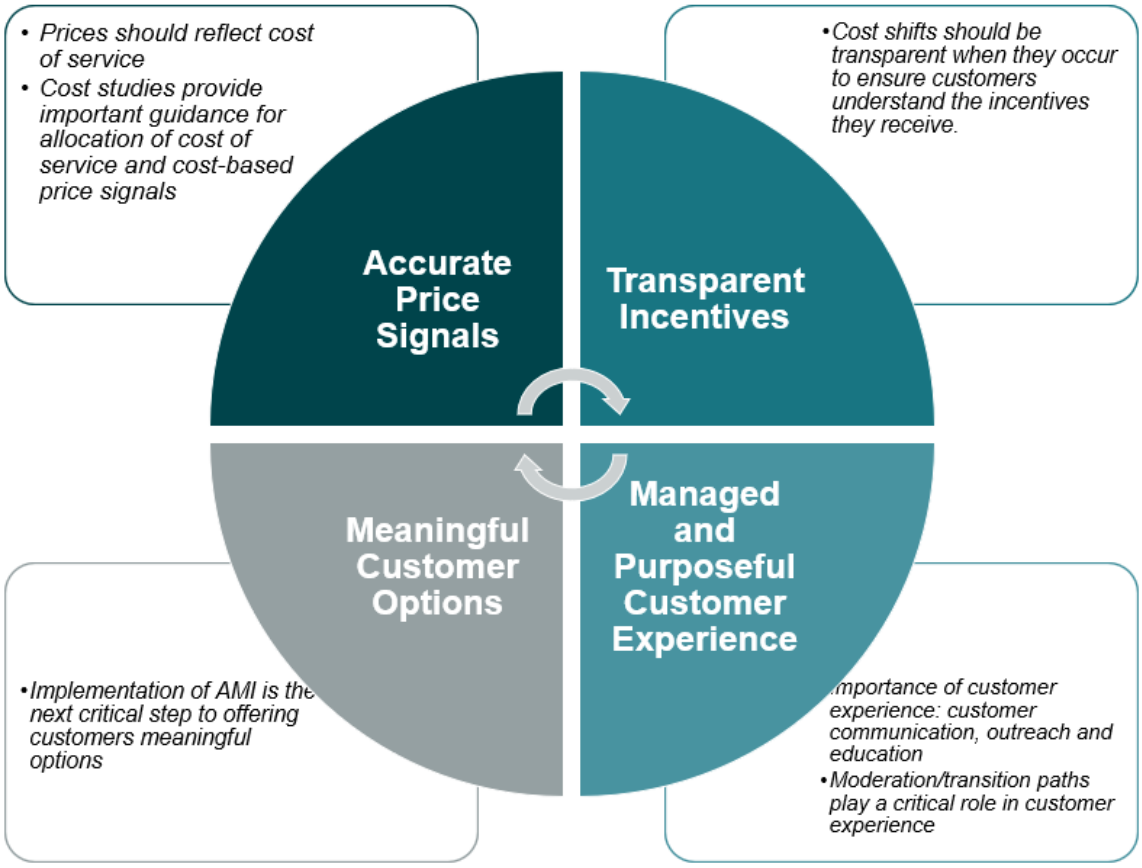
A. NorthWestern has developed the following Rate Design Principles to help guide the allocation of cost of service and rate design for its customers:

- **Accurate Price Signals:** Allocated cost of service and rate design should begin with a foundation based on the cost to provide energy services to customers. When customers pay their cost of service, there are no cost shifts, resulting in greater fairness and equity across customer groups.
- **Transparent Incentives:** Allocated cost of service or rate designs are rarely fully cost-based. This means that allocated cost of service or rate designs include incentives. State and regulatory policies can at times encourage incentives that will result in a departure from cost-based rates or allocation. When incentives are transparent, then the cost shifts they create are clear to all and allow for greater ability to manage cost shifts over time.

- **Meaningful Options:** With deployment of AMI devices still in progress in Montana, at this time, NorthWestern does not propose to introduce any AMI rate options for its customers. The development of rate options should be thoughtful to ensure that they provide incremental value to customers without creating cost shifts.
- **Managed and Purposeful Customer Experience:** NorthWestern seeks to move towards a more cost-based allocation of cost of service and rate design. This transition will take time in order to manage the potential for steep bill increases for some customer groups and will require a focus on the customer experience.

Figure 4 below provides a graphical representation of the Rate Design Principles discussed above.

