BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application of	**)**	
Southern Pioneer Electric Company for	**)**	**Docket No. 24-SPEE-415-TAR**
Approval to Make Certain Revenue	**)**	
Neutral Changes to its Rate Design.	**)**	

DIRECT TESTIMONY

PREPARED BY

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UTILITIES DIVISION

KANSAS CORPORATION COMMISSION

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I. STATEMENT OF QUALIFICATIONS

Q. What is your name?

A. Robert H. Glass

Q. By whom are you employed and what is your job?

A. I am employed by the Kansas Corporation Commission (KCC or Commission) as Chief of the Economics and Rates Section within the Utilities Division.

Q. What is your business address?

A. 1500 S.W. Arrowhead Road, Topeka, Kansas, 66604-4027.

Q. What is your educational background and professional experience?

A. I have a B.A. from Baker University with a major in history. I also have an M.A. and a Ph.D. in economics from the University of Kansas. For 22 years, I was employed by the Institute for Business and Economic Research at the University of Kansas, which later became the Institute for Public Policy and Business Research. My primary duty was performing economic research.

Q. Have you previously testified before the Commission?

A. Yes. I provided testimony as a Staff consultant for Docket Nos. 91-KPLE-140-SEC and 97-WSRE-676-MER. As an employee of the Commission, I have testified in numerous rate case and non-rate case dockets, which can be made available upon request.

II. INTRODUCTION

Purpose

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to evaluate Southern Pioneer's proposed rate changes and to sponsor Staff's rate design.

Organization

Q. How is your testimony organized?

A. My testimony has two major parts—Analysis of the Single-Phase and Three-Phase Service and Analysis of the General Service Large, Industrial Service, and Transmission Level Service. Each of these major parts in divided into multiple smaller sections.

III. ANALYSIS
SINGLE-PHASE AND THREE-PHASE SERVICE

Q. What are the major issues involving the rate design for the Single and Three Phase Classes?

A. I have six sections to my analysis of the Single and Three Phase Classes.

(1) Southern Pioneer's transition from the Residential and General Service Small (GSS) Classes to the Single and Three-Phase Classes (Transition).

(2) Southern Pioneer's proposed rate design for the Single and Three-Phase Classes.

(3) Southern Pioneer's proposed increase in the customer charge.

(4) Southern Pioneer's proposed additional of a demand charge.

(5) The revenue neutrality of the transition from the Residential and GSS Classes to the Single and Three-Phase Classes.

(6) The effect of the creation of the Single and Three-Phase Classes on other classes that are affected by the Transition.

Transitioning the Residential and GSS Classes to Single and Three-Phase Service Classes

Q. How is Southern Pioneer proposing to transition from the Residential and GSS Classes to the Single and Three-Phase Service Classes?

A. Southern Pioneer is proposing to eliminate the current Residential and General Service Small (GSS) classes and transition the customers into either a single-phase class or a three-phase class (Transition). The current Residential and GSS customers would be assigned to either a single-phase class or a three-phase class depending upon which type of service the customer receives.

Q. What are the differences between Single and Three-phase Service Classes?

A. Single-phase service is provided by two lines: a phase line and a neutral line. Three-phase service is usually provided by three-phase lines and a neutral line although three-phase service can be provided by just three phase lines.

Single-phase service is used by nearly all Residential customers and GSS customers with smaller loads because it is cheaper for smaller loads. Three-phase service is used by customers that have larger loads. The three-phase service provides more electric power, smoother electric power, and more options than single-phase service. In addition, for larger loads, a three-phase service is more efficient. And as will be shown later, Southern Pioneer's three-phase service customer costs are about twice the customer costs for single-phase service.

Q. Why Is Southern Pioneer transitioning to Single and Three-phase Service Classes?

A. Southern Pioneer states there are three basic motivations for the Transition: administrative ease, continuity between Pioneer and Southern Pioneer rate designs, and customer costs are more closely aligned with the phase distinction rather than the end-user distinction. The testimony that follows addresses each of these three motivations.

The Administrative Motivation for the Transition

Southern Pioneer states its staff finds it difficult identifying whether a location is residential or a business when the customers have businesses located in their place of residence. The administrative motivation for the Transition is that using a single-phase and three-phase classification eliminates this problem. The single-phase/three-phase distinction is an obvious physical difference while determining whether a location is residential or a business can be a matter of degree and hence, more subjective.

The Continuity Motivation for the Transition

The continuity motivation begins with the fact that Pioneer, the owner of Southern Pioneer, has already transitioned to a single-phase and three-phase classification from its previous Residential and GSS classification. As Southern Pioneer states in its application, "Since Pioneer and Southern Pioneer share staff, billing systems, and have customers in the same general area, the proposed change will provide continuity across the combined Southern Pioneer and Pioneer Electric

service areas."[1] In addition, since Pioneer and Southern Pioneer share some customers, having the same structure for rate design should make communication with customers easier and less confusing for customers.

The Cost Causation Motivation for the Transition

In utility regulation, cost causation means the cost causer should be the cost payer. Most of the time costs must be allocated indirectly using allocation mechanisms. However, much of the customer cost of service is directly assigned. The cost of providing three-phase service is about twice the cost of providing single-phase service. Therefore, separating customer classes based on single and three-phase service would better align rate design with customer costs.

The Effect of the Transition on Billing Determinants

Q. How will the Transition affect the Billing Determinants?

A. I will start with the current billing determinants for the Residential and GSS customers, and then show how these customers would transition to either Single or Three-Phase Service Classes; thus, adapting the existing billing determinants for the proposed rate design. Table 1 below illustrates the Transition.

[1] Application, Docket No. 24-SPEE-415-TAR, p. 4.

Table 1

Realignment of Residential & General Small Service Classes to Single-Phase Service & Three Phase Service Classes			
Rate Classes	**Number of Customers**	**Total Annual kWh**	**Annual per Customer kWh**
	(a)	**(b)**	**(c)**
EXISTING RATE DESIGN			
(1) Residential	11,996	116,835,516	9,739.5
(2) General Small Service	2,749	13,792,786	5,017.4
(3) Total	14,745	130,628,302	8,859.2
PROPOSED RATE DESIGN			
(4) Single Phase			
(5) Residential	11,990	116,696,861	9,732.8
(6) General Small Service	2,106	9,684,770	4,598.7
(7) Total	14,096	126,381,631	8,965.8
(8) Three Phase			
(9) Residential	6	138,655	23,109.2
(10) General Small Service	643	4,108,016	6,388.8
(11) Total	649	4,246,671	6,543.4
NOTE: Data is taken from Macke's Testimony, p. 28, Table 7.			

The top part of Table 1 (lines (1) through (3)) show the billing determinants for the Residential and General Small Service Classes. The billing determinants are the number of customers (Column (a)), the total annual energy usage (Column (b)), and the annual per customer energy usage (Column (c)).

Since Southern Pioneer already knows which customers currently have single or three-phase service, the proposed Transition is a matter of moving the Residential and GSS customers to the appropriate new classes.

The effect of the Transition on customers is shown in the bottom portion of Table 1 (lines (4) though (11)). Lines (5) and (6) show the number of customers that would transition to the Single-Phase Class and Lines (9) and (10) show the number of customers that would transition to the Three-Phase Class.

Only six Residential customers (0.05%) would move to the Three-Phase Class while 11,990 will be in the Single-Phase Class. The effect of the Transition would be greater for the GSS customers: 2,106 GSS customers (76.61%) would move to the Single-Phase Class and 643 GSS customers (23.39%) would move to the Three-Phase Class.

Q. What is the Staff's position on Southern Pioneer's proposed Transition?

A. Staff agrees that switching to the single-phase/three-phase distinction makes the cost causation link between type of service and rate design better defined. Southern Pioneer's arguments that the clearer distinction will make customer class assignments objective is also compelling. For these reasons, Staff recommends accepting Southern Pioneer's proposed Transition to these phased-based classes.

Proposed Rate Design for Single and Three-phase Customer Classes

Q. How will the Transition affect customers' rates?

A. Southern Pioneer structured its proposed rate design so that the Transition would be approximately revenue neutral at the class level. In other words, any Southern Pioneer rate change that increases revenue must be accompanied by a rate reduction for the same class that balances out the increased revenue.[2] However, customer

[2] The problem of rounding ensures that the revenue neutrality of the proposed rates is only approximate.

heterogeneity will prevent the rate design from being revenue neutral at the customer level.

Table 2 below contains Southern Pioneer's rate design for present Residential and GSS Classes (on the left-hand side of the table) and their proposed Single and Three-Phase Classes rate design (on the right-hand side of the table).

Table 2

Present and Proposed Rate Schedules for Residential and General Service Small Classes (Present) Single-Phase and Three-Phase Classes (Proposed)						
Residential Service				**Single Phase Service**		
Customer Charge	$14.67	/mo.		Customer Charge	$16.67	/mo.
				Demand Charge[2]	$3.00	/kW
Delivery Charge				Delivery Charge		
Summer (Jul-Oct)	$0.14358	/kWh		Summer (Jul-Oct)	$0.11601	/kWh
Winter (Nov-Jun)	$0.13258	/kWh		Winter (Nov-Jun)	$0.10501	/kWh
PTS[1]	$0.000198	/kWh		PTS[1]	-	/kWh
General Service Small				**Three Phase Service**		
Customer Charge	$22.74	/mo.		Customer Charge	$22.98	/mo.
				Demand Charge[2]	$3.00	/kW
Delivery Charge				Delivery Charge		
Summer (Jul-Oct)	$0.11876	/kWh		Summer (Jul-Oct)	$0.10166	/kWh
Winter (Nov-Jun)	$0.10776	/kWh		Winter (Nov-Jun)	$0.09066	/kWh
PTS[1]	$0.000198	/kWh		PTS[1]	-	/kWh
NOTE1: PTS refers to the Property Tax Surcharge. The PTS is being rebased in this docket. The revenue that was collected by the PTS will now be collected in base rates, for the purposes of establishing revenue neutrality it will be set at zero. For a fuller discription of the treatment of the PTS, see the discription in the body of the testimony.						
NOTE2: The Demand Charge is a non-coincidential peak demand and is new.						

