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November 21, 2017

Mr. Loren Smith  
Electric Utility Director  
Stillwater Electric Utility  
411 E. Third Avenue  
Stillwater, Oklahoma 74074

Dear Mr. Smith:

Thank you for engaging Avant Energy, Inc. to perform distributed generation (DG) rate design work for the Stillwater Electric Utility.

This report summarizes the approach and analysis we undertook in recommending a DG rate for Stillwater. It also contains supporting documentation. The report is broken into the following sections:

- Rate Design Objectives
- Rate Design Approach
- Alternatives Considered
- Recommended Approach
- Other Considerations

#### **Rate Design Objectives**

We engaged in a discussion with Stillwater Utility management regarding objectives for the rate design study. The three primary objectives identified were:

- Avoid cross-subsidization between customers on DG rate and customers not on DG rate
- Develop a DG rate that can be applicable to all customer classes (residential, commercial, and industrial)
- Identify rate design for pre- and post-AMI implementation

Other objectives considered included ease of understanding, ease of implementation, and rate stability.

#### **Rate Design Approach**

Our rate design approach began with performing a “light” cost of service study for all Stillwater customer classes. During the proposal process, Stillwater indicated that it was not desiring a full cost of service study as part of this scope of work.

Fiscal year 2017 (which ended on June 30, 2017) was used as the test year for our light cost of service study. All costs and revenue streams for both the operating and rate stabilization funds were analyzed. A single test year was selected rather than a multi-year average because of the Stillwater Energy Center entering service in July 2016. As such, historical data prior to FY 2017 was less likely to be representative of the future economics for the Stillwater Electric Utility.

In developing the revenue requirement for Stillwater, projected capital expenditures and debt service were added to operating expenses (including the general fund transfer) based on Stillwater management projections. Non-rate revenue was then removed to arrive at the revenue requirement from base rates.

The revenue requirement was then allocated based on whether the cost was driven by energy, demand, customer count, or revenue. After being allocated, costs were then assigned into the four main Stillwater rate classes (Residential, Commercial, Power, and Industrial).

### **Alternatives Considered**

Four main DG rate alternatives were considered for Stillwater:

- Net Metering (Current Rate)
- Avoided Cost for All Customers
- Increased Customer Charge for Residential Customers and Avoided Cost for Business Customers
- Demand Charge for Residential Customers and Avoided Cost for Business Customers

Each alternative evaluated is discussed in detail below.

### **Net Metering**

Net metering is the rate design approach where a customer with distributed generation is billed for the net amount of energy consumed during a period at the applicable retail rate for its class. The net energy consumed is the difference between energy used by the customer and energy generated by the customer. Stillwater currently offers a Net Metering rate to customers, with a 100 kilowatt maximum of generation subject to net metering.

Net metering typically involves cross-subsidization, especially at the residential level. Utilities incur a variety of costs to serve customers – some are fixed and some are variable. According to our light cost of service study, approximately 50% of the costs to serve Stillwater customers are fixed. For larger commercial and industrial customers, utilities typically have both energy charges, which are based on total energy used during a billing period, and demand charges, which are based on the maximum energy used during an hour (or fraction thereof) of the billing period. Historically, residential utility rates have only consisted of a customer charge and an energy charge, with no demand charge. The customer charge generally does not cover the entire fixed cost of serving a residential customer. As a result, utilities typically charge residential customers a higher per-kilowatt-hour (kWh) rate

than the variable cost of service. This higher charge allows the utility to cover the fixed cost of serving residential customers. A typical residential net metering tariff allows customers to sell their generation back to the utility at the standard retail rate. This rate is generally significantly higher than the avoided cost of the energy the utility would have purchased or generated had the customer generator not been present.

#### Avoided Cost for All Customers

An avoided cost approach to DG rate design is based on the concept of paying a generator what the utility would have otherwise paid for power to supply a customer had the customer not owned the generator. This approach results in the utility being economically indifferent between purchasing power from a customer-owned generator and its normal source of power supply. Because of this, there is very little cross-subsidization in an avoided cost rate structure. Typically, a utility would install a second meter on the customer generator and credit the generator the utility's avoided cost based on total generation delivered to the utility. The customer would continue to pay to the utility its applicable retail tariff for all power consumed.

#### Increased Customer Charge for DG Residential Customers

Another approach to DG rate design is to implement a higher customer charge for residential customers with a distributed generation system. This higher customer charge ensures that the utility covers the full fixed cost of serving residential customers that have installed distributed generation. A lower energy charge per kWh than the standard residential rate offsets the higher customer charge and more accurately reflects the variable cost of serving customers. Our light cost of service study indicated that an appropriate residential DG customer charge would be approximately \$50 per month.

The increased customer charge substantially reduces the cross-subsidization compared to standard net metering. It would, however, be a significant increase compared to Stillwater's current residential customer charge of \$9.61 per month.

Under this alternative, the avoided cost approach would be used for business customers. This reflects the fact that Stillwater has a diversity of business customers of varying sizes and consumption levels. An avoided cost approach best reflects the variety of business customers in Stillwater.

#### Demand Charge for Residential Customers

Utilities are also beginning to implement demand charges at the residential level with the increasing usage of smart meters and advanced metering infrastructure (AMI).

Under this approach, residential customers are billed a demand charge based on their maximum usage in a billing period in addition to a customer charge and energy charges.

Similar to the increased customer charge, a residential demand charge reduces cross-subsidization for distributed generation compared to standard net metering. Adding a demand component to residential rates would also incentivize customers to reduce their peak usage. However, a residential demand charge typically results in significantly greater

variation in the total electric bill to customers compared to standard rates or an increased customer charge.

Under this alternative, the avoided cost approach would be used for business customers, for the same reason as described in the increased customer charge alternative. Business customers in the Power and Large Power rate classes already pay a demand charge as part of their standard rates.