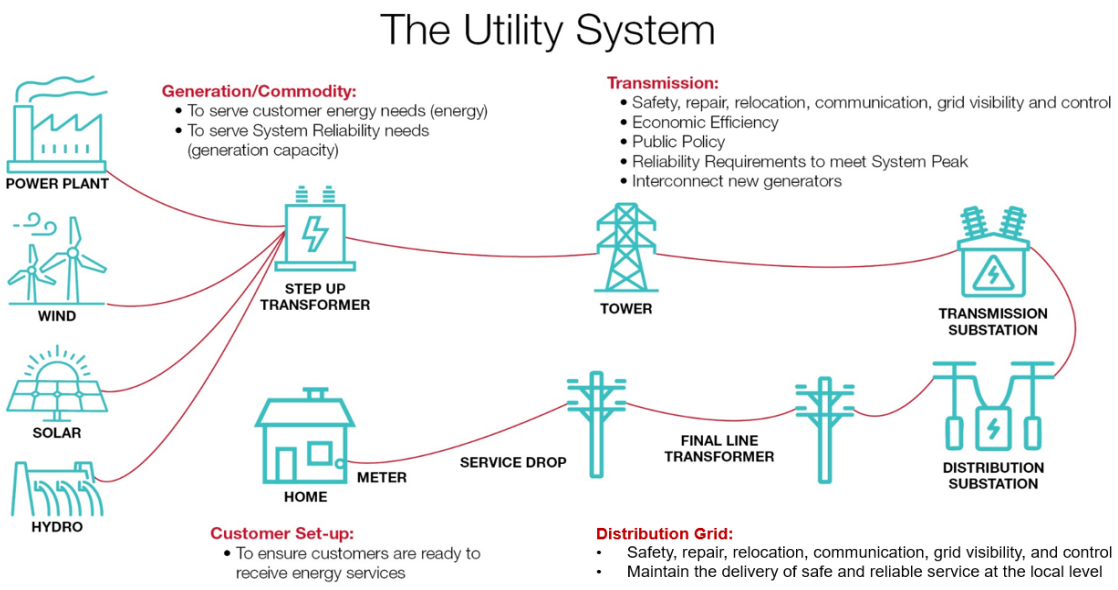
Figure 4: NorthWestern Energy's Rate Design Principles



Q. What are cost-based rates?

A. Cost-based rates provide customers with price signals that reflect the utility's costs of providing service. Figure 5 below provides an illustration of the various components involved in providing electric service that need to be considered when developing cost-based rates.

Figure 5: Electric Utility System



Q. What type of charges are included in cost-based rates?

A. At a high level, rates consist of three types of charges to reflect the different cost drivers behind utility services:

- **Energy, or volumetric, Rates ($/kilowatt-hour ("kWh")):** These costs are typically flow-through costs, such as costs of fuel for generation resources and power purchase agreements for energy. A cost-based energy, or volumetric, charge would capture the costs of providing service related to energy usage, specifically kWh usage. Cost-Based volumetric rates that only recover costs related to energy usage are rare. Energy rates often collect costs well in excess of the

costs related strictly to energy usage. For some customer classes, such as the residential customer class, energy rates are used to recover almost *all* of the costs to serve residential customers, not just supply costs.

- **Demand Charges ($/kW):** A demand charge is for costs of the energy infrastructure used – distribution, transmission, and capacity-related power generation – to deliver energy service and to meet a customer's peak energy demand. Generally, a cost-based rate structure would result in the recovery of the majority of the costs of energy service through demand charges.

Figure 6: Peak Demand versus Energy Quantity

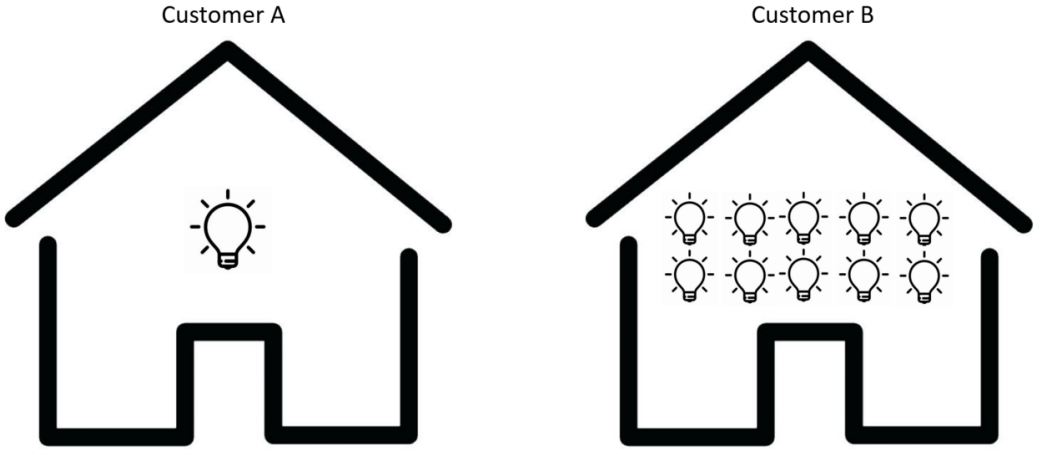


Figure 6 above presents an example of two customers who use the same quantity of energy in one day with different peak energy

demands and different use of the energy infrastructure. Customer A has one 10-kW lightbulb and Customer B has ten 10-kW lightbulbs. Customer A turned on one lightbulb for 10 hours (1 lightbulb x 10 kW x 10 hours = 100 kWh). Customer B turned on all ten lightbulbs for 1 hour (10 lightbulbs x 10 kW x 1 hour = 100 kWh). Both used the same quantity of energy that day, but the energy infrastructure used to ensure Customer B had reliable service when using 100 kW in an hour is greater than, and costs more, than the energy infrastructure required to ensure Customer A had reliable service when using 10 kW an hour for ten hours.