The proposed rate design contains two major changes: first, the existing property tax surcharge (PTS) is rebased and collected by base rates, and second, the

revenue collected by fixed charges is increased.[3] The increase in fixed charges is due to most customers receiving an increase in the customer charge and the addition of a demand charge.

Rebasing the Property Tax Surcharge

The PTS that is being rebased is $0.000198 per kWh for retail customers, $0.000278 per kWh for transmission level service, and $0.924798 per kW for Local Access Charge (LAC) Customers.[4] The PTS revenue collected by these rates will be added to base rate revenue requirement, which will increase the amount of property taxes collected by Southern Pioneer's base rates, and will be reflected in Southern Pioneer's next property tax surcharge filing before the Commission.[5]

The collection of additional base rate revenue will be done by increasing the energy charge for retail customers, increasing demand charges for transmission level service and the LAC customers, and by increasing the per light charge for lighting customers. In the Lighting Class, Southern Pioneer converted the PTS revenue to a per-light charge based on assumed energy usage per light. For fairness, Staff recommends Southern Pioneer increase rates for all lights including lights without existing customers by applying the same adder as similar-usage lights.

[3] For illustration purposes, both Southern Pioneer and Staff reflect the rebasing of the PTS by moving the test year revenue collected by the PTS into base rates and zeroing out the PTS. However, the PTS will still be collected, and the new filed PTS will take into account the additional property taxes collected in base rates.
[4] This was the PTS that was in effect in early 2023, which used the 2022 property taxes, which match the test year used by Southern Pioneer. See Application, Docket No. 24-SPEE-462-TAR, Exhibit 5.
[5] Southern Pioneer will not reduce the PTS to zero as shown in Table 2. However, to establish the revenue neutrality of the proposed rates, which would collect the revenue previously collected by the PTS, the PTS is set to zero as a rate design illustration. For a fuller explanation of the PTS and its implementation, see Tim Rehagen, Direct Testimony, Docket No. 20-SPEE-169-RTS, pp. 3 – 6.

Staff further recommends that any under-collection be evaluated during the PTS true up process.

Increase in the Fixed Charges

The argument for the proposed increase in the fixed charges is more complex and requires substantial explanation and analysis, which I will cover below.

Increased Customer Charge

Q. What is Southern Pioneer's proposal for customer charges?

A. Residential customers currently pay a customer charge of $14.67. The Residential customers that would move to the Single-Phase Class would pay $16.67, $2.00 more, while the Residential customers that would move to the Three-Phase Class would pay $22.98, or $8.31 more, for the customer charge. But, for the GSS customers that would shift to the Single-Phase Class, the customer charge will decrease by $6.07 as their customer charge declines from $22.74 currently to $16.67. For the GSS customers that would shift to the Three-Phase Class, the customer charge would only increase from $22.74 to $22.98. Although a sizable portion of the GSS customers would pay lower customer charges, because of the increase in the customer charge for Residential customers, the total collection of revenue from the customer charge for the Single-Phase and Three-Phase Classes would be larger than the revenue collection from the customer charge for the existing Residential and GSS Classes.

Southern Pioneer's Proposal to Increase the Revenue from the Customer Charge

Q. Why is Southern Pioneer proposing to collect more revenue from the fixed charges?

A. Southern Pioneer contends the increased collection of revenue using fixed charges is necessary to align the rate design more closely with cost causation and rate modernization.[6]

Evidence for Increasing the Customer Charge

Q. What is Southern Pioneer's evidence for increasing the customer charge?

A. Southern Pioneer contends that its class cost of service study (CCOS) shows that the proposed single and three-phase customer classes should pay significantly larger customers charges than the $14.67 that Residential customers currently pay or $22.74 that CSS customers currently pay. Southern Pioneer's CCOS shows that the customer charge should be about $36.50 for single-phase service and about $78.43 for three-phase service. Table 3 below has the details of the estimation from Southern Pioneer.[7]

[6] Richard Macke, Direct Testimony, Docket No. 24-SPEE-415-TAR, p. 27.
[7] Table 3 is from CURB Data Request No. 7 and does not come from the Southern Pioneer filed CCOS because Southern Pioneer's filed CCOS uses the existing Residential and GSS class distinction rather than the proposed Single and Three-Phase class distinction. As a result, Staff's CCOS also does not include an estimate of the customer costs by the Single and Three-Phase class distinction.

Table 3

Customer Related Cost General Single Phase and Three Phase Rate Classes		
	Cost per Customer per Month	
Description	**Single Phase**	**Three Phase**
Primary Line	($/cons./mo.)	($/cons./mo.)
Depreciation	$ 3.75	$ 5.91
Interest	$ 1.47	$ 2.31
O&M	$ 8.37	$ 13.18
A&G	$ 1.46	$ 2.30
Subtotal	$ 15.05	$ 23.71
Transformer		
Depreciation	$ 1.15	$ 1.85
Interest	$ 0.45	$ 0.72
O&M	$ 0.41	$ 0.66
A&G	$ 0.07	$ 0.11
Subtotal	$ 2.08	$ 3.34
Meter & Service		
Depreciation	$ 1.13	$ 2.13
Interest	$ 0.44	$ 0.83
O&M	$ 5.38	$ 17.11
A&G	$ 0.94	$ 2.99
Subtotal	$ 7.89	$ 23.06
Customer Accounting Expense	$ 5.36	$ 17.04
Taxes & Miscellaneous	$ 0.99	$ 2.90
Margins	$ 5.12	$ 8.39
Subtotal	$ 11.47	$ 28.32
Total Customer Costs	**$ 36.50**	**$ 78.43**
NOTE: Table is from Southern Pioneer's response to CURB DR 07.		

Q. Why didn't Southern Pioneer propose increasing the customer charge the full amount of the customer costs?

A. Because of Southern Pioneer's concern that a large increase in the customer charge would be disruptive for customers and because Southern Pioneer prefers a gradual approach to changes in rate design, Southern Pioneer is only asking for a $16.67

customer charge for the Single-Phase Class and a $22.98 customer charge for the Three-Phase Class. The three-phase service customer charge is 38% higher than the single-phase service. But the total per customer cost from Table 3 is more than 100% higher for three-phase versa single-phase service.

Q. What are the Single and Three-Phase customer charges for Pioneer, the owner of Southern Pioneer?

A. The Single-Phase customer charge is $18.40, and the Three-Phase customer charge is $34.00 for Pioneer customers.

Q. Does Staff recommend accepting Southern Pioneer's proposed increase in the customer charge?

A. Yes. Southern Pioneer's evidence shows that three-phase service is more than twice the cost of single-phase service, and that the customer charge is well below the customer cost of service. Southern Pioneer's gradual approach to increasing the customer charges should avoid any customer disruption. And the customer charges for Pioneer customers are larger for both its Single and Three-Phase classes.

A Demand Charge for Single and Three-phases Customer Classes

Q. What is a demand charge?

A. A demand charge is the payment by consumers for the electric system capacity their usage requires. The capacity requirement is measured by the maximum energy consumption during the monthly billing cycle. The capacity requirement can be calculated a few different ways, but it is measured in kilowatts (kW). The customer is charged a fixed price for each kW of capacity required. The customer's kW required capacity is referred to the customer's demand.

A demand charge is considered a fixed charge, but it is intrinsically different from a customer charge. An extreme case clearly differentiates a demand charge from a customer charge. Suppose a customer does not use any energy during the billing period. The customer must still pay the customer charge, but because the customer did not use any energy, and thus has no positive capacity requirement for that billing period, the customer's demand charge will be zero unless there is a demand ratchet.[8]

The Difference between Electric Utility Customer Demand and an Economist's Customer Demand

Q. Is customer demand in the utility sense the same as consumer demand in economics?

A. Yes and No. Yes, in the sense that customer demand for capacity is a concept familiar to economists.[9] No, in the sense that an economist would not limit the concept of consumer demand to just the demand for capacity.

An electric utility provides multiple products or services, and each has a consumer demand: for example, consumer demand for energy, consumer demand for reliability, and consumer demand for billing information from the utility. An economist would not label consumer demand as only consumer demand for capacity, and an economist would certainly never label consumer's payment for

[8] A demand charge with a ratchet makes the customer responsible for demand not only in the current month but for an historical period. For example, Southern Pioneer's General Service Large Class currently has ratchet that make the customer responsible for the highest demand over the current and previous 11 months.
[9] There are numerous economic articles that discuss demand for capacity, but an article that analyzes multiple types of capacity pricing in the context of an electrical network is Shmuel Oren, Stephen Smith, and Robert Wilson, "Capacity Pricing," *Econometrica*, Vol. 53, No. 3 (May, 1985), pp. 545-566.

capacity a demand charge. The demand charge and the designation of consumer demand as consumer demand for capacity comes from electrical engineers.

I will use demand charge and consumer's demand for capacity synonymously.

The Difference between Consumer Demand and Energy

Q. What is the difference between electric utility concept of consumer demand for capacity and energy?

A. Capacity represents electric power that is measured in kilowatts (kW) while power over time is energy or electricity measured in kilowatt hours (kWh).[10]

Q. How do capacity and energy interact?

A. The simplest analogy of the difference between capacity and energy I know of is an internal combustion engine: the engine represents power and the fuel for the engine represents energy. The capacity of the engine is the maximum amount of horsepower it can generate. If multiple customers use the same engine simultaneously, then the maximum amount of power that all the customers can demand at any one time is the maximum generating capacity of the engine.