Recommended Approach

Based on our analysis and conversations with Stillwater management, we believe that the Avoided Cost for All Customers approach best meets Stillwater’s objectives for a distributed generation rate. The avoided cost approach results in essentially no cross-subsidization while also allowing a uniform tariff that can be applied to all customers, rather than creating a separate DG rate for each customer class.

Customers desiring to install distributed generation at their home or business would be required to sign an interconnection agreement similar to the existing net metering contract. Stillwater has the right to require a system infrastructure impact study for installations over 100 kilowatts.

Energy generated by the distributed generator would be credited by Stillwater at the utility’s avoided cost, which is based upon the then-applicable wholesale power rate from the Grand River Dam Authority (GRDA), including any applicable Power Cost Adjustment. Stillwater would adjust the GRDA rate to recognize that Stillwater avoids distribution system losses by purchasing energy at the customer’s premises. The table below shows the current avoided cost rates Stillwater would credit for customer-owned distributed generation.

	<u>GRDA Rate</u>		<u>Loss Rate</u>		<u>Avoided Cost</u>
On-Peak Energy per kWh	0.0345	x	1.057	=	0.365*
Off-Peak Energy per kWh	0.0292	x	1.057	=	0.309*

\*Adjusted as necessary based on the GRDA Power Cost Adjustment

GRDA defines the on-peak period as 6 am to 10 pm on all weekdays except for certain holidays. The 5.7% loss rate is based on Stillwater’s average system losses during fiscal year 2017.

In addition to the energy payment, the proposed DG rate contemplates that Stillwater would credit generators for any generation at the time of Stillwater’s monthly peak (not the customer’s peak). This demand-related payment would recognize that Stillwater pays less to GRDA when customer generation is producing power at the time of Stillwater’s peak. This payment would be based on the then-applicable Delivery Charge from GRDA, which is currently \$3.86 per kilowatt. Similar to the energy rate above, the demand payment would be adjusted for 5.7% average system losses, resulting in a demand payment of \$4.08 per kW of distributed generation at the time of Stillwater’s peak.

Both the energy and demand payments would be in the form of a bill credit against the DG customer's monthly bill for electric consumption at its applicable standard tariff rate. If the amount credited is greater than the amount charged for any billing period, the remaining credits would roll forward to subsequent billing periods. Any remaining credits would expire upon the termination of electric service to a customer.

The DG rate contemplates that the customer would be responsible for the costs of installing a second set of metering equipment to measure the generation output. These costs would be recovered through an application fee.

A benefit of the avoided cost approach for all customers is that it allows Stillwater to offer a DG rate to all customers without requiring a kW cap on the size of a generation facility. However, based on discussions with Stillwater management, we recommend that the DG rate limit the amount of generation purchased at avoided cost in a given month to the maximum energy usage of the customer over the most recent twelve-month period. This allows customers to build a distributed generation system to meet their energy needs while recognizing that the monthly pattern of energy generation likely doesn't align perfectly with the customer's energy usage.

Another benefit of the recommended approach is that, based on discussions with Stillwater management, the rate can be implemented quickly, without waiting for the full AMI system rollout. Our recommendation was that Stillwater make one change to its DG rate, rather than implementing a pre-AMI rate now and rolling out a post-AMI rate in the near future. This reduces the potential for customer confusion related to changing rates, and it also reduces the amount of work Stillwater staff need to put into tariff language, billing system, and other administrative changes.

Our draft distributed generation tariff for Stillwater is provided as an attachment to this report. Our proposed DG tariff includes an attached Interconnection Agreement. This Agreement is the existing Interconnection Agreement associated with Stillwater's current net metering rate with minor changes to conform it to the proposed new DG tariff. We did not perform a complete legal review of the Interconnection Agreement.

### **Other Considerations**

An important consideration for Stillwater regarding the DG rate is what to do with the existing six customers on the net metering rate. Stillwater has several alternatives:

- Terminate existing agreement with 30 days' notice and move net metering customers to new DG rate
- Grandfather existing net metering customers on old rate until they leave Stillwater's system
- Transition existing net metering customers from net metering to new DG rate over a longer period of time than 30 days

Under its interconnection agreement with existing net metering customers, Stillwater has the right to terminate the agreement with 30 days' notice.

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Stillwater's existing net metering customers would all see an increase in their individual electric bill each month because the compensation for their generation would decrease from the retail rate of approximately ten cents per kWh to an avoided cost rate of less than four cents per kWh. However, customers would now see a specific line item credit on each month's bill for the full amount of their generation provided to Stillwater.

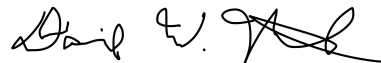
As discussed above, this change in compensation reflects the elimination of the cross-subsidization that these net metering customers are benefiting from today. How Stillwater manages existing net metering customers is a policy decision that should balance the investment these customers made in distributed generation systems at the time of installation against the cross-subsidization that exists under the net metering approach.

Supporting documentation for this report is enclosed and includes the following:

- Draft distributed generation rate tariff (with Interconnection Agreement)
- Current GRDA Wholesale Power Rate Schedule (support for avoided cost calculations)
- Light cost of service study workpapers
- Average customer analysis for each alternative evaluated

Thank you again for engaging Avant to perform distributed generation rate design work for Stillwater. We look forward to working with Stillwater in the future.