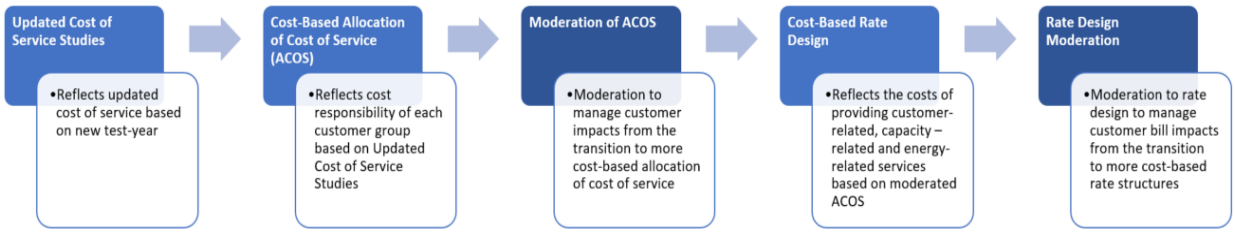
- **Monthly Service, or fixed, Customer Charge ($/month):** These customer-related costs are often thought of as the costs of getting a customer connected and ready to receive service from the utility, such as the meter, and also include ongoing costs of customer service, which include costs such as the cost of billing, customer care, and other service visits. Cost-based fixed charges generally cover the costs of providing services to our customers that are independent of energy service or capacity needs of our customers. In addition, a fixed charge can play a significant role in supporting cost-based rate design overall by recovering the remainder of the utility's cost of service that was not assigned to cost-based energy and/or demand charges.

The same general structure applies to rate design for natural gas with volumetric rates on a $/therm basis and demand charges on a $/Maximum Daily Delivery Quantity ("MDDQ") basis, that is, fixed charge ($/month), volumetric rate ($/therms), and demand charge ($/MDDQ).

Q. Are there concerns with moving to cost-based rates?

A. While the cost of service studies provides the cost-basis for the allocation of costs amongst the customer groups, changing revenue allocations can be significant for customer groups whose allocation of cost of service has historically been subsidized by other customer groups. In that instance, those customer groups can have significant bill impacts resulting from a move to cost-based allocations. Recognizing this concern, moderation of these impacts can be used to achieve a balance between the move to more cost-based revenue allocations and the need to mitigate the rate impacts for certain customer groups. The same applies to rate design –moderation of customer impacts is needed. Figure 7 below presents the allocated cost of service and rate design process with additional steps to moderate customer impacts. The need to balance the transition to more cost-based pricing with the consideration of customer impacts is discussed further below.

Figure 7: Additional Steps Needed in ACOS and Rate Design Process



Q. Please provide a brief overview of NorthWestern's allocated cost of service and rate design proposals in this filing.

A. NorthWestern proposes to (1) update both the allocation of cost of service among its customer groups and rate design to be more cost-based compared to current rates and (2) moderate that transition to more cost-based allocation and rate design to manage impacts to customers, consistent with its rate design principles discussed below. Ms. Gibson presents the cost-based allocated cost of service for NorthWestern's base rates. Mr. Lane presents NorthWestern's proposed base and total rates.

When rates are cost-based, customers will pay for their full cost of service and, theoretically, there will be no shift of costs to other customers. When rates are not cost-based, customers are not paying their actual cost of service – some will pay more, some will pay less – resulting in a shift in costs among customers. This shift in costs can occur across customer groups when the allocated cost of service is not cost-based. It can also occur across

customers within the same customer group when rate design is not cost-based.

NorthWestern recognizes that to move its customers from its current allocated cost of service and rate design to a fully cost-based allocation of cost of service and/or fully cost-based rate design in one step could result in the potential for steep bill increases for some of its customers. For instance, with the allocated cost of service, residential customers do not pay their full allocation of costs to provide energy services resulting in non-residential customers helping to subsidize the residential class. In recognition of the potential bill increases customers may experience, NorthWestern proposes the transition to more cost-based allocations and rate design would occur over time with limited movement towards this goal as part of this rate review. NorthWestern will continue to monitor and seek to advance more cost-based allocated cost of service and rate design in future rate reviews.

NorthWestern's Proposed Moderation to Allocated Cost of Service

Q. Did NorthWestern use the allocated cost of service results as the basis for the class revenue moderation proposals contained in this filing?

A. Yes. Table 1 below compares the current effective electric allocation of cost of service with the updated cost-based allocation of electric cost of service presented by Ms. Gibson. This reflects the allocation of total electric base

revenue requirements, which include costs of Delivery Services (T&D) and Generation Services. Choice customers do not pay for generation or supply services from NorthWestern[5] and do not receive an allocation of fixed generation costs.