However, the analogy breaks down quickly when applying it to an electric network. First, electric generation is an intermediary—it takes fuel and converts it to electricity that the network then transports to consumers, and second, because an electric network is more complex than a simple analogy—in the current case, the electric utility's supply of multiple services that each have a capacity constraint. And customers need to pay for the capacity of each service.

[10] If energy is described by a differentiable function over time, then power is the first derivative of the energy function.

Paying for Consumer Demand for Capacity

Q. How have residential customers traditionally paid for capacity?

A. Traditionally, residential customers have had a two-part rate: a customer charge to pay for the fixed costs of equipment to get energy to the customer from the distribution system, and an energy or delivery charge for the electricity provided to the customer. The customer charge is a fixed charge monthly while the energy charge is a per kWh charge that varies with usage. Traditional rate designs have collected the cost of capacity in the energy charge.

Q. How has paying for capacity in the energy charge worked out?

A. Although not ideal, electricity usage historically has been correlated with customer demand for capacity. The correlation is moderate, but adequate for residential consumers given traditional meters, administrative cost, and consumer concerns about a separate demand charge,

Q. What has changed to make the collection of capacity costs in the energy charge problematic today?

A. If a customer installs solar generation, their capacity requirements do not change much, but their energy consumption from the electric utility declines substantially.[11] Therefore, customers with solar generation are not paying their fair portion of the capacity costs when residential revenue is only collecting using customer and energy charges.

[11] Distributed generation in general and residential solar generation in particular.

Q. What is the solution to the problem of collecting capacity costs?

A. As Oren, Smith, and Wilson noted in the article "Capacity Pricing," "a direct analysis of the pricing problem yields immediately the key feature that capacity charges are an important component of the payment schedule."[12] For commercial and industrial consumers, the heterogeneity of customers' usage has usually been significant enough that a demand charge has been added to the customer charge and the energy charge for fairness reasons. The addition of solar customers requires the addition of a demand charge to the residential rate design so utilities can more fairly collect capacity costs.

The Multiple Capacities within the Electric Network

Q. What are the multiple capacities in an electric network?

A. In general, electric utility system's capacity requirements fall into the categories of either generation or "wires". Generation is the source of the electricity on the system and the "wires" are the means of transporting the electricity from the generation source to the customer. The transporting infrastructure needed to move electricity to the customer is generally referred to as transmission and distribution, with transmission moving the electricity from the generator to the population centers with larger "wires" and capacity and then distribution delivering to the customer with smaller "wires."

In Southern Pioneer's case, the generation and transmission capacities are pass-through costs. Only the Southern Pioneer distribution system is directly paid for by Southern Pioneer retail customers in their base rates.

[12] Oren, Smith, and Wilson, p. 562.

Southern Pioneer's Proposed Demand Charge

Q. What is Southern Pioneer's proposed demand charge?

A. For Southern Pioneer, customer demand is calculated as the 15 minutes during the month when the most energy was used and is measured in kWs.

There are two basic different methods of calculating the demand charge. The demand charge can be based on either coincidental or non-coincidental peak demand. Capacity comes in at least three basic forms: generation, transmission, and distribution capacity. Distributional capacity is Southern Pioneer's concern and the reason it is proposing a non-coincidental peak demand charge.

The timing of the usage of distributional capacity varies across the Southern Pioneer system and is dependent upon the usage characteristics of individual groups of customers. The required distributional capacity may be more in some areas of the system at off-peak system times rather than at on-peak system times. Since Southern Pioneer's concern is demand in the system's distribution system, the appropriate demand charge is a non-coincidental peak demand charge.

Southern Pioneer's proposed demand charge for Single and Three-Phase customers is $3.00 per kW per month.

Calculation of the Customer Demand

Q. How did Southern Pioneer calculate the size of the demand charge?

A. Because of data limitations, Southern Pioneer was unable to calculate the demand charge for Single and Three-Phase customers. Instead, Southern Pioneer followed a three-step process for estimating a demand charge.

Step 1: Southern Pioneer estimated customer demand for the Residential and GSS customers.

Step 2: Then using the Southern Pioneer CCOS, Southern Pioneer estimated the per kW cost of distributed customer demand for Residential and GSS customers.

Step 3: Finally, Southern Pioneer chose a per kW value for the customer demand charge that was much lower than the estimated per kW customer capacity cost.

Q. How did Southern Pioneer estimate demand for the Residential and GSS customers?

A. Southern Pioneer has two basic datasets: the Patronage and Demand History datasets. The Patronage dataset is the governing dataset,[13] but it does not contain estimates of customer demand. The Demand History dataset, as its name indicates, contains customer demand, but its number of customers and kWh usage do not match the Patronage dataset, although they are relatively close. To estimate Residential and GSS customer demand consistent with the Patronage dataset, Southern Pioneer followed another three-step process.

Step 1: The Demand History dataset separates Residential and GSS customers' energy usage by Single and Three-Phase customers on an annual basis.

Step 2: The Demand History dataset separates Residential and GSS customers' demand requirements on an annual basis.

Step 3: The Residential Single and Three-Phase customer demand is added together to create Residential customer demand consistent with the Patronage dataset. The same process is used to create GSS customer demand.

[13] The Patronage data is based on customer billing data and is used by Southern Pioneer to calculate rates.

Thus, the class data from the Demand History dataset is transformed into Patronage consistent data by prorating the Demand History data using the Patronage data.[14]

Estimating the Demand Cost for Residential and GSS Customers

Q. How did Southern Pioneer estimate the demand cost for Residential and GSS customers?

A. Southern Pioneer used its CCOS[15] for Power Supply, Transmission, and Distribution estimates of capacity cost. To estimate the per kW demand cost, Southern Pioneer took the cost of capacity and divided it by its estimated demand for the Residential, Residential Space-heating, and the GSS Classes. I replicated the calculations using Staff's CCOS sponsored by Kristina Luke-Fry in her Testimony as a credibility check on Southern Pioneer's estimates.

Q. What were the estimated per kW customer costs of demand?

A. Table 4 below shows the results of the estimated per kW calculations of customer demand cost. The top half of the table has Staff's estimates of the per kW demand cost and the bottom half has Southern Pioneer's estimates. Staff's estimates are lower than Southern Pioneer's estimates by about 12% for distribution capacity, but well within the ballpark.

[14] Exhibit RHG-1 contains the algebra used to adjust the billing determinants for the Residential and GSS Classes and the Single and Three-Phase Classes so that the billing determinants consistent with the Patronage data.
[15] Richard Macke, Direct Testimony, Exhibit PSE-3.

Table 4

Estimated per kW cost of Demand for Distribution Capacity and All Capacity			
	Residential Service	**Residential Space Heating**	**General Service Small**
STAFF			
Distribution Capacity	$5.89	$4.65	$6.64
All Capacity	$11.66	$8.77	$13.66
SOUTHERN PIONEER			
Distribution Capacity	$6.71	$5.29	$7.54
All Capacity	$12.63	$9.63	$14.58

Q. Does Southern Pioneer's choice of a $3.00 demand rate seem significantly lower than the estimated per kW cost of distribution demand?

A. Yes. If the demand rate were for the existing Residential and GSS Classes.

Estimating the Demand Cost for Single and Three-Phase Customers

Q. What about the per kW cost of distribution demand for the new Single and Three-Phase Classes?

A. The composition of the Single and Three-Phase Classes strongly suggests that their per kW cost of distribution demand is also substantially higher than the $3.00 demand rate. Only six of the 11,996 Residential customers are not in the Single-Phase Class. As a result, more than 99% of the Residential energy usage is in the Single-Phase Class. And 92% of the energy usage in the Single-Phase Class is from the Residential Customers. The composition of the Single-Phase Class strongly suggests that the Residential estimate of the per kW cost of demand is a good proxy for the Single-Phase cost of demand per kW. Similarly, the composition of the Three-Phase Class strongly suggests that the GSS estimated per kW cost of demand is a good proxy for the Three-Phase per kW cost of demand.

The Three-Phase Class has about 30% of the GSS energy usage and six Residential customers. The GSS customers in Single-Phase and Three-Phase Classes have about the same load factor.[16] For customers in the Single-Phase Class the load factor is 23.9% and for customers in the Three-Phase Class the load factor is 23.5%. In addition, the load factor for the six Residential customers in the Three-Phase Class is 22.4%. Since the load factor for the GSS Class is like the load factor for the Three-Phase Class, and since the Residential customers in the Three-Phase Class also have a similar load factor, the evidence strongly suggests that the GSS estimated per kW cost of demand is a good proxy for the Three-Phase per kW cost of demand.

Q. Besides the qualitative evidence given above, do you have any quantitative evidence confirming that the proposed demand rate is well within the cost of demand capacity?

A. Yes. Staff used Southern Pioneer's estimated customer demand for the Residential, GSS, Single-Phase, and Three-Phase Classes to allocate demand costs. These estimates are the only consistent demand estimates for all four classes. As a result, Staff used these estimates as allocators for demand costs.

The procedure for estimating per kW demand costs involves three steps.

Step 1: Organize Southern Pioneer's demand estimates by Residential, GSS, Single-Phase, and Three-Phase Classes for easy application to the problem.

[16] Load factor is a measure of the time consistency of energy usage. The formula for load factor is: $Load\ Factor = \frac{Average\ Load}{Peak}$. Similar types of customers with similar load factors tend to have similar costs of demand.

Step-2: Estimate Single and Three-Phase demand costs using Residential and GSS demand costs.

Step-3: Estimate per kW demand cost for Power Supply, Transmission, and Distribution for Single and Three-Phase Classes.[17]

Table 5 below shows the results of Staff method for estimating the per kW demand cost for the Single and Three-Phase Classes.