Very truly yours,  
**Avant Energy, Inc.**



David W. Niles  
Vice President

Enclosures

## DISTRIBUTED GENERATION TARIFF

- I. APPLICATION** This rate is in addition to the customer's standard rate tariff for electric service.
- II. AVAILABILITY** This rate is applicable to customers who intend to install, own and operate an electric generating facility using fuels derived from biomass, waste or renewable energy source, including wind, solar energy, or water to produce electricity.
- III. RATES FOR GENERATION** The utility will purchase energy generated by the customer in the form of a credit which would be applied to customer's usage as billed by the utility under the customer's applicable rate tariff. Energy purchased by the utility would be credited based on the following schedule:
- ENERGY:** Energy generated will be purchased at the utility's avoided cost. The utility's avoided cost is based upon the current applicable wholesale power rate from the Grand River Dam Authority (GRDA), including any applicable Power Cost Adjustment. The utility will increase the GRDA rate to recognize that energy generated by a customer avoids distribution system losses that would otherwise be incurred. The loss adjustment will be based on the most recent fiscal year's average distribution system loss rate.
- DEMAND:** Customer will also be credited for any generation that occurs at the time of the utility's monthly system peak demand. Customer generation will be credited at the current applicable GRDA Delivery Charge to the utility based on the kW amount of customer generation at the time of the utility's peak each month, if any, adjusted for losses in the same manner as energy generated.
- IV. PURCHASE LIMITATION** The energy credit described in Section III above is limited to 100% of the customer's maximum kWh energy usage over the prior 12 months. No compensation will be provided by the utility for any generation above this amount.
- Purchases will be credited toward the customer's usage as charged by the utility based on the customer's applicable rate tariff. If the amount credited is greater than the amount charged for any billing period, the remaining credits will roll forward to the next billing cycle. Net credits at the end of a billing period will continue to roll forward to subsequent billing periods. Any remaining credits will expire upon the termination of electric service to a customer and will not be paid.
- V. SYSTEM INFRASTRUCTURE** For installations over 100 kW, the utility may require a study on the impact to nearby system infrastructure to be completed prior to installation. The customer would be responsible for the costs of this study.
- VI. INTERCONNECTION AGREEMENT** Any customer desiring to sell generation to the utility under this rate schedule is required to execute an Interconnection Agreement prior to delivering energy to the utility. Installation must follow all requirements as described

in the Interconnection Agreement. By submitting an application, customer agrees to all such requirements.

- VII. METERING EQUIPMENT** Customers selling energy to the utility under this rate schedule will be required to install a second set of metering equipment to measure generation energy and demand quantities.
- VIII. APPLICATION FEES** Customer will be charged a fee of \$X to cover the cost of application processing and additional meter installation. As described in Section V above, generators over 100 kW may be subject to additional system infrastructure study fees.
- IX. TERM** The utility has the right to modify, suspend, or terminate this rate upon thirty days' notice to customers.

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**DISTRIBUTED GENERATION  
INTERCONNECTION AGREEMENT**

This agreement made and entered into this \_\_\_ day of \_\_\_\_\_, 20\_\_\_, by and between Stillwater Utilities Authority, Stillwater, Oklahoma (“Utility”), and \_\_\_\_\_, hereinafter referred to as "Customer" (individually, “Party”, and, collectively, “Parties”).

**SECTION 1 CUSTOMER ELECTRIC GENERATING FACILITY**

1.1. Customer intends to install, own and operate an inverter-based electric generating facility using fuels derived from biomass, waste or renewable energy source, including wind, solar energy, or water to produce electricity. Customer desires to operate such generation parallel with the Utility's system. The Utility has no direct financial involvement in the investment, construction, operation or maintenance of Customer's generation facility. The Customer has completed an application for interconnection with the utility system and paid all applicable fees associated therewith. A copy of this application is attached to this agreement as Appendix “A”.

1.2. The Utility is willing to permit Customer to operate its generating facility in parallel with Utility's system for the purpose of delivering electricity for credit pursuant to the terms of the then-applicable Distributed Generation Tariff.

**SECTION 2 CREDIT FOR ENERGY DELIVERED TO THE UTILITY**

2.1. The Customer shall be billed according to the applicable rate structure for electricity delivered to the Customer.

2.2. The Utility shall provide credits to the Customer for energy generated and delivered to the Utility pursuant to the terms of the then-applicable Distributed Generation Tariff.

**SECTION 3 TERM**

3.1. This Agreement shall be in effect when signed by the Customer and the Utility and shall remain in effect thereafter month to month unless terminated by either Party on thirty (30) days prior written notice.

**SECTION 4 STANDARD COMPLIANCE**

4.1. Customer represents and agrees that the generating facilities are, or will be prior to operation, certified as complying with:

4.1.1. The requirements of the Institute of Electrical and Electronics Engineers (IEEE) Standard 1547-2003, “Standard for Interconnecting Distributed Resources with Electric Power Systems”, as amended and supplemented as of the date of this Agreement, which standard is incorporated herein by this reference (IEEE Standard 1547-2003); or

4.1.2. The requirements of the Underwriters Laboratories (UL) Standard 1741 concerning Inverters, Converters and Controllers for Use in Independent Power Systems, as amended and supplemented as of the date of this Agreement, which standard is incorporated herein by this reference.

## **SECTION 5 INTERRUPTION OR REDUCTION OF DELIVERIES**

5.1. The Utility may require Customer to interrupt or reduce deliveries as follows:

5.1.1. When necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or part of its system; or

5.1.2. If it determines that curtailment, interruption, or reduction is necessary because of emergencies, or lack of compliance with prudent electrical practices.

5.2. Whenever possible, the Utility shall give Customer reasonable notice of the possibility that interruption or reduction of deliveries may be required.

5.3. Notwithstanding any other provision of this Agreement, if at any time the Utility determines that either:

5.3.1. The generating facility may endanger Utility personnel, or

5.3.2. The continued operation of Customer's generating facility may endanger the integrity of the Utility's electric system, then the Utility shall have the right to temporarily or permanently disconnect Customer's generating facility from the Utility's electric system. Customer's generating facility shall remain disconnected until such time as the Utility is satisfied that the endangering condition(s) have been corrected.

## **SECTION 6 INTERCONNECTION**

6.1. Customer shall deliver energy to the Utility at the utility's meter.

6.2. Customer shall pay for designing, installing, inspecting, operating, and maintaining the electric generating facility in accordance with all applicable laws and regulations and shall comply with this Agreement and the Utility's Terms and Conditions of Service.