Table 1: Updated Allocated Cost of Service – Electric Base Rates

	Current ($M)	Current (%)	Updated Cost- Based ($M)	Updated Cost- Based (%)	% Change from Current (%)
RESIDENTIAL	$241.307	46.69%	$333.992	49.61%	38.41%
SECONDARY GS-1	$218.945	42.37%	$264.845	39.34%	20.96%
PRIMARY GS-1	$18.641	3.61%	$24.583	3.65%	31.88%
SUBSTATION GS-2	$14.816	2.87%	$19.313	2.87%	30.36%
TRANSMISSION GS-2	$5.480	1.06%	$6.145	0.91%	12.13%
IRRIGATION	$6.716	1.30%	$11.052	1.64%	64.57%
LIGHTING	$10.877	2.10%	$13.355	1.98%	22.78%
TOTAL	**$516.782**	**100.00%**	**$673.286**	**100.00%**	**30.28%**

At the system level, when looking at all electric service customers, cost of service, as reflected in the increase in base rate revenues, increased by 30.28%. When looking at the cost-based allocation of these costs across the different customer groups presented in Table 1 above, the change in cost of service is not evenly spread. These increases range from over 64% to only 12% across the different customer groups. This represents a range of impacts of over 50% across the different customer groups. NorthWestern has concerns about the wide range of impacts across its electric customers and proposes to moderate the impacts of the updated allocated cost of service to

[5] Mont. Code Ann. § 69-8-201(1).

more evenly share in the overall increase in cost of service across all customer groups.

Specifically, NorthWestern proposes the following moderation adjustments to limit the base rate increases to the two most impacted customer groups:

- To cap any increase in the allocation of base rate revenues to no more than 35% for any customer class. This was applied to reduce the increase to Irrigation from 64.57% to 35%.
- To cap the increase in the allocation of base rate revenues to residential from 38.41% to 31%.

These caps result in the reallocation of costs to other customers groups, thereby narrowing the range of impacts. NorthWestern also include a limit to the increase to GS-2 Transmission customers who would be most impacted by the moderation, limiting the increase to 25%, 5% below the system level increase in cost of service.

NorthWestern's moderation proposals are applied at the total base revenue requirement level. Table 2 below presents NorthWestern's proposal to moderate the allocated cost of electric service to customer groups with further details provided in Exhibit CSF-2.1.

Table 2: Moderation to Allocated Cost of Service – Electric Base Rates

	Updated Cost-Based ($M)	Change from Current (%)	Moderated Change from Current (%)	Moderated ACOS ($M)	Moderated ACOS (%)
RESIDENTIAL	$333.992	38.41%	31.00%	$316.113	46.95%
SECONDARY GS-1	$264.845	20.96%	29.62%	$283.793	42.15%
PRIMARY GS-1	$24.583	31.88%	29.62%	$24.162	3.59%
SUBSTATION GS-2	$19.313	30.36%	29.62%	$19.204	2.85%
TRANSMISSION GS-2	$6.145	12.13%	25.00%	$6.851	1.02%
IRRIGATION	$11.052	64.57%	35.00%	$9.066	1.35%
LIGHTING	$13.355	22.78%	29.62%	$14.099	2.09%
TOTAL	**$673.286**	**30.28%**	**30.28%**	**$673.286**	**100.00%**

Q. For the natural gas utility, did NorthWestern use the allocated cost of service results as the basis for the class revenue moderation proposals contained in this filing?

A. Yes. NorthWestern used the same approach in addressing the allocation of cost of service for natural gas customers. Table 3 below compares the current effective natural gas allocation of cost of service with the updated cost-based allocation of natural gas cost of service presented by Ms. Gibson. This reflects the allocation of total natural gas base revenue requirements.

Table 3: Updated Allocated Cost of Service – Natural Gas Base Rates

	Current ($M)	Current (%)	Updated Cost- Based ($M)	Updated Cost- Based (%)	% Change from Current (%)
RESIDENTIAL	$73.080	53.41%	$91.494	55.30%	25.20%
GENERAL SERVICE	$41.459	30.30%	$44.879	27.13%	8.25%
UTILITIES	$0.393	0.29%	$0.643	0.39%	63.41%
DBU TRANSPORTATION	$2.182	1.60%	$3.450	2.09%	58.08%
TBU TRANSPORTATION	$13.848	10.12%	$18.315	11.07%	32.25%
STORAGE	$3.406	2.49%	$3.484	2.11%	2.28%
DBU INTERRUPTIBLE TRANSPORTATION	$0.053	0.04%	$0.069	0.04%	31.32%
TBU INTERRUPTIBLE TRANSPORTATION	$2.395	1.75%	$3.114	1.88%	30.02%
TOTAL	**$136.816**	**100.00%**	**$165.446**	**100.00%**	**20.93%**

At the system level, when looking at all natural gas service customers, cost of service increased by over 20%. When looking at the cost-based allocation of these costs across the different customer groups presented in Table 1 above, the change in cost of service is not evenly spread. These increases range from over 63% to only 2% across the different customer groups. This represents a range of impacts of over 60% across the different customer groups. As with our electric service customers, NorthWestern has concerns about the wide range of impacts across its electric customers and proposes to moderate the impacts of the updated allocated cost of service to more evenly share in the overall increase in cost of service across all customer groups.