Table 5

Estimated per kW Cost of Demand for Power Supply, Transmission, Distribution Capacity, and All Capacity				
	Residential Service	**Single -Phase Service**	**GSS**	**Three-Phase Service**
STAFF				
CAPACITY				
Power Supply	$3.47	$3.51	$4.06	$4.04
Transmission	$2.29	$2.33	$2.96	$2.94
Distribution	$5.89	$5.93	$6.64	$6.62
All Capacity	$11.66	$11.77	$13.66	$13.60
SOUTHERN PIONEER				
CAPACITY				
Power Supply	$3.47	$3.50	$4.06	$4.04
Transmission	$2.45	$2.47	$2.98	$2.96
Distribution	$6.71	$6.75	$7.54	$7.51
All Capacity	$12.63	$12.73	$14.58	$14.51

Q What does Table 5 show about the appropriateness of the $3.00 demand charge?

A. Whether the Staff CCOS or the Southern Pioneer CCOS is used to estimate the cost of demand, the per kW distribution demand cost is significantly above the $3.00

[17] I provide Staff method for estimating demand cost in Exhibit RHG-2 attached to this testimony.

demand charge. Southern Pioneer is presenting an introductory demand charge that is significantly below what the cost evidence shows it should be.

Q. What is Staff's position on Southern Pioneer's demand charge?

A. Both the qualitative and the quantitative evidence lend credence to Southern Pioneer's choice of a $3.00 demand charge. Staff agrees that a demand charge is the appropriate addition to the rate design to collect capacity costs. And introducing a relatively low demand charge is appropriate at this time.

Because of the need to ensure Southern Pioneer's capacity costs are fairly collected, because of the appropriateness of the demand charge, and because of the conservative nature of Southern Pioneer's introductory rate, Staff supports Southern Pioneer's proposed demand charge.

Revenue Neutrality for Single and Three-Phase Classes

Q. After the Transition for the Single and Three-Phase Classes, what does revenue neutral mean for these classes?

A. Revenue neutral means that if you add together the revenue from the Residential and GSS customers that would transition to the Single-Phase Class, the revenue they generated with the existing Residential and GSS rate design is equal to the revenue these same customers generate with the new Single-Phase rate design. For the customers that would be part of the new Three-Phase Class, the same condition described above for the Single-Phase Class would also need to extend to them.

Q. Are the Single and Three Phase Classes revenue neutral?

A. They are approximately neutral. The "approximately" qualification is due to the limitations of Southern Pioneer's rate structure—customer and demand charges are limited to two digits ($0.00) and energy charges (delivery charges using Southern

Pioneer's language) are limited to five digits ($0.00000). Tables 6 and 7 below show the approximate revenue neutrality of the Single and Three-Phase Classes. The top half of each table shows the revenue generated by the existing rate design and the bottom half of each table shows the proposed rate design.

Table 6

Summary of Consumers, Energy Sales, and Revenue Present and Proposed Rates - New Single Phase Grouping				
Rate Class	Billing Determinants	Units	Rate	Revenue
	(1)	(2)	(3)	(4)
Present Rates				
Residential Service				
Customer Charge	11,990	cons	$14.67	$2,110,712
Delivery Charge				
Summer (Jul-Oct)	49,626,327	kWh	$0.14358	$7,125,348
Winter (Nov-Jun)	67,070,534	kWh	$0.13258	$8,892,211
PTS[1]	116,696,861	kWh	$0.00020	$23,106
Revenue				**$18,151,377**
General Service Small				
Customer Charge	2,106	cons	$22.74	$574,558
Delivery Charge				
Summer (Jul-Oct)	3,495,844	kWh	$0.11876	$415,166
Winter (Nov-Jun)	6,188,926	kWh	$0.10776	$666,919
PTS[1]	9,684,770	kWh	$0.00020	$1,918
Revenue				**$1,658,561**
Total Revenue				**$19,809,938**
Proposed Rates				
Single Phase Service				
Customer Charge	14,095	cons	$16.67	$2,819,662
Demand Charge	1,044,696	kW	$3.00	$3,134,089
Delivery Charge				
Summer (Jul-Oct)	53,122,171	kWh	$0.11601	$6,162,703
Winter (Nov-Jun)	73,259,460	kWh	$0.10501	$7,692,976
PTS[1]	126,381,631	kWh	$0	$0
Total Revenue				**$19,809,429**

NOTE[1]: The PTS is being rebased in this docket. See the NOTE[1] in Table 2 for an explanation of why the PTS is set to zero to for check revenue neutrality.

Table 7

Summary of Consumers, Energy Sales, and Revenue Present and Proposed Rates - New Three-Phase Grouping				
Rate Class	Billing Determinants	Units	Rate	Revenue
	(1)	(2)	(3)	(4)
Present Rates				
Residential Service				
Customer Charge	6	cons	$14.67	$1,035
Delivery Charge				
Summer (Jul-Oct)	58,964	kWh	$0.14358	$8,466
Winter (Nov-Jun)	79,691	kWh	$0.13258	$10,565
PTS[1]	138,655	kWh	$0.00020	$27
Revenue				**$20,094**
General Service Small				
Customer Charge	643	cons	$22.74	$175,566
Delivery Charge				
Summer (Jul-Oct)	1,482,842	kWh	$0.11876	$176,102
Winter (Nov-Jun)	2,625,174	kWh	$0.10776	$282,889
PTS[1]	4,108,016	kWh	$0.00020	$813
Revenue				**$635,371**
Total Revenue				**$655,465**
Proposed Rates				
Three-Phase Service				
Customer Charge	649	cons	$22.98	$179,040
Demand Charge	24,826	kW	$3.00	$74,477
Delivery Charge				
Summer (Jul-Oct)	1,541,806	kWh	$0.10166	$156,740
Winter (Nov-Jun)	2,704,865	kWh	$0.09066	$245,223
PTS[1]	4,246,671	kWh	$0	$0
Total Revenue				**$655,481**
NOTE[1]: The PTS is being rebased in this docket. See the NOTE[1] in Table 2 for a explanation of why the PTS is set to zero to check for revenue neutrality.				

Other Rate Classes Affected by the Transition

Q. Are there additional rate classes affected by the Transition?

A. Yes. The Single and Three-Phase proposed rates affect three additional classes: Single-Phase Space-Heating, The Water Pumping Rate, and the Municipal Rate Classes. I will discuss each class in the listed order.

Single-Phase Space-heating Class

Q. How is the Single-Phase Space-heating rate design tied to the Single-Phase Class rate design?

A. The customer charge, the demand charge, the summer delivery charge, and the winter delivery charge for space-heating and non-space-heating are identical. The only difference is the space-heating rate.

Q. Does Staff see any issues with the proposed Single-Phase Space-heating rate design?

A. Yes. Southern Pioneer proposed the space-heating discount delivery charge (Heating Block) decrease from $0.11462 to $0.05039—a 56% proposed decline. Table 8 below has a comparison of the Residential Space-heating rate design and the Single-Phase Space-heating rate design. These are the same customers. The only change has been the change in the customer class name.

Table 8

Present and Proposed Rate Schedules for Single-Phase Space Heating		
	Rates	
	Present	Proposed
Customer Charge	$14.67	$16.67
Demand Charge[1]		$3.00
Delivery Charge		
Summer (Jul-Oct)	$0.14358	$0.11601
Winter (Nov-Jun)		
Heat Block (801-5800 kWh)	**$0.11462**	**$0.05039**
Other	$0.13258	$0.10501
NOTE1: The Demand Charge is a non-coincidential peak demand and is new.		

Q. Why is the substantial decline in the space-heating energy charge problematic?

A. The space-heating energy charge problematic because there is no cost justification for the significant decrease in the space-heating charge. The mirroring of the Single-Phase Class rates in the Single-Phase Space-Heating Class is the only reason for the significant decrease in the space-heating charge. The determination of the heating discount is just the residual revenue needed to keep the rate design revenue neutral and the customer charge, the demand charge, and the non-heating delivery charge the same between the two classes.

Q. Are there any other reasons for eliminating the Single-Phase Space-heating Class besides the lack of cost-based evidence for the space-heating discount?

A. Yes. First, Southern Pioneer has indicated that the proposed demand rate is just an introductory rate, and that it intends to request an increase in the rate in the future. Because the heating discount is only the residual after the calculation of the other

rates, the expected future increase in the demand rate will increase the heating discount, and that will exacerbate the subsidy.

Second, part of Southern Pioneer's argument for the Transition is moving away from end use designation for rates and instead using the character of service as the determining feature of rate design. Having a heating discount violates this principle.

Third, the problem with delaying the elimination of subsidies is that with time subsidies turn into entitlements. Consider the problem of other utilities minimizing the heating discount, such as the heating discount that Evergy Kansas Metro (the former Kansas City Power & Light) had and the ensuing conflict with heating customers opposed to moderating the heating discount. [18]

Q. Does Staff have a proposal for the Single-Phase Space-Heating Class?

A. Yes. Staff proposes folding the Single-Phase Space-Heating Class billing determinants into the Single-Phase Class. The Staff proposed new class would be a combination of the Southern Pioneer proposed Single-Phase Class and the Residential Space-Heating Class (Combined Single-Phase Class). In addition, Staff proposes the abandonment of Southern Pioneer's proposed Single-Phase Space-Heating Class.

[18] The problem of the space-heating rate subsidies was first raised in the 09-KCPE-246-RTS Docket with the Commission requiring KCP&L to provide a CCOS in the next rate case that includes "a breakout of each residential water heating and space heating subclass from the aggregate Residential Service class." Order: 1) Approving Stipulation & Agreement; and 2) Addressing Scope of Final Rate Case under the Approved 2005 Regulatory Plan, p. 12. In the Docket No. 10-KCPE-415-RTS the different heating discounts were dramatically reduced. Both KCP&L and the Commission received numerous customer complaints. The issue was raised again in the Docket No. 12-KCPE-784-RTS. Finally, the issue was raised in Docket No. 15-KCPE-116-RTS with CURB, at the behest of its Board, defending the initial discounts on ethic grounds. Because of the controversy over heating discounts and other issues, KCP&L changed its theory of rate design from an emphasis on "end-use" to simply agnostic customer usage.