6.3. Customer shall pay for the Utility's standard service hook-up, if not already present. Customer shall also pay for separate metering equipment, including installation costs, for the electric generation equipment.

6.4. Customer shall not commence parallel operation of the generating facility until written approval of the interconnection facilities has been given by the Utility. Such approval shall not be unreasonably withheld. The Utility shall have the right to have representatives present at the initial testing of Customer's protective apparatus. Customer shall notify the Utility when testing is to take place.

6.5. Customer shall install and maintain, at Customer's expense, a disconnect switch capable of being locked open located outside and accessible by Utility personnel.

## **SECTION 7 MAINTENANCE AND PERMITS**

7.1. Customer shall:

7.1.1. Maintain the electric generating facility and interconnection facilities in a safe and prudent manner and in conformance with all applicable laws and regulations including, but not limited to, the Utility's Terms and Conditions of Service, and

7.1.2. Obtain any governmental authorizations and permits required for the construction and operation of the electric generating facility and interconnection facilities, including electrical permit (s).

7.1.3. Reimburse the Utility for any and all losses, damages, claims, penalties, or liability it incurs as a result of Customer's failure to obtain or maintain any governmental authorizations and permits required for construction and operation of Customer's generating facility or failure to maintain Customer's generating facility as required in 7.1.1. above.

## **SECTION 8 ACCESS TO PREMISES**

8.1. The Utility may enter Customer's premises or property to:

8.1.1. Inspect, at all reasonable hours, Customer's generating facility's protective devices;

8.1.2. Read meter; and

8.1.3. Disconnect, without advance notice, the generating facilities if, in the Utility's opinion, a hazardous condition exists and such immediate action is necessary to protect persons, or the Utility's facilities, or the property of others from damage or interference caused by Customer's electric generating facilities, or lack of properly operating protective devices or inability to inspect the same.

8.2. The Utility inspection or other action shall not constitute approval by the Utility. The Customer remains solely responsible for the safe and adequate operation of its facilities.

## **SECTION 9 INDEMNITY**

9.1. Customer shall defend, protect, indemnify and hold harmless Utility, its directors, officers, employees, and agents from and against any and all losses, liability, damages, claims, costs, charges, demands, or expenses (including any direct, indirect or consequential loss, liability, damage, claim, cost, charge, demand, or expense, and reasonable attorneys' fees) for injury or death to persons and damage to property, arising, directly or indirectly, out of or in

connection with (a) engineering, design, construction, maintenance, repair, operation, supervision, inspection, testing, protection or ownership of Customer's facilities; provided, however, Customer's duty to indemnify Utility shall not extend to any loss, liability, damage, claim, cost, charge, demand, or expense resulting from interruptions in electrical service to Utility's electric utility customers other than Customer. Utility shall not be indemnified hereunder for its loss, liability, damage, claim, cost, charge, demand, or expense arising out of or resulting from its sole negligence or willful misconduct.

9.2. Notwithstanding the foregoing indemnity, and except for Customer or Utility's willful misconduct or sole negligence, Customer and Utility shall be solely responsible for damage to its facilities resulting from electrical disturbances or faults.

9.3. The provisions of this Section 9 shall not be construed to relieve any insurer of its obligations to pay any insurance claims in accordance with the provisions of any valid insurance policy.

## **SECTION 10 MISCELLANEOUS PROVISIONS**

10.1. This Agreement shall be governed by and interpreted and construed in accordance with the laws of the State of Oklahoma.

10.2. The provisions of Utility's Terms and Conditions of Service and contract(s) for purchase of wholesale power now or hereafter in effect shall apply to this Agreement.

10.3. The following appendices, attached to this Agreement, are incorporated herein by reference:

Appendix A – Interconnection Application

**IN WITNESS WHEREOF**, the parties have caused this Agreement to be executed by their duly authorized representatives on the day and year first above set forth.

\_\_\_\_\_  
Customer

By \_\_\_\_\_

Title \_\_\_\_\_

ATTEST:

STILLWATER UTILITIES AUTHORITY

By \_\_\_\_\_

Title \_\_\_\_\_

ATTEST:

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Distributed Generation Rate Supporting Documentation