Specifically, NorthWestern proposes a cap to limit the increases to any customer class to be no greater than 30%, or just under 10% more than the overall increase in cost of service of 20.91%. The introduction of a cap would result in the reallocation of costs to other customers groups, thereby narrowing the range of impacts. NorthWestern limited the groups impacted by this reallocation due to the cap to exclude residential customers. Table 4 below presents NorthWestern's proposal to moderate the allocated cost of natural gas service to customer groups with further details provided in Exhibit CSF-2.2.

Table 4: Moderation to Allocated Cost of Service – Natural Gas Base Rates

	Updated Cost-Based ($M)	Change from Current (%)	Moderated Change from Current (%)	Moderated ACOS ($M)	Moderated ACOS (%)
RESIDENTIAL	$91.494	25.20%	25.19%	$91.489	55.30%
GENERAL SERVICE	$44.879	8.25%	10.16%	$45.672	27.61%
UTILITIES	$0.643	63.41%	30.00%	$0.511	0.31%
DBU TRANSPORTATION	$3.450	58.08%	30.00%	$2.837	1.71%
TBU TRANSPORTATION	$18.315	32.25%	30.00%	$18.003	10.88%
STORAGE	$3.484	2.28%	10.16%	$3.752	2.27%
DBU INTERRUPTIBLE TRANSPORTATION	$0.069	31.32%	30.00%	$0.069	0.04%
TBU INTERRUPTIBLE TRANSPORTATION	$3.114	30.02%	30.00%	$3.113	1.88%
TOTAL	**$165.446**	**20.93%**	**20.93%**	**$165.446**	**100.00%**

Q. Does the primary objective for the Allocated Cost of Service to be cost-based differ between electric and natural gas services?

A. As described above, the purpose of Allocated Cost of Service is no different for natural gas service than it is for electric service. The same principles that guide NorthWestern's proposals for the moderation of allocation of electric service to electric customers also guides NorthWestern's proposals for the moderation of allocation of costs for natural gas service to natural gas customers.

Q. Do you have any other moderation proposals related to Allocated Cost of Service?

A. Yes. While property taxes are a flow-through cost for NorthWestern customer because the allocation of cost responsibility still impacts customer bills, NorthWestern proposes to allocate property taxes to the different customer classes as an equal percentage of base rates, that is to allocate property taxes in the same manner as utility cost of service reflected in base rates.

Q. Please explain why NorthWestern seeks to moderate the allocation of property taxes to customers.

A. As noted above, NorthWestern proposes to moderate the impact of updating cost of service across the customer classes to manage the potential wide range of impacts across different customer groups. How the property taxes are allocated will also impact the various customer groups. NorthWestern's

proposal is to apply a consistent allocation for both cost of service, as reflected in base rates, and property taxes. Table 5 and 6 below shows the various allocations (current, cost-based, and NorthWestern's proposed moderation) for base rates and property taxes for electric and natural gas, respectively.

Table 5: Allocation of Utility Cost of Service and Property Taxes- Electric

	Base Rates			Property taxes		
	Current Allocation (%)	Cost-based Allocation (%)	Moderated Allocation (%)	Current Allocation (%)	Cost-based Allocation (%)	Moderated Allocation (%)
RESIDENTIAL	46.69%	49.61%	46.95%	49.22%	49.13%	46.95%
SECONDARY GS-1	42.37%	39.34%	42.15%	38.47%	39.14%	42.15%
PRIMARY GS-1	3.61%	3.65%	3.59%	2.95%	3.19%	3.59%
SUBSTATION GS-2	2.87%	2.87%	2.85%	2.91%	3.08%	2.85%
TRANSMISSION GS-2	1.06%	0.91%	1.02%	0.59%	0.73%	1.02%
IRRIGATION	1.30%	1.64%	1.35%	2.67%	1.91%	1.35%
LIGHTING	2.10%	1.98%	2.09%	3.19%	2.82%	2.09%
TOTAL	**100.00%**	100.00%	100.00%	**100.00%**	100.00%	100.00%