Q. What would be the effect of Staff's proposed Combined Single-Phase Class on the current Residential Space-Heating customers?

A. The revenue collected from space-heating customers would increase $64,684—about a 7.75% increase in revenue. However, the winter revenue from the delivery charge would decrease $92,123 because the revenue from the demand charge would lower the winter delivery charge of the Combined Single-Phase Class as it had in Southern Pioneer's proposed Single-Phase Space-Heating Class. The elimination of the space-heating discount and folding these customers into the Combined Single-Phase Class results in the winter delivery charge decreasing from $0.10501 to $0.10413 for the Residential Space-Heating customers and the Single-Phase customers—a decline in the winter delivery rate of almost one percent.

Q. Is Staff's Combined Single-Phase Class revenue neutral?

A. The simple answer is yes, but the explanation is a little complicated.

First, the approximate revenue neutrality of Southern Pioneer's proposed Single-Phase Class has already been established and was illustrated in Table 6 above. Second, Southern Pioneer's proposed Single-Phase Space-Heating Class was calculated by Southern Pioneer to be approximately revenue neutral with the Residential Space-Heating Class.

Therefore, the Staff's proposed Combined Single-Phase Class is approximately revenue neutral with the combination of the Residential Space-Heating Class and the Single-Phase Class. In addition, the Combined Single-Phase Class is approximately revenue neutral with the combination of the Southern Pioneer proposed Single-Phase Space-Heating Class and the proposed Single-Phase Class.

The best comparison of the rate impact of Staff's Combined Single-Phase Class is between Staff proposed Combined Single-Phase Class and the Residential Space-Heating Class. The comparison and resulting revenue neutrality is illustrated below in Table 9.

Q. What is Staff's recommendation for the Residential Space-Heating Class?

A. Staff recommends folding the Residential Space-Heating Class into the proposed Single-Phase Class. Combining these two classes would eliminate the problem of the significantly increased heating discount that is not cost based.

Table 9

Summary of Consumers, Energy Sales, and Revenue Souther Pioneer's Proposed Single-Phase Class and Staff's Proposed Combined Single-Phase Class				
Rate Class	Billing Determinants	Units	Rate	Revenue
	(1)	(2)	(3)	(4)
Proposed Rate Structure: Southern Pioneer				
Single Phase Service				
Customer Charge	14,095	cons	$16.67	$2,819,662
Demand Charge	1,044,696	kW	$3.00	$3,134,089
Delivery Charge				
Summer (Jul-Oct)	53,122,171	kWh	$0.11601	$6,162,703
Winter (Nov-Jun)	73,259,460	kWh	$0.10501	$7,692,976
PTS	126,381,631	kWh	$0	$0
Revenue				**$19,809,429**
Present Rate Structure: Southern Pioneer				
Residential Space-Heating				
Customer Charge	531	cons	$14.67	$93,507
Delivery Charge				
Summer - All kWh	1,592,456	kWh	$0.14358	$228,645
Winter (Nov-Jun)				
Heating Block (800-58(	1,249,429	kWh	$0.11462	$143,210
Other	2,777,383	kWh	$0.13258	$368,225
PTS[1]	5,619,268	kWh	$0.00020	$1,113
				$834,699
Total Revenue				**$20,644,128**
Proposed Rate Structure: Staff				
Combined Single Phase Service & Residential Space-Heating				
Customer Charge	14,627	cons	$16.67	$2,925,916
Demand Charge	1,107,722	kW	$3.00	$3,323,165
Delivery Charge				
Summer (Jul-Oct)	54,714,627	kWh	$0.11601	$6,347,444
Winter (Nov-Jun)	77,286,272	kWh	$0.10413	$8,047,819
PTS	132,000,899	kWh	$0	$0
Total Revenue				**$20,644,344**

NOTE[1]: The PTS is being rebased in this docket, but to check revenue neutrality, the PTC for the Residential Space-Heating Class is not rebased. See the NOTE[1] in Table 2 for explanation of why the PTS is set to zero.

Water Pumping Rate

Q. How is the Water Pumping Rate tied to the Three-Phase rate design?

A. As noted in Southern Pioneer's Application (p. 7) "The Water Pumping rate currently has a Customer Charge set just below that of the current GSS rate. The proposed rate requests to align the Customer Charge with the Three Phase rate, which would be an increase of $2.64 per month." In addition, Southern Pioneer proposes adding a demand charge that is identical to Three-Phase Class demand charge—$3.00 per kW. Both Southern Pioneer's and Staff's CCOS studies show that the $3.00 demand charge is well below the per kW cost of capacity for the Water Pumping Class. As with the Three-Phase Class, the delivery charge is reduced to create approximately revenue neutrality. The present and proposed rate designs for the Water Pumping Rate are shown in Table 10 below along with a demonstration of the proposed rates being approximately revenue neutral.

Table 10

Summary of Consumers, Energy Sales, and Revenue Present and Proposed Rates - Water Pumping Rate				
Rate Class	Billing Determinants	Units	Rate	Revenue
	(1)	(2)	(3)	(4)
Present Rates				
Water Pumping Service				
Customer Charge	71	cons	$20.34	17,411
Delivery Charge				
Summer (Jul-Oct)	2,766,399	kWh	$0.13047	360,932
Winter (Nov-Jun)	4,117,009	kWh	$0.11947	491,859
Property Tax Surcharge[1]	6,883,408	kWh	$0.00020	1,363
Total Revenue				871,565
Proposed Rates				
Customer Charge	71	cons	$22.98	19,671
NCP Demand Charge	29,331.7	kW	$3.00	87,995
Delivery Charge				
Summer (Jul-Oct)	2,766,399	kWh	$0.11756	325,218
Winter (Nov-Jun)	4,117,009	kWh	$0.10656	438,708
Property Tax Surcharge[1]	6,883,408	kWh	-	-
Total Revenue				871,592
NOTE[1]: The Property Tax Surcharge is being rebased with the revenue collecte base rates.				

Municipal Rate

Q. How is the Municipal Rate tied to the Single-Phase rate design?

A. As Southern Pioneer's Application states, the Municipal Rate (Municipal) currently adopts the Residential Customer Charge. The proposed rate design is to increase the customer charge to the Single-Phase Customer Charge. In addition, both Southern Pioneer's and Staff's CCOS studies show that the per kW cost of demand for the Municipal is below the $3.00 Demand Charge. Thus, Southern Pioneer is

not proposing a Demand Charge for the Municipal Rate. Because of the small increase in the Customer Charge, there is only a small decrease in the Delivery *Charge. Table 11 below has the proposed Municipal rate design and a demonstration of the near revenue neutrality of the proposed rate design.

Table 11

Summary of Consumers, Energy Sales, and Revenue Present and Proposed Rates - Municipal Rate				
Rate Class	Billing Determinants	Units	Rate	Revenue
	(1)	(2)	(3)	(4)
Present Rates				
Water Pumping Service				
Customer Charge	61	cons	$14.67	10,738
Delivery Charge				
Summer (Jul-Oct)	72,482	kWh	$0.13934	10,100
Winter (Nov-Jun)	126,836	kWh	$0.12834	16,278
Property Tax Surcharge[1]	199,318	kWh	$0.00020	39
Total Revenue				37,156
Proposed Rates				
Customer Charge	61	cons	$16.67	12,202
Delivery Charge				
Summer (Jul-Oct)	72,482	kWh	$0.13219	9,581
Winter (Nov-Jun)	126,836	kWh	$0.12119	15,371
Property Tax Surcharge[1]	199,318	kWh	-	-
Total Revenue				37,155
NOTE[1]: The Property Tax Surcharge is being rebased with the revenue collected in base rates.				

Q. Does Staff agree with Southern Pioneer's proposed minimal changes to the Municipal rate?

A. Yes.

IV. ANALYSIS
GENERAL SERVICE LARGE, INDUSTRIAL & TRANSMISSION SERVICE

Q. What are the major issues involving the rate design for the General Service Large (GSL), Industrial, and Transmission Level Service Classes.

A. I have four sections to my analysis of the GSL, Industrial, and Transmission Level Service Classes rate designs.

(1) Southern Pioneer's proposed GSL Class rate design.

(2) Staff's proposed combination of the GSL and GSL Space-Heating Class with the elimination of the space-heating discount.

(3) Southern Pioneer's proposed Industrial rate design.

(4) Southern Pioneer's proposed Transmission Level Service rate design.

GSL Rate Design

Q. What is Southern Pioneer's proposed GSL rate design?

A. Southern Pioneer proposes changing its demand charge for the GSL Class by:

(1) Reducing the allowance for free demand from 9 kW to 7 kW,

(2) Reducing the 12 month ratchet from 100% to 50%,

(3) Increasing the threshold for shifting between the proposed Three-Phase Class and the GSL Class from one month to three months,

(4) Increasing the summer demand charge from $12.69 to $13.29 and increase the winter demand charge from $10.69 to $11.29, and

(5) Raise the delivery charge from $0.08944 to $0.08964 by including the rebased PTS in the delivery charge.

The present and proposed rate designs for GSL are shown in Table 12.

Table 12

Present and Proposed Rate Schedules for General Service Large Class						
Residential Service				**Single Phase Service**		
Customer Charge	$41.46	/mo.		Customer Charge	$41.46	/mo.
Delivery Charge	$0.08944	/kWh		Delivery Charge	$0.08964	/kWh
Demand Charge > 9 kW				Demand Charge > 7 kW		
Summer (Jul-Oct)	$12.69	/kW		Summer (Jul-Oct)	$13.29	/kW
Winter (Nov-Jun)	$10.69	/kW		Winter (Nov-Jun)	$11.29	/kW
PTS[1]	$0.000198	/kWh		PTS[1]	-	/kWh
NOTE1: PTS refers to the Property Tax Surcharge. The PTS is being rebased in this docket. Thus, it is zero in the proposed rates with the present revenue incorporated in the Delivery Charge.						