2017 Expense Allocations

**Allocation of 2017 Expenses**

Category	2017	Allocation Method
<b>Operating Fund</b>		
DIV 10 ELECTRIC-ADMINISTRATION		
900-9010-494.10-01 FULL TIME	242,749	Plant in Service
900-9010-494.10-02 PART-TIME	-	Plant in Service
900-9010-494.10-03 OVERTIME ALLOWANCE	242	Plant in Service
900-9010-494.10-21 SOCIAL SECURITY	3,000	Plant in Service
900-9010-494.10-22 RETIREMENT	171,742	Plant in Service
900-9010-494.10-23 HEALTH INSURANCE	14,599	Plant in Service
* SALARIES, WAGES, BENEFITS	50,039	Plant in Service
	482,372	
900-9010-494.20-21 MOTOR VEH REPAIR PARTS	1,083	Gen, Trans, Dist
900-9010-494.20-23 BUILDING MATERIALS	-	Plant in Service
900-9010-494.20-41 OFFICE SUPPLIES	1,842	Plant in Service
900-9010-494.20-44 STAMPS AND POSTAGE	228	Customer
900-9010-494.20-50 BOOKS AND PUBLICATIONS	500	Plant in Service
900-9010-494.20-52 FOOD	613	Plant in Service
900-9010-494.20-53 MOTOR VEHICLE FUEL & OIL	620	Gen, Trans, Dist
900-9010-494.20-59 MINOR SUPPLIES	601	Plant in Service
900-9010-494.20-62 SAFETY EQUIP/TRAINING	-	Plant in Service
PC HARDWARE	938	Plant in Service
* MATERIALS	6,423	
900-9010-494.30-08 CREC SERV AGRMNT-USER FEE	2,720	Gen, Trans, Dist
900-9010-494.30-15 OTHER RENTALS	5,302	Plant in Service
900-9010-494.30-23 REPAIR-BUILDING/STRUCTURE	459	Gen, Trans, Dist
900-9010-494.30-25 REPAIR-OFFICE EQUIPMENT	80	Gen, Trans, Dist
900-9010-494.30-26 REPAIR-HEATING/COOLING	265	Plant in Service
900-9010-494.30-72 DUES AND SUBSCRIPTIONS	-	Customer
900-9010-494.30-73 IN-SERVICE TRAINING	1,812	Plant in Service
900-9010-494.30-75 ADVERTISING/LLEGAL PUBL	4,563	Customer
900-9010-494.30-82 MISCELLANEOUS SERVICES	35,408	Plant in Service
900-9010-494.30-84 TRAVEL EXPENSE	2,054	Plant in Service
900-9010-494.30-85 PROFESSIONAL SERVICES	143,003	Plant in Service
900-9010-494.30-98 SAFETY EQUIPMENT TESTING	-	Plant in Service
* SERVICES	195,664	
900-9010-494.40-41 BUILDING AND STRUCTURES	-	Gen, Trans, Dist
* CAPITAL	-	
INTEREST EXPENSE - LEASE	15,094	Revenue
PREMIUM AMORTIZATION	(233,963)	
* DEBT	(218,868)	
900-9010-494.60-20 INDIRECT COST	716,055	Revenue
SUA OVERHEAD ALLOCATION	924,956	Revenue
* INTERFUND TRANSFERS	1,641,011	
ELECTRIC-ADMINISTRATION	2,106,602	
DIV 15 ELECTRICAL ENGINEERING		
900-9015-494.10-01 FULL TIME	538,573	Plant in Service
900-9015-494.10-02 PART TIME	-	Plant in Service
900-9015-494.10-03 OVERTIME	4	Plant in Service

Distributed Generation Rate Supporting Documentation

2017 Expense Allocations

**Allocation of 2017 Expenses**

Category	2017	Allocation Method
900-9015-494.10-21 SOCIAL SECURITY	38,004	Plant in Service
900-9015-494.10-22 RETIREMENT	31,453	Plant in Service
HEALTH INSURANCE	83,130	Plant in Service
* SALARIES, WAGES, BENEFITS	691,164	
900-9015-494.20-21 MOTOR VEH REPAIR PARTS	552	Gen, Trans, Dist
900-9015-494.20-23 BUILDING MATERIALS	-	Plant in Service
900-9015-494.20-34 OTHER EQUIPMENT PARTS	19,548	Plant in Service
900-9015-494.20-41 OFFICE SUPPLIES	1,879	Plant in Service
900-9015-494.20-50 BOOKS AND PUBLICATIONS	188	Plant in Service
900-9015-494.20-51 CLOTHING AND UNIFORMS	1,183	Plant in Service
900-9015-494.20-52 FOOD	-	Plant in Service
900-9015-494.20-53 MOTOR VEHICLE FUEL & OIL	1,546	Gen, Trans, Dist
900-9015-494.20-58 TOOLS	47,397	Plant in Service
900-9015-494.20-59 MINOR SUPPLIES	462	Plant in Service
900-9015-494.20-62 SAFETY EQUIP/TRAINING	136	Plant in Service
900-9015-494.20-97 ELEC METERS AND FITTINGS	491	Customer
PC HARDWARE	9,536	Plant in Service
* MATERIALS	82,917	
900-9015-494.30-21 OUTSIDE REPAIR-CARS/TRCKS	-	Gen, Trans, Dist
900-9015-494.30-24 REPAIR-RADIO EQUIPMENT	-	Plant in Service
900-9015-494.30-25 REPAIR-OFFICE EQUIPMENT	-	Gen, Trans, Dist
900-9015-494.30-34 REPAIR-OTHER EQUIPMENT	311	Plant in Service
900-9015-494.30-72 DUES AND SUBSCRIPTIONS	643	Customer
900-9015-494.30-73 IN-SERVICE TRAINING	4,894	Plant in Service
900-9015-494.30-82 MISCELLANEOUS SERVICES	75	Plant in Service
900-9015-494.30-84 TRAVEL EXPENSE	83	Plant in Service
900-9015-494.30-85 PROFESSIONAL SERVICES	41,185	Plant in Service
* SERVICES	47,191	
900-9015-494.40-08 OTHER EQUIPMENT	-	
VEHICLES	372	
CONSTRUCTION CONTRACT	49,894	
SOFTWARE	33,500	
* CAPITAL	83,767	
ELECTRICAL ENGINEERING	905,039	
DIV 61 GENERATION MAINTENANCE		
900-9061-494.10-01 FULL TIME	1,183,749	Plant in Service
PART TIME	3,959	Plant in Service
900-9061-494.10-03 OVERTIME	90,875	Plant in Service
900-9061-494.10-05 ON-CALL	5,020	Plant in Service
900-9061-494.10-21 SOCIAL SECURITY	90,555	Plant in Service
900-9061-494.10-22 RETIREMENT	75,433	Plant in Service
900-9061-494.10-23 HEALTH INSURANCE	218,305	Plant in Service
WORKERS COMP	22,733	Plant in Service
* SALARIES, WAGES, BENEFITS	1,690,630	
900-9061-494.20-21 MOTOR VEH REPAIR PARTS	3,538	Gen, Trans, Dist
900-9061-494.20-22 TRACTOR & MACHINERY PARTS	-	Plant in Service
900-9061-494.20-23 BUILDING MATERIALS	18,444	Plant in Service
900-9061-494.20-26 HEATING/COOLING SYS PARTS	378	Plant in Service