Table 6: Allocation of Utility Cost of Service and Property Taxes- Natural Gas

	Base Rates			Property Taxes		
	Current Allocation (%)	Cost-based Allocation (%)	Moderated Allocation (%)	Current Allocation (%)	Cost-based Allocation (%)	Moderated Allocation (%)
RESIDENTIAL	53.41%	55.30%	55.30%	51.87%	53.75%	55.30%
GENERAL SERVICE	30.30%	27.13%	27.61%	26.18%	26.57%	27.61%
UTILITIES	0.29%	0.39%	0.31%	0.33%	0.40%	0.31%
DBU TRANSPORTATION	1.60%	2.09%	1.71%	2.29%	2.37%	1.71%
TBU TRANSPORTATION	10.12%	11.07%	10.88%	14.51%	11.58%	10.88%
STORAGE	2.49%	2.11%	2.27%	2.04%	3.28%	2.27%
DBU INTERRUPTIBLE TRANSPORTATION	0.04%	0.04%	0.04%	0.03%	0.06%	0.04%
TBU INTERRUPTIBLE TRANSPORTATION	1.75%	1.88%	1.88%	2.75%	2.00%	1.88%
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Q. Please describe the combined impact of NorthWestern proposed moderation to the allocation of cost of service and property taxes.

A. Tables 7 and 8 below present the combined impact by customer group of updated cost of service for electric customers without moderation and with moderation as proposed by NorthWestern, respectively.

Table 7: Updated Allocated Cost of Service and Property Taxes – Electric

	Current ($M)	Current (%)	Updated Cost- Based ($M)	Updated Cost- Based (%)	% Change from Current (%)
RESIDENTIAL	$293.367	47.12%	$389.602	49.54%	32.80%
SECONDARY GS-1	$259.637	41.71%	$309.142	39.31%	19.07%
PRIMARY GS-1	$21.766	3.50%	$28.190	3.58%	29.51%
SUBSTATION GS-2	$17.891	2.87%	$22.798	2.90%	27.43%
TRANSMISSION GS-2	$6.100	0.98%	$6.973	0.89%	14.31%
IRRIGATION	$9.540	1.53%	$13.215	1.68%	38.52%
LIGHTING	$14.255	2.29%	$16.549	2.10%	16.09%
TOTAL	**$622.556**	**100.00%**	**$786.469**	**100.00%**	**26.33%**

Table 8: Moderation to Allocated Cost of Service and Property Taxes - Electric

	Updated Cost-Based ($M)	% Change from Current (%)	Moderated Change from Current (%)	Moderated ACOS ($M)	Moderated ACOS (%)
RESIDENTIAL	$389.602	32.80%	25.87%	$369.253	46.95%
SECONDARY GS-1	$309.142	19.07%	27.68%	$331.500	42.15%
PRIMARY GS-1	$28.190	29.51%	29.67%	$28.223	3.59%
SUBSTATION GS-2	$22.798	27.43%	25.38%	$22.432	2.85%
TRANSMISSION GS-2	$6.973	14.31%	31.19%	$8.002	1.02%
IRRIGATION	$13.215	38.52%	11.00%	$10.590	1.35%
LIGHTING	$16.549	16.09%	15.53%	$16.469	2.09%
TOTAL	**$786.469**	**26.33%**	**26.33%**	**$786.469**	**100.00%**

Tables 9 and 10 below present the combined impact by customer group of updated cost of service for electric customers without moderation and with moderation as proposed by NorthWestern, respectively.

Table 9: Updated Allocated Cost of Service – Natural Gas

	Current ($M)	Current (%)	Updated Cost- Based ($M)	Updated Cost- Based (%)	% Change from Current (%)
RESIDENTIAL	$90.315	53.11%	$109.484	55.04%	21.22%
GENERAL SERVICE	$50.158	29.50%	$53.772	27.03%	7.21%
UTILITIES	$0.503	0.30%	$0.777	0.39%	54.47%
DBU TRANSPORTATION	$2.944	1.73%	$4.242	2.13%	44.09%
TBU TRANSPORTATION	$18.668	10.98%	$22.190	11.16%	18.87%
STORAGE	$4.084	2.40%	$4.580	2.30%	12.14%
DBU INTERRUPTIBLE TRANSPORTATION	$0.063	0.04%	$0.087	0.04%	38.10%
TBU INTERRUPTIBLE TRANSPORTATION	$3.309	1.95%	$3.784	1.90%	14.35%
TOTAL	**$170.044**	**100.00%**	**$198.916**	**100.00%**	**16.98%**

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Table 10: Moderation to Allocated Cost of Service – Natural Gas

	Updated Cost-Based ($M)	% Change from Current (%)	Moderated Change from Current (%)	Moderated ACOS ($M)	Moderated ACOS (%)
RESIDENTIAL	$109.484	21.22%	21.79%	$109.999	55.30%
GENERAL SERVICE	$53.772	7.21%	9.48%	$54.912	27.61%
UTILITIES	$0.777	54.47%	22.16%	$0.615	0.31%
DBU TRANSPORTATION	$4.242	44.09%	15.86%	$3.411	1.71%
TBU TRANSPORTATION	$22.190	18.87%	15.94%	$21.644	10.88%
STORAGE	$4.580	12.14%	10.45%	$4.511	2.27%
DBU INTERRUPTIBLE TRANSPORTATION	$0.087	38.10%	32.23%	$0.082	0.04%
TBU INTERRUPTIBLE TRANSPORTATION	$3.784	14.35%	13.07%	$3.742	1.88%
TOTAL	**$198.916**	**16.98%**	**16.98%**	**$198.916**	**100.00%**

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NorthWestern's Proposed Moderation to Rate Design

Q. Did NorthWestern use the moderated allocated cost of service results as the basis for base rate design proposals presented in this filing?