Q. Is there a single source of the complexity of Southern Pioneer's proposed rate design for the GSL Class?

A. Yes. All the complexity of Southern Pioneer's proposed changes involves the demand charge in the GSL rate design. In addition, the issue that spurred Staff's proposed change to the Southern Pioneer's rate structure is due to the changes in the GSL's demand charge.

Q. What changes to the GSL demand charge is Southern Pioneer proposing?

A. Southern Pioneer is proposing three changes to the GSL demand charge:

First, the demand charge currently has an allowance that the first 9 kW of demand is free. For example, if a customer has 15 kW demand, then the customer would only pay for the last 6 kW of demand. Southern Pioneer wants to reduce the free allowance to 7 kW from the current 9 kW.

Second, the GSL demand charge currently has a 100% ratchet stretching back 11 months. Thus, if a customer demanded 15 kW in July and only demanded 10 kW in September, then the demand charge for September would still be based on

15 kW because of the ratchet effect of the July customer demand. Southern Pioneer proposes to reduce the ratchet from 100% to 50%.

Third, currently the threshold for moving from the GSS Class to the GSL Class is only a one month increase in customer demand to 10 kW. Then if their next month's demand is reduced to 9 kW, the customer is returned to GSS Class. Southern Pioneer wants to change the threshold for moving from the GSS Class (proposed to be the Three-Phase Class) to the GSL Class from one month to three months to provide more stability for the Three-Phase and the GSL Classes.

GSL Demand Allowance

Q. Why does Southern Pioneer want to reduce the demand allowance for the GSL rate design from 9 kW to 7 kW?

A. Southern Pioneer argues that there is no cost-based reason to have a free allowance for the GSL Class.[19]

Q. If there is no cost-based reason for the allowance, then why have any allowance at all for the GSL Class?

A. Southern Pioneer states that even though "[t]here is no cost-based reason for the rate to include any free kW allowance, … getting rid of it all together would be too impactful to consumer bills."[20] For Staff, the problem is that there are multiple changes to the implementation of the demand charge, and the impact of one change is hard to isolate. The reduction in the allowance from 9 kW to 7 kW increases the amount of demand subject to the demand charge. The reduction in the ratchet, which is discussed next, reduces the amount of demand subject to the demand

[19] Application, Docket No. 24-SPEE-415-TAR, pp. 5 – 6.
[20] *Ibid.*

charge. Finally, the addition of three months of continuous time above the 10 kW threshold to move from the GSS or the proposed Three-Phase Class to the GSL or three months of continuous time below the 10 kW threshold to move back to the Three-Phase Class (the new GSS Class) seems like it could either increase or decrease GSL total demand for the class as a whole. The new threshold could either keep more customers in the Three-Phase Class because their demand only increases to 10 kW sporadically or keep more customers in the GSL Class because their demand only declines below 10 kW occasionally.

Given the intricacy in the changes in the implementation of the demand charge for the GSL, Staff has no interest in trying to fine-tune the allowance for demand charge where the impact of any change would entail substantial uncertainty. Thus, Staff thinks reducing the 9 kW allowance to 7 kW is a reasonable step to eventually eliminating the allowance so that all customers are treated similarly in terms of how they are billed for their capacity requirements.

GSL Ratchet

Q. What is a ratchet for a demand charge?

A. A demand charge with a ratchet makes the customer responsible for demand not only in the current month but for an historical period. For example, Southern Pioneer's General Service Large Class currently has ratchet that make the customer responsible for the highest demand over the current and previous 11 months. As in the example given earlier, if a customer has a demand of 15 kW in July and only 10 kW in September, that customer will still need to pay for the 15 kW demand for July in September.

Q. What is Southern Pioneer's proposal for the GSL demand ratchet?

A. Southern Pioneer proposes to reduce the ratchet from 100% to 50%.

Q. What reasons does Southern Pioneer give for reducing the ratchet?

A. Southern Pioneer views the reduction from 100% to 50% as a form of gradualism. Southern Pioneer receives complaints about the ratchet from firms that only operate at a high level for a few months a year, such as companies with agricultural products or special events. Southern Pioneer hopes that "customers won't see it so much as a penalty, and Southern Pioneer can better communicate the need for some form of a minimum bill for capacity that must be held in reserve throughout the year on behalf of the customer."[21]

Q. Why reduce the ratchet to 50%?

A. Southern Pioneer argues that reducing the ratchet to 50% aligns the GSL ratchet with the proposed Industrial ratchet of 50%. Of more importance to Southern Pioneer is its concern with aligning the demand charge with the demand for distribution capacity—"If a customer has a volatile load from month to month, these distribution capacity related costs do not change – even though some other capacity costs such as the purchase power demand and transmission demand costs might."[22] And for the GSL and Industrial Classes distribution demand represents about 50% of all demand.—"Therefore, a 50% demand ratchet would be a reasonable way to ensure that the GSL and IS [Industrial] customers pay towards the distribution system capacity related fixed costs throughout the year."[23]

[21] Brian Beecher, Direct Testimony, Docket No. 24-SPEE-415-TAR, p. 7.
[22] Richard Macke, Direct Testimony, Docket No. 24-SPEE-415-TAR, p. 39.
[23] *Ibid*.

Q. What does Staff think of the reduction in the ratchet?

A. Because distribution capacity related costs do not change with load, it is reasonable to maintain some type of demand ratchet to help ensure that customers are paying for at least part of the bundled demand charge even in months where their measured demand may be dramatically less. Sunflower G&T investments, which are passed through the power bill, constitute about 50% of capacity cost. And Southern Pioneer distribution investments constitute the other half. Thus, a 50% demand ratchet would be a reasonable way to ensure that GSL and Industrial customers pay towards the distribution system capacity related fixed costs throughout the year.

Changing the Threshold for Moving from Three-Phase to General Service Large and back

Q. Why does Southern Pioneer want to change the threshold for moving from three-phase to GSL and back?

A. Southern Pioneer wants to limit the back and forth between the proposed Three-Phase Class and the GSL Class. Customers switching back and forth between the two classes creates administrative problems for Southern Pioneer. In addition, switching back and forth creates billing uncertainty for customers because of the difference in the rate designs for the two classes.

Q. Does Staff agree with the increase in the threshold for shifting between the Three-Phase and GSL Classes?

A. Staff supports improving administrative efficiency and reducing customer uncertainty. Therefore, Staff recommends approval with the changes discussed in the following section.

Combining GSL and GSL Space-Heating (Rider No. 1)

Q What is the GSL Space-Heating (Rider No. 1)?

A. The GSL Space-Heating (Rider No. 1) is a rate that mirrors the GSL rate design except it has a space-heating discount.

Q. Does Staff have a problem with the heating discount?

A. Yes. Because the GSL Space-heating (Rider No. 1) mirrors the GSL rate design, the heating discount is the residual revenue that needs to be collected after the other rates have collected their revenue like residential space-heating discussed above. The space-heating discount rate is calculated by dividing the residual revenue by the kWh eligible for the space-heating discount.

However, because of the changes listed above, the GSL demand charge collects more revenue than before like what happened with Residential Space-Heating Class. The result is a decline in the heating discount rate from $0.08283 to $0.01796 per kWh—a decline of 79%. The new rate of $0.01796 is nowhere close to cost-based and provides a considerable subsidy to space-heating customers. Staff finds the space-heating discount rate unacceptable. As noted earlier, large subsidies can quickly turn from being subsidies to entitlements making it difficult to eliminate or even moderate the subsidy.

Q. Does Staff have a solution to the problem?

A. Yes. Staff recommend eliminating the GSL Space-heating (Rider No. 1) Class and combining the customers in that class with the GSL Class. The only change needed to remain revenue neutral is a slight reduction in the Delivery Charge.

The combined GSL Class would collect the revenue collected by both the GSL, and the GSL Space-heating (Rider No. 1) Classes. The result will be approximately revenue neutral. Table 13 below shows the Southern Pioneer proposed rate design for the two classes (at the top of the table) and Staff proposed combined GSL Class rate design (at the bottom of the table).

Table 13

Summary of Consumers, Energy Sales, and Revenue Souther Pioneer and Staff Proposed Rate Design for GSL and GSL Space Heating (Rider No. 1)				
Rate Class	Billing Determinants	Units	Rate	Revenue
	(1)	(2)	(3)	(4)
Southern Pioneer Proposed Rate Design				
General Service Large				
Customer Charge	1,339	cons	$41.46	$666,387
Demand Charge per kW>7				
Summer (Jul-Oct)	158,943	kW	$13.29	$2,112,357
Winter (Nov-Jun)	265,659	kW	$11.29	$2,999,285
Delivery Charge	128,810,904	kWh	$0.08964	$11,546,609
Revenue				**$17,324,639**
General Service Space Heating (Rider No. 1)				
Customer Charge	38	cons	$41.46	$6,965
Demand Charge				
Summer (Jul-Oct)	3,552	kW	$13.29	$47,209
Winter (Nov-Jun)	8,791	kW	$11.29	$99,254
Delivery Charge				
GSL	1,381,274	kWh	$0.08964	$123,817
Discount Heating Rate	1,195,039	kWh	$0.01796	$21,463
Revenue				**$298,709**
Total Revenue				**$17,623,347**
Staff Proposed Rate Design				
General Service Large				
Customer Charge	1,377	cons	$41.46	$673,352
Demand Charge per kW>7				
Summer (Jul-Oct)	162,496	kW	$13.29	$2,159,566
Winter (Nov-Jun)	274,450	kW	$11.29	$3,098,539
Delivery Charge	131,387,217	kWh	$0.08899	$11,692,148
Total Revenue				**$17,623,606**

Q. What are the differences between Southern Pioneer's proposed rate design and Staff's proposed rate design?

A. The delivery charge for Staff is slightly smaller than the delivery charge for Southern Pioneer: $0.08899 versus $0.08964. And, of course, the discount heating rate is eliminated.