Distributed Generation Rate Supporting Documentation

2017 Expense Allocations

**Allocation of 2017 Expenses**

<b>Category</b>	<b>2017</b>	<b>Allocation Method</b>
900-9061-494.20-28 GENERATOR PARTS	65,753	Gen, Trans, Dist
900-9061-494.20-31 TRANSFORMER PARTS	9,653	Demand
900-9061-494.20-32 PUMPS AND MOTOR PARTS	-	Plant in Service
900-9061-494.20-33 PIPING AND VALVES	47	Plant in Service
900-9061-494.20-34 OTHER EQUIPMENT PARTS	65,494	Plant in Service
900-9061-494.20-41 OFFICE SUPPLIES	1,560	Plant in Service
900-9061-494.20-42 LABORATORY SUPPLIES	752	Plant in Service
900-9061-494.20-45 AGR./HORT. SUPPLIES	-	Plant in Service
900-9061-494.20-46 JANITORIAL SUPPLIES	3,266	Plant in Service
900-9061-494.20-47 CONCRETE/SAND/ASPHALT	398	Plant in Service
900-9061-494.20-49 CHEMICALS	52,810	Plant in Service
900-9061-494.20-50 BOOKS AND PUBLICATIONS	386	Plant in Service
900-9061-494.20-51 CLOTHING AND UNIFORMS	15,547	Plant in Service
900-9061-494.20-52 FOOD	4,931	Plant in Service
900-9061-494.20-53 MOTOR VEHICLE FUEL & OIL	5,242	Gen, Trans, Dist
900-9061-494.20-58 TOOLS	11,051	Plant in Service
900-9061-494.20-59 MINOR SUPPLIES	12,734	Plant in Service
900-9061-494.20-62 SAFETY EQUIP/TRAINING	9,975	Plant in Service
900-9061-494.20-93 BOILER PARTS	2,497	Plant in Service
* MATERIALS	284,456	
900-9061-494.30-01 NATURAL GAS	2,113,408	Energy
900-9061-494.30-03 ELECTRICITY		
GRDA Energy Component	15,707,662	Energy
GRDA Demand Component	11,057,216	Demand
GRDA Customer Component	30,000	Customer
TELECOMMUNICATIONS	23,000	Customer
900-9061-494.30-07 FUEL OIL	713	Energy
900-9061-494.30-15 OTHER RENTALS	1,628	Plant in Service
900-9061-494.30-22 REPAIR-TRACTORS/MACHINERY	-	Plant in Service
900-9061-494.30-23 REPAIR-BUILDING/STRUCTURE	2,562	Gen, Trans, Dist
900-9061-494.30-26 REPAIR-HEATING/COOLING	75	Plant in Service
900-9061-494.30-31 REPAIR-TRANSFORMERS	24,300	Demand
900-9061-494.30-34 REPAIR-OTHER EQUIPMENT	5,709	Plant in Service
900-9061-494.30-72 DUES AND SUBSCRIPTIONS	1,874	Customer
900-9061-494.30-73 IN-SERVICE TRAINING	9,964	Plant in Service
900-9061-494.30-82 MISCELLANEOUS SERVICES	37,595	Plant in Service
900-9061-494.30-84 TRAVEL EXPENSE	15,060	Plant in Service
900-9061-494.30-85 PROFESSIONAL SERVICES	106,803	Plant in Service
900-9061-494.30-87 LANDFILL SERVICES	-	Gen, Trans, Dist
900-9061-494.30-98 SAFETY EQUIPMENT TESTING	5,193	Plant in Service
* SERVICES	29,142,762	
900-9061-494.40-01 VEHICLES	-	
900-9061-494.40-04 SCIENTIFIC EQUIPMENT	-	
OTHER EQUIPMENT	45,179	
900-9061-494.40-10 OTHER CONTRACTS	-	
900-9061-494.40-41 BUILDING AND STRUCTURES	-	
SOFTWARE	4,320	
* CAPITAL	49,499	
GENERATION MAINTENANCE	31,167,348	