A. Yes. As discussed above, the ECOS studies for both electric and natural gas presented by Ms. Gibson provide the foundation for the allocated cost of service that determines the cost responsibility for the different customer groups. Once the allocation of the class-level base revenue requirements are determined, the ECOS studies then provide the foundation for NorthWestern's rate design proposals in this filing and are discussed in more detail below.

Q. How were electric base rates developed in this filing?

A. The cost studies presented by Ms. Gibson provide the foundational reference for the cost-based rate design in this docket. A cost-based rate design would include the charges described above – energy/volumetric rates, demand charges, and monthly service/customer charges. As discussed above, the current rates and their rate design are an important reference point when considering rate design proposals and the possible need to moderate proposed changes to the rate structure for the recovery of class allocated costs of electric service.

Q. How were natural gas base rates developed in this filing?

A. The development of natural gas base rates follows the same process as the development of electric base rates. The process begins with the cost-based rate design developed and presented by Ms. Gibson. Next, NorthWestern reviews the difference between the structure of current rates and cost-based rates and potential need for moderation of rate design before determining its proposed rate design changes.

Q. Is the rate design of NorthWestern's current electric rates cost-based?

A. No. As presented in Table 11 below, currently the majority of costs, over 75%, associated with providing customers with electric services, are recovered from customers through energy rates, while the majority of electric cost of service, almost 85%, are driven by customer demand, or capacity, needs. This reflects the majority of the distribution and transmission infrastructure needed to delivery energy services to our customers as well as the ability to meet reliable, 24/7, energy supply needs.

Table 11: Cost-Based Design of Base Rates- Electric

Percentage Recovery through Rate Design Components

	Current				Cost-Based			
	Fixed Charge ($/mo)	Demand Charge ($/kW)	Volumetric Rates ($/kWh)	Total Revenue (%)	Fixed Charge ($/mo)	Demand Charge ($/kW)	Volumetric Rates ($/kWh)	Total Revenue (%)
RESIDENTIAL	6.73%	n/a	93.27%	100.00%	15.94%	82.78%	1.28%	100.00%
SECONDARY GS-1	2.78%	37.90%	59.32%	100.00%	8.47%	89.93%	1.60%	100.00%
PRIMARY GS-1	0.26%	26.39%	73.35%	100.00%	5.23%	92.76%	2.01%	100.00%
SUBSTATION GS-2	1.14%	47.67%	51.19%	100.00%	5.43%	92.83%	1.74%	100.00%
TRANSMISSION GS-2	9.27%	32.20%	58.53%	100.00%	10.97%	86.60%	2.43%	100.00%
IRRIGATION	2.63%	35.52%	61.86%	100.00%	8.35%	90.35%	1.30%	100.00%
LIGHTING	27.44%	0.00%	72.56%	100.00%	28.68%	0.00%	71.32%	100.00%
TOTAL	**5.07%**	**19.18%**	**75.75%**	**100.00%**	**12.39%**	**84.76%**	**2.85%**	**100.00%**

Q. Is the rate design of NorthWestern's current natural gas rates cost-based?

A. No. The same issue exists with the current rate design for NorthWestern's natural gas rates with almost 70% of revenues collected through volumetric rates while the majority of cost of service is demand or capacity driven based on the infrastructure and storage needs to delivery reliable service to our natural gas customers.

Q. What is NorthWestern's proposal for rate design in this case?

A. NorthWestern proposes the following changes to rate design for its standard tariff offerings:

- Monthly Service fees:
  - For electric non-residential customers, excluding Lighting, NorthWestern proposes to increase its monthly service fee to be cost-based. [6]
  - For natural gas non-residential customers, NorthWestern proposes to adjust its monthly service fee to maintain cost-based levels.
- Demand Charge: NorthWestern proposes to increase existing transmission and distribution demand charges to be more cost-based.

Q. Why is the proposal to increase monthly service fees different for electric and natural gas customers?

A. In its 2022 Montana Rate Review, NorthWestern proposed to move its non-residential monthly service fees to cost-based levels, with the exclusion of electric non-residential non-demand customers on Schedule GS-1. Final Order 7860y approved NorthWestern's Settlement, which authorized an

[6] Our Irrigation customers monthly service fees are applied on an annual basis and are included in this proposal.

increase to monthly service charges for electric customers on Schedule GS-2 Substation and non-residential natural gas customers.