Industrial Demand Charge

Q. What changes did Southern Pioneer propose for the Industrial rate design?

A. Southern Pioneer proposed eliminating the current 10 kW free allowance for the demand charge and reducing the 11 month demand ratchet from 75% to 50% to align the GSL rate design more closely with the Industrial rate design.

Q. Why does Southern Pioneer propose eliminating the 10 kW allowance for the Industrial Class but not for the GSL Class?

A. Southern Pioneer states that the elimination of the allowance for the Industrial Class "does not impose a substantial impact on the customer's bills."[24] In contrast, Southern Pioneer was concerned about the bill impact on GSL customers.

Q. Why does Southern Pioneer propose reducing the demand ratchet from 75% to 50% for the Industrial Demand Charge?

A. For two reasons: (1) Southern Pioneer wanted the rate design for the GSL Class and the Industrial Class to be more aligned, and (2) because the distribution demand costs are about 50% of the total demand costs for the Industrial Class.

Q. After these proposed changes, was Southern Pioneer able to make the proposed rates revenue neutral?

A. Yes. See Table 14 below.

[24] Application, p. 6.

Table 14

Summary of Consumers, Energy Sales, and Revenue Present and Proposed Rates - Industrial Class				
Rate Class	Billing Determinants	Units	Rate	Revenue
	(1)	(2)	(3)	(4)
Present Rates				
Customer Charge	17	cons	$102.15	20,839
Summer (Jul-Oct)	11,117.6	kW	$14.18	157,648
Winter (Nov-Jun)	22,586.9	kW	$11.18	252,522
Delivery Charge	13,149,059	kWh	$0.08224	1,081,379
Primary Metering Discount				
Demand Charge per kW>10				
Summer (Jul-Oct)	28,954.9	kWh	$13.90	402,369
Winter (Nov-Jun)	61,806.7	kWh	$10.96	677,178
Delivery Charge	26,867,793	kWh	$0.08060	2,165,415
Property Tax Surcharge	40,016,852	kWh	$0.00020	7,923
Total Revenue				**4,765,273**
Proposed Rates				
Customer Charge	17	cons	$102.15	20,839
Demand Charge				
Summer (Jul-Oct)	9,002.4	kW	$15.78	142,058
Winter (Nov-Jun)	20,533.0	kW	$12.78	262,412
Delivery Charge	13,149,059	kWh	$0.08244	1,084,008
Primary Metering Discount				
Demand Charge				
Summer (Jul-Oct)	24,762	kW	$15.46	382,923
Winter (Nov-Jun)	56,077	kW	$12.52	702,326
Delivery Charge	26,867,793	kWh	$0.08079	2,170,681
Property Tax Surcharge	40,016,852	kWh	-	-
Total Revenue				**4,765,248**

Q. What is the Primary Metering Discount?

A. From the Southern Pioneer proposed tariffs, the tariff for the Industrial Class includes a section called Primary Service Discount. The discount is described in

the tariff as "The rate provision of the net monthly bill excluding the Energy Cost Adjustment clause and Property Tax Rider will be discounted two percent (2%) if all service is delivered and metered at a primary distribution voltage of 4160 volts or higher and customer owns and maintains all necessary transformation equipment and substation." In other words, the customer receives a two percent discount for accepting high voltage service and providing much of the customer equipment needed to receive service.

Transmission Level Services

Q. What is Southern Pioneer proposing for the Transmission Level Services (STR) Class?

A. In its Application, Southern Pioneer proposed changing the current Delivery Energy Charge to a Delivery Demand Charge.[25]

Q. Why does Southern Pioneer want to change from an energy charge to a demand charge?

A. Changing to a demand charge "is consistent with the cost of service and with the overall approach of recovering non-power supply and transmission costs in the Customer Charge and Demand Charge rather than Energy Charges."[26]

Q. What is Staff's recommendation about the proposed change to a demand charge?

A. At this time, Staff has no recommendation concerning the proposed change from an energy charge to a demand charge for the STR Class.

Southern Pioneer has provided two estimates of the estimated demand for the STR Class that result in extremely different revenue collection from the 34.5 kV

[25] Application, Docket No. 24-SPEE-415-TAR, p. 7.
[26] Richard Macke, Direct Testimony, Docket No. 24-SPEE-415-TAR, p. 41

and 115 kV Transmission Groups. In the test year, the 34.5 kV revenue collection from the Delivery Energy Charge was $6,713. The filed proposed Delivery Demand Charge for the 34.5 kV was $139,788, or more than a 2,000% increase in revenue collect. Then in response to Data Request No. 1-6 from National Beef and Air Products, Southern Pioneer provided an estimate of 34.5 kV demand that would result in revenue collection of $20,604.

Whether Staff theoretically agrees with Southern Pioneer's argument for changing the energy charge to a demand charge or not, these wildly varying estimates of the revenue collection suggest that problems exist with the implementation of the demand charge. In this case, Staff would be forced to recommend the rejection of the demand charge. However, Staff has been notified that Southern Pioneer will provide corrected demand estimates to the parties on April 2, 2024.

Concurrent with this Direct Testimony, Staff is requesting permission to file Supplemental Direct Testimony on April 9, 2024 to address the proposed change from an energy charge to a demand charge for the STR Class.

V. CONCLUSION

Q. What recommendations did you make in your testimony?

A. I recommend that the Commission:

(1) Approve Southern Pioneer's request to transition with a revenue neutral approach from the current Residential and GSS Classes to the proposed Single and Three-Phase Classes.

(2) Approve Southern Pioneer's increased Customer Charge and the addition of a $3.00 per kW demand charge for the Single and Three-Phase Classes.

(3) Approve Staff's proposed combination of the Single-Phase Class with the proposed Residential Space-Heating Class and eliminate the Residential space-heating discount.

(4) Approve Staff's proposed rate design for the combined Single-Phase Class and approve Southern Pioneer's proposed rate design for the Three-Phase Class.

(5) Approve Southern Pioneer's proposed rate design for the Water Pumping Rate and Municipal Rate.

(6) Approve Southern Pioneer's proposed changes to the demand allowance and ratchet for the GSL and Industrial Classes.

(7) Approve Southern Pioneer's proposed change to the threshold for moving between the proposed Three-Phase Class and the GSL Class.

(8) Approve Staff's proposed combining the GSL and GSL Space-Heating (Rider No. 1) Classes, and Staff's proposed rate design for the combined GSL Class along with eliminating the GSL Space-Heating Class and the space-heating discount.

(9) Allow Staff to file Supplemental Direct Testimony on Southern Pioneer's proposed change from an energy charge to a demand charge for the STR Class after Southern Pioneer provides corrected demand data for the class.

Q. Does that conclude your testimony?

A. Yes. Thank You.

Creation of Consistent Billing Determinants for the Residential, General Service Small (GSS), Transition Single-Phase, and Three-Phase Classes

Statement of the Problem

One of Southern Pioneer's primary goals in the current docket is to transition from Residential and GSS Classes to Single and Three-Phase Classes (Transition). Since the current docket is not a rate case, the Transition must be done in an approximately revenue neutral manner. To establish revenue neutrality of rate designs, the billing determinants for the old and new rate designs must be consistent.

Southern Pioneer has two basic billing determinant datasets: the Patronage dataset and the Demand History dataset. But these two datasets are not consistent or even individually complete. The Patronage dataset is billing data and is the governing dataset—the billing determinants for all four classes must be consistent with the Patronage dataset. The Patronage dataset has data for the Residential and GSS Classes but does not have data for Single and Three-Phase Classes. The Demand History dataset has data for all four classes, but the Demand History dataset is not consistent with the Patronage dataset.

The Patronage dataset has customer counts, energy usage, and seasonal energy usage, but not demand data. As the name implies, the Demand History dataset has demand data. It also has customer count and energy usage data, but its number of customers and energy usage do not match the Patronage dataset because of timing issues, although two datasets are close. In addition, the Demand History dataset does not have seasonal energy usage data.

The problem is to create customer count, energy usage, seasonal energy usage, and customer demand data consistent with the governing Patronage dataset for the Single and Three-Phase Classes. In addition, customer demand data consistent with the Patronage dataset is needed for the Residential and GSS Classes.

Southern Pioneer's Procedure

To estimate customer count, energy, seasonal energy, and customer demand data consistent with the Patronage dataset for the Single and Three-Phase Classes, Southern Pioneer had to make four different adjustments to the datasets.

(1) Single-Phase and Three-Phase customers in the Demand History dataset can be separated into formerly Residential and GSS customers. The customer counts and

energy usage in the Demand History dataset must be made consistent with the customer count and energy usage data for the Residential and GSS customers in the Patronage dataset on an annual basis.

(2) Single-Phase and Three-Phase customer energy usage must be separated into summer and winter energy usage data based on the Residential and GSS customer seasonal energy usage data.

(3) The Single-Phase and Three-Phase demand data must be made consistent with the Residential and GSS energy usage data.

(4) The Residential and GSS demand data is created by adding together the Single-Phase and Three-Phase Residential demand data and adding together Single-Phase and Three-Phase GSS demand data.

(1) Creating Single and Three Energy Usage Data consistent with Residential and GSS Energy Usage Data

Equation (1) is used to separate the Patronage Residential and GSS class annual energy usage data into Residential Single and Three-Phase energy usage data and GSS Single and Three-Phase annual energy usage data.

Equation (1)

$$Class_i\ Phase_j\ kWh = \frac{Demand\ History\ Class_i\ Phase_j\ Annual\ kWh}{Demand\ History\ Total\ Class_i\ Annual\ kWh} \times Patronage\ Total\ Class_i\ Annual\ kWh$$

Where $Class_i\ Phase_j$ is (i = Residential, GSS; j = 1-Phase, 3-Phase)

Equation (1) is used four times to create Residential Single and Three-Phase, and GSS Single and Three-Phase values. The adjusted Patronage energy use phase data, which is consistent with the original patronage Residential and GSS class data, is then used to create Single and Three-Phase Class data.