DIV 63 DISTRIBUTION MAINTENANCE



Distributed Generation Rate Supporting Documentation

2017 Expense Allocations

**Allocation of 2017 Expenses**

Category	2017	Allocation Method
900-9063-494.10-01 FULL TIME	2,078,436	Plant in Service
900-9063-494.10-03 OVERTIME	128,023	Plant in Service
900-9063-494.10-05 ON-CALL	12,620	Plant in Service
900-9063-494.10-21 SOCIAL SECURITY	162,624	Plant in Service
900-9063-494.10-22 RETIREMENT	133,846	Plant in Service
900-9063-494.10-23 HEALTH INSURANCE	369,438	Plant in Service
900-9063-494.10-25 WORKER'S COMPENSATION	14,274	Plant in Service
* SALARIES, WAGES, BENEFITS	2,899,260	
900-9063-494.20-21 MOTOR VEH REPAIR PARTS	45,713	Gen, Trans, Dist
900-9063-494.20-23 BUILDING MATERIALS	1,654	Plant in Service
900-9063-494.20-31 TRANSFORMER PARTS	-	Demand
900-9063-494.20-34 OTHER EQUIPMENT PARTS	11,134	Plant in Service
900-9063-494.20-41 OFFICE SUPPLIES	2,903	Plant in Service
900-9063-494.20-45 AGR./HORT. SUPPLIES	365	Plant in Service
900-9063-494.20-46 JANITORIAL SUPPLIES	2,275	Plant in Service
900-9063-494.20-47 CONCRETE/SAND/ASPHALT	5,169	Plant in Service
900-9063-494.20-49 CHEMICALS	132	Plant in Service
900-9063-494.20-50 BOOKS AND PUBLICATIONS	1,172	Plant in Service
900-9063-494.20-51 CLOTHING AND UNIFORMS	37,238	Plant in Service
900-9063-494.20-52 FOOD	2,611	Plant in Service
900-9063-494.20-53 MOTOR VEHICLE FUEL & OIL	31,663	Gen, Trans, Dist
900-9063-494.20-58 TOOLS	14,951	Plant in Service
900-9063-494.20-59 MINOR SUPPLIES	8,487	Plant in Service
900-9063-494.20-62 SAFETY EQUIP/TRAINING	18,135	Plant in Service
900-9063-494.20-64 OTHER LINE PARTS	6,526	Gen, Trans, Dist
900-9063-494.20-82 POLES	-	Gen, Trans, Dist
CAPACITORS	41,625	Energy
PC HARDWARE	16,809	Plant in Service
* MATERIALS	248,560	
900-9063-494.30-15 OTHER RENTALS	1,513	Plant in Service
900-9063-494.30-21 OUTSIDE REPAIR-CARS/TRCKS	5,700	Gen, Trans, Dist
900-9063-494.30-22 REPAIR-TRACTORS/MACHINERY	-	Plant in Service
900-9063-494.30-23 REPAIR-BUILDING/STRUCTURE	9,999	Gen, Trans, Dist
900-9063-494.30-24 REPAIR-RADIO EQUIPMENT	-	Plant in Service
900-9063-494.30-31 REPAIR-TRANSFORMERS	31,855	Demand
900-9063-494.30-34 REPAIR-OTHER EQUIPMENT	34,764	Plant in Service
900-9063-494.30-72 DUES AND SUBSCRIPTIONS	15,567	Customer
900-9063-494.30-73 IN-SERVICE TRAINING	25,418	Plant in Service
900-9063-494.30-82 MISCELLANEOUS SERVICES	540,234	Plant in Service
900-9063-494.30-84 TRAVEL EXPENSE	1,468	Plant in Service
900-9063-494.30-85 PROFESSIONAL SERVICES	5,993	Plant in Service
900-9063-494.30-87 LANDFILL SERVICES	-	Gen, Trans, Dist
900-9063-494.30-98 SAFETY EQUIPMENT TESTING	25,776	Plant in Service
* SERVICES	698,287	
900-9063-494.40-01 VEHICLES	220,793	
900-9063-494.40-41 BUILDING AND STRUCTURES	-	
OTHER EQUIPMENT	81,639	
900-9063-494.40-64 ELECTRIC CONSTRUCTION	619,963	
* CAPITAL	922,395	
DISTRIBUTION MAINTENANCE	4,768,503	

Distributed Generation Rate Supporting Documentation

2017 Expense Allocations

**Allocation of 2017 Expenses**

Category	2017	Allocation Method
DIV 64 WAREHOUSE MAINTENANCE		
900-9064-494.10-01 FULL TIME	70,296	Plant in Service
900-9064-494.10-21 SOCIAL SECURITY	5,063	Plant in Service
900-9064-494.10-22 RETIREMENT	4,155	Plant in Service
900-9064-494.10-23 HEALTH INSURANCE	12,646	Plant in Service
WORKERS COMP	122	Plant in Service
* SALARIES, WAGES, BENEFITS	92,281	
900-9064-494.20-01 MASTERCARD INVEN PURCHASE	-	Plant in Service
900-9064-494.20-21 MOTOR VEH REPAIR PARTS	107	Gen, Trans, Dist
900-9064-494.20-23 BUILDING MATERIALS	78	Plant in Service
900-9064-494.20-26 HEATING/COOLING SYS PARTS	694	Plant in Service
900-9064-494.20-51 CLOTHING AND UNIFORMS	1,157	Plant in Service
900-9064-494.20-53 MOTOR VEHICLE FUEL & OIL	93	Gen, Trans, Dist
900-9064-494.20-58 TOOLS	318	Plant in Service
900-9064-494.20-59 MINOR SUPPLIES	254	Plant in Service
900-9064-494.20-86 NON PROJECT MATERIAL	420,498	Plant in Service
INVENTORY SHORT	57,238	Plant in Service
* MATERIALS	480,436	
900-9064-494.30-22 REPAIR-TRACTORS/MACHINERY	-	Plant in Service
900-9064-494.30-23 REPAIR-BUILDING/STRUCTURE	218	Gen, Trans, Dist
900-9064-494.30-26 REPAIR-HEATING/COOLING	2,440	Plant in Service
900-9064-494.30-34 REPAIR-OTHER EQUIPMENT	-	Plant in Service
900-9064-494.30-73 IN-SERVICE TRAINING	284	Plant in Service
* SERVICES	2,942	
WAREHOUSE MAINTENANCE	575,659	
DEPRECIATION		
TRANSFER TO GF	12,428,817	Revenue
<b>TOTAL EXPENSE - Operating Fund</b>	<b>51,951,969</b>	
<b>Rate Stabilization Fund</b>		
DIV 11 ELEC RATE STABILIZATION		
911-9011-494.40-08 OTHER EQUIPMENT	66,159	
911-9011-494.40-41 BUILDING AND STRUCTURES	862,708	
911-9011-494.40-64 ELECTRIC CONSTRUCTION	634,094	
OTHER CONTRACTS	24,482	
911-9011-494.40-51 LAND PURCHASE	-	
* CAPITAL	1,587,443	
911-9011-494.50-70 INTEREST EXP-2014 BONDS	2,843,050	
911-9011-494.50-86 FISCAL FEES-BONDS	5,000	Revenue
* DEBT RELATED EXPENSES	2,848,050	
<b>TOTAL EXPENSE - Rate Stabilization Fund</b>	<b>4,435,493</b>	
<b>Total Expenses</b>	<b>56,387,462</b>	

# Distributed Generation Rate Supporting Documentation

## Allocation Factors

Customer	FY Avg. Monthly Customers												FY Avg. Monthly Customers		
	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17			
Residential	18,998	18,254	18,507	18,412	18,236	18,361	18,551	18,488	18,367	18,451	18,367	18,258	19,431	18,526	88.38%
Commercial	2,173	2,160	2,173	2,178	2,167	2,163	2,172	2,168	2,159	2,157	2,159	2,155	2,160	2,165	10.33%
Power	255	257	255	259	260	274	270	268	266	269	266	277	268	265	1.26%
Industrial	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0.02%
														20,961	