In this rate review, NorthWestern proposes to update the monthly service charges for electric customers on Schedule GS-2 Substation and non-residential natural gas customers to maintain cost-based levels and to increase the monthly service fee for all other non-residential electric customers to cost-based levels. The increase in monthly service fee will result in a compensating adjustment to volumetric rates, assuming all other things held equal. Mr. Lane presents NorthWestern's proposed monthly service fees.

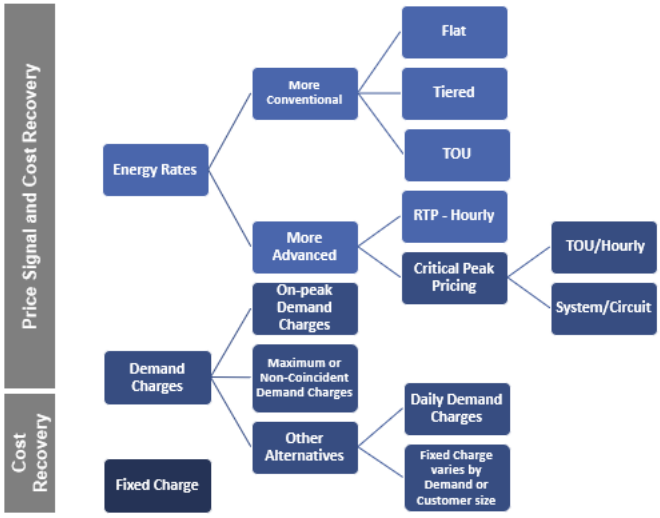
Rate Design Potential with AMI Data

Q. What rate options are available for electric customers today?

A. Currently, NorthWestern customers only have limited rate options available to them. For residential electric customers, the primary rate available to them consists of a monthly service fee and a flat energy rate. Under this rate structure, the only way for a residential customer to save on their bill would be to reduce energy usage. The majority of our non-residential electric customers are on a rate schedule with a monthly service fee, a monthly demand charge, and a flat energy rate. Under this rate structure, the only way for a non-residential customer to save on their bill would be to reduce their monthly demand by staggering, rather than stacking usage, or by

reducing energy usage. The design of NorthWestern's current rates involve limited use of rate design tools – a monthly service charge, monthly demand, and flat energy rates. Figure 8 below provides an illustration of the variety of rate design tools available for electric. The use of more rate design tools for the development of customer rates is currently limited by the data available from NorthWestern's current legacy meters.

Figure 8: Rate Design Tools



NorthWestern is still in the process of deploying AMI meters in Montana and NorthWestern expects the project to be complete in 2025. A minimum of 12 months of population level data will better enable the ability to develop prices that reflect how customers use energy and the costs needed to serve them. The availability of historic population level data also plays a critical role in

supporting customers in making informed decisions about which rate option best meets their needs.

NorthWestern's Standby Charge Proposal

Q. Does NorthWestern propose any other rate design changes to bring rates to be more cost-based?

A. As noted above, a cost-based rate design would reflect:

- An energy rate that recovers the marginal cost of energy with prices that reflect the difference between high-cost hours and low cost hours;
- Demand charges that recover the capacity costs necessary to ensure the availability and delivery of energy—24 hours a day, 7 days a week, every day of the year; and
- A fixed or monthly service charge for the recovery of costs that do not vary based on energy usage or capacity needs.

For General Service customers with onsite generation greater than 100 kW, NorthWestern proposes the introduction of a standby charge.

Q. Why is NorthWestern proposing a standby charge for general service customers with behind-the-meter generation greater than 100 kW?

A. The rate design of our current rates are not fully cost-based with a dependence on energy rates that exceed cost-based levels and include the recovery of capacity-related and fixed costs of service. This rate design overly incents the adoption of behind-the-meter generation, by providing bill benefits in excess of the reduction in cost of service need, resulting in a shift of costs to other customers.

Q. Please describe the standby charge proposal.

A. The direct testimony of Steve W. Wishart presents NorthWestern's proposal for a new standby charge tariff for non-residential customers with behind the meter generation to reduce the cost-shift that would occur from a rate that is not cost-based.

Conclusion

Q. Please summarize your testimony on rate design issues.

A. My rate design Policy testimony presents the following:

- NorthWestern's moderation proposals for allocated cost of service ("ACOS") for base revenues between electric and natural gas customer classes,
- NorthWestern's moderation proposals for the allocation of property tax revenues between electric and natural gas customer classes,

- NorthWestern's proposals for a more cost-based rate design for electric and natural gas service customers, specifically
    - Increase monthly service fees[7] to be more cost-based for non-residential electric and natural customers; and
    - Increase demand charges to be more cost-based for non-residential electric and natural customers;
- Discuss NorthWestern's need for a standby charge.

I recommend the Commission approves these proposals.

Q. Does this conclude your direct testimony on rate design policy?

A. Yes.

Verification

This Direct Testimony of Cynthia S. Fang is true and accurate to the best of my knowledge, information, and belief.

/s/ Cynthia S. Fang
Cynthia S. Fang

[7] Our Irrigation customers monthly service fees are applied on an annual basis and are included in this proposal.