(2) Creating Single and Three-Phase Seasonal Energy Usage Data using Residential and GSS Seasonal Energy Usage Data

Equation (1) is modified to create the summer Single and Three-Phase Residential and GSS data which is then aggregated using Equations (2a and 2b).

Equations (2a and 2b)

(2a) 1-Phase Class Annual kWh = Residential 1-Phase Annual kWh + GSS 1-Phase Annual kWh

(2b) 3-Phase Class Annual kWh = Residential 3-Phase Data + GSS 3-Phase Annual kWh

The winter data is calculated by subtracting the summer data from the annual data.

Equations (3a and 3b)

(3a) 1-Phase Winter kWh = 1-Phase Annual kWh –1-Phase Summer kWh

(3b) 3-Phase Winter kWh = 3-Phase Annual kWh –3-Phase Summer kWh

(3) Creating Residential and GSS Single and Three-Phase Demand Data

Equation (4) is used estimate annual Residential and GSS demand data for annual 1-phase and 3-phase demand data.

Equation (4)

$$Class_i\ Phase_j\ kW = \frac{Demand\ History\ Class_i\ Phase_j\ Annual\ kW}{Demand\ History\ Class_i\ Phase_j\ Annual\ kWh} \times Patronage\ Class_i\ Phase_j\ Annual\ kWh$$

Where i = Residential, GSS; j = 1-Phase, 3-Phase

(4) Creating Residential and GSS Class Demand Data

The Residential Single and Three-Phase demand data is then added together to create Residential demand data. The same process is done to create GSS demand data.

Equations (4a and 4b)

(4a) 1-Phase Class Annual kW = Residential 1-Phase Annual kW + GSS 1-Phase Annual kW

(4b) 3-Phase Class Annual kW = Residential 3-Phase Annual kW + GSS 3-Phase Annual kW

Staff's Estimation of the per kW Cost of Demand for the Proposed Single-Phase and Three-Phase Classes

Statement of the Problem

The problem is to take the estimated capacity cost (or demand cost) in Southern Pioneer's and Staff's class cost of service studies (CCOSs) for the Residential and General Service Small (GSS) Classes and estimate capacity cost for the Single and Three-Phase Classes that are not in either CCOS.

Staff's Procedure

Southern Pioneer estimated class non-coincidental peak (NCP) customer demand using energy consumption for its rate design. The estimation process is described in Exhibit RHG-1. The demand estimates are for the Residential, GSS, Single-Phase, and Three-Phase Classes. These estimates are the only consistent demand estimate for all four classes. As a result, I use the estimates for demand as allocators for demand costs.

The procedure for estimating per kW demand costs involves three steps.

Step 1: Demand Estimates by Residential, GSS, Single-Phase, and Three-Phase Classes

Step-2: Estimating Single and Three-Phase Demand Costs Using Residential and GSS Demand Costs

Step-3: Estimate per kW Demand Cost for Power Supply, Transmission, and Distribution for Single and Three-Phase for Single and Three-Phase Classes.

I will go through the estimation procedure using Southern Pioneer's CCOS estimates of capacity costs. The estimation procedure using Staff's CCOS estimates is the same except for substituting Staff's estimates of capacity costs.

Step 1: Demand Estimates by Residential, GSS, Single-Phase, and Three-Phase Classes

Southern Pioneer's demand estimates by Residential, GSS, Single-Phase, and Three-Phase Classes shown in Table Exhibit 2-1 below.[1]

[1] The estimates come from the workbook titled: "Exhibit 2, 4, 5 - SPEC Revenue Requirement & Rate Design", the tab titled "Develop Billing kW".

Table Exhibit 2-1

Demand by Residential and GSS Classes and by Single and Three-Phase Classes			
	Patronage Estimate of Demand (kW)		
Rate Class	Single Phase	Three Phase	Row kW
	(a)	(b)	(c)
Residential	989,100.4	848.8	989,949.2
Percentage of Total	**99.91%**	**0.09%**	
GSS	55,595.9	23,977.0	79,572.9
Percentage of Total	**69.87%**	**30.13%**	
Column Total	1,044,696.3	24,825.8	1,069,522.1
Percentage of Total	**97.68%**	**2.32%**	

Step-2: Estimating Single and Three-Phase Demand Costs Using Residential and GSS Demand Costs.

The process for estimating Single and Three-Phase demand costs begins by pulling in Residential and GSS demand costs by Power Supply, Transmission, and Distribution. These are in Column (a) of Table Exhibit 2-2 below. The process for estimating Single and Three-Phase demand costs begins by taking the percentage of total demand that Single-Phase demand is for Residential and GSS customer demand found in Table Exhibit 2-1. For the Residential Class this is 99.91% and for the GSS Class it is 69.87%. These are in Column (a) of Table Exhibit 2-1 and are then put in Column (b) of Table Exhibit 2-2.

First, multiply Column (a) by Column (b) with the result put in Column (c) of Table Exhibit 2-2. Second, subtract Column (c) from Column (a) and put that result in Column (d). Columns (c) and (d) of Table Exhibit 2-2 now contain Single and Three-Phase estimates of demand costs.

Table Exhibit 2-2

Estimating Single and Three-Phase Demand Costs Using Residential and GSS Demand Costs				
Rate Class	Demand Costs	1-Phase % of Demand Cost	1-Phase Demand Cost	3-Phase Demand Cost
	(a)	(b)	(c)	(d)
Residential				
Power Supply	3,439,083	99.91%	3,436,134	2,949
Transmission	2,421,599	99.91%	2,419,523	2,076
Distribution	6,642,045	99.91%	6,636,350	5,695
	12,502,727		12,492,007	10,720
GSS				
Power Supply	322,973	69.87%	225,655	97,319
Transmission	237,102	69.87%	165,658	71,444
Distribution	600,188	69.87%	419,339	180,849
	1,160,263		810,652	349,612

Step-3: Estimate per kW Demand Cost for Power Supply, Transmission, and Distribution for Single and Three-Phase for Single and Three-Phase Classes

The estimates for Residential and GSS per kW demand costs are calculated by dividing the demand costs in Column (a) of Table Exhibit 2-2 by the estimated demand in Column (c) of Table Exhibit 2-1. These values are then put in Column (a) and (c) of Table Exhibit 2-3.

Estimating per kW demand costs for Single and Three-Phase customers involves taking the estimated demand costs in Table Exhibit 2-2 in Columns (c) and (d) and dividing them by the estimated demand for Single and Three-Phase Classes located in Table Exhibit 2-1 located in Columns (a) and (b) in the next to the last row of the table. Put these results into Columns (b) and (d) of Table Exhibit 2-3 below.

Table Exhibit 2-3

Estimated per kW Cost of Demand for Power Supply, Transmission, Distribution Capacity, and All Capacity				
	Per kW Demand Costs			
Rate Class	Residential	1-Phase	GSS	3-Phase
	(a)	(b)	(c)	(d)
Power Supply	$ 3.47	$ 3.51	$ 4.06	$ 4.04
Transmission	$ 2.45	$ 2.47	$ 2.98	$ 2.96
Distribution	$ 6.71	$ 6.75	$ 7.54	$ 7.51
TOTAL	$ 12.63	$ 12.73	$ 14.58	$ 14.51

Per kW Demand Cost Estimates Using Staff's CCOS

Staff's estimates of per kW demand costs for Residential, GSS, Single-Phase, and Three-Phase Classes are in Table Exhibit 2-4. Staff's demand estimates are lower than Southern Pioneer's estimates, especially the estimates of per kW demand costs for Distribution, but they follow the same pattern as Southern Pioneer's estimates.

Residential per kW demand costs are slightly less than the Single-Phase estimates, and the GSS per kW demand cost estimates are slightly higher than the Three-Phase estimates. The reason for these patterns is the higher per kW demand cost of the GSS Class (Column (c)) in Tables Exhibit 2-3 and 2-4. The composition of the Single-Phase Class is primarily Residential customers, but it also contains about ¾ of the GSS Class. The composition of the Three-Phase Class is primarily GSS customers, but it does contain a small portion of Residential customers.

Table Exhibit 2-4

Estimated per kW Cost of Demand for Power Supply, Transmission, Distribution Capacity, and All Capacity				
	Per kW Demand Costs			
Rate Class	Residential	1-Phase	GSS	3-Phase
	(a)	(b)	(c)	(d)
Power Supply	$ 3.47	$ 3.51	$ 4.06	$ 4.04
Transmission	$ 2.29	$ 2.33	$ 2.96	$ 2.94
Distribution	$ 5.89	$ 5.93	$ 6.64	$ 6.62
TOTAL	$ 11.66	$ 11.77	$ 13.66	$ 13.60

STATE OF KANSAS)
) ss.
COUNTY OF SHAWNEE)

VERIFICATION

Bob Glass, being duly sworn upon his oath deposes and states that he is Chief of Economic Policy and Planning for the Utilities Division of the Kansas Corporation Commission of the State of Kansas, that he has read and is familiar with the foregoing *Direct Testimony*, and attests that the statements contained therein are true and correct to the best of his knowledge, information and belief.

Robert H Glass

Bob Glass
Chief of Economic Policy and Planning
State Corporation Commission of the
State of Kansas

Subscribed and sworn to before me this 26 day of March, 2024.

Ann M. Murphy

Notary Public

My Appointment Expires: 4/28/25

NOTARY PUBLIC - State of Kansas
ANN M. MURPHY
My Appt. Expires 4/28/25

CERTIFICATE OF SERVICE

24-SPEE-415-TAR

I, the undersigned, certify that a true and correct copy of the above and foregoing Direct Testimony was served via electronic service this 2nd day of April, 2024, to the following:

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/s/ Ann Murphy

Ann Murphy