Energy	1999 COS Meters and Services Watched												Monthly Watched Customers
	Residential	Commercial	Power	Industrial									
Residential	\$100	\$1,852,617			33,58%								
Commercial	\$1,495	\$3,237,298			58.68%								
Power	\$1,495	\$395,926			7.18%								
Industrial	\$6,145	\$30,725			0.56%								
					\$5,16,565								

Energy	Total kWh												Total kWh	
	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17		
Residential	23,566,551	25,289,087	24,259,059	18,243,161	12,086,461	13,371,382	16,416,493	14,633,320	11,917,726	11,904,129	11,620,703	15,205,584	198,513,656	42.23%
Commercial	6,147,814	6,295,460	6,991,606	5,949,747	4,130,309	3,618,384	4,498,675	4,107,023	3,744,228	3,980,817	3,771,240	4,493,148	57,128,351	12.15%
Industrial	6,656,700	7,311,050	6,454,800	6,218,350	5,335,700	5,523,250	5,922,150	5,177,500	6,023,400	5,187,950	6,036,000	6,331,700	72,178,550	15.35%
Power	12,087,430	12,421,307	13,288,808	11,088,651	9,048,385	10,479,658	9,391,315	8,582,228	8,244,256	9,074,589	9,574,641	10,681,573	123,982,241	26.37%
Security Lights	81,450	81,496	81,564	81,299	80,982	82,035	82,880	82,193	82,188	82,076	82,065	82,142	982,370	0.21%
City Buildings	1,699,332	1,531,899	1,562,464	1,354,732	1,191,404	1,394,498	1,670,106	1,333,694	1,256,654	1,291,153	1,202,672	1,812,759	17,321,367	3.68%
													470,106,535	

Demand	Total kWh												Total kWh		
	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17			
Residential	69,424	79,189	84,977	84,233	61,301	41,767	44,931	55,163	54,439	40,046	41,334	39,048	52,797	679,424	51.96%
Commercial	156,510	16,526	16,923	19,421	14,381	9,727	12,093	12,223	10,065	10,065	10,138	10,138	12,481	156,510	11.97%
Industrial	141,149	12,782	14,038	12,807	11,940	10,587	11,371	11,007	11,566	10,294	11,590	12,563	12,563	141,149	10.80%
Power	282,941	27,078	27,826	30,760	24,840	20,945	23,475	21,038	21,285	18,513	21,006	21,449	24,726	282,941	21.64%
Security Lights															0.00%
City Buildings	47,474	4,568	4,118	4,396	3,642	3,309	3,749	4,490	3,749	3,378	3,587	3,233	5,055	47,474	3.63%
														1,307,497	

Revenue	Total Revenue												Total Revenue	
	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17		
Residential	\$ 2,636,039	\$ 2,899,796	\$ 2,792,764	\$ 2,017,022	\$ 1,334,234	\$ 1,446,251	\$ 1,594,965	\$ 1,477,076	\$ 1,314,103	\$ 1,369,271	\$ 1,369,542	\$ 1,880,193	\$ 22,043,275	48.20%
Commercial	\$ 786,609	\$ 804,933	\$ 889,634	\$ 667,129	\$ 481,988	\$ 407,816	\$ 505,190	\$ 475,797	\$ 450,268	\$ 485,006	\$ 473,592	\$ 615,916	\$ 7,043,878	15.40%
Power	\$ 1,037,511	\$ 1,061,729	\$ 1,112,508	\$ 986,377	\$ 842,465	\$ 963,343	\$ 827,893	\$ 775,835	\$ 794,241	\$ 874,647	\$ 920,179	\$ 1,025,255	\$ 11,211,983	24.52%
Industrial	\$ 562,062	\$ 575,791	\$ 545,804	\$ 391,208	\$ 369,276	\$ 386,666	\$ 363,436	\$ 343,337	\$ 399,486	\$ 383,524	\$ 538,145	\$ 576,942	\$ 5,435,579	11.89%
													\$ 45,734,715	100.00%

Demand	Est. Per Residential Customer Demand											
	Monthly Demand	% of Annual										
Monthly Demand	4.17	4.66	4.55	3.33	2.30	2.45	2.97	2.94	2.17	2.25	2.14	2.72
% of Annual	11.66%	12.51%	12.40%	9.02%	6.18%	6.61%	8.12%	8.01%	5.89%	6.08%	5.75%	7.77%

Distributed Generation Rate Supporting Documentation

Asset Functionalization

	<u>Total Book Value</u>	<u>Demand</u>	<u>Energy</u>	<u>Customer</u>	<u>Notes</u>
Generation	\$ 95,634,085	\$ 47,817,042	\$ 47,817,042		50-50 Demand/Energy
Transmission	\$ 12,392,308	\$ 12,392,308			
Distribution	\$ 44,484,890	\$ 22,242,445		\$ 22,242,445	50-50 Demand/Customer
<b>Total Gen, Trans, Dist</b>	<b>\$ 152,511,283</b>	<b>\$ 82,451,795</b>	<b>\$ 47,817,042</b>	<b>\$ 22,242,445</b>	<b>Gen, Trans, Dist Allocation Percentage</b>
		54.1%	31.4%	14.6%	
Admin	\$ 8,807,662	\$ 4,761,664	\$ 2,761,477	\$ 1,284,521	As Total Gen, Trans, Dist
<b>Total Plant in Service</b>	<b>\$ 161,318,945</b>	<b>\$ 87,213,460</b>	<b>\$ 50,578,519</b>	<b>\$ 23,526,966</b>	<b>Plant in Service Allocation Percentages</b>
		54.1%	31.4%	14.6%	
Less Accumulated Depreciation					
Generation	\$ 21,789,088	\$ 10,894,544	\$ 10,894,544		As Generation
Transmission	\$ 4,859,584	\$ 4,859,584			As Transmission
Distribution	\$ 28,308,639	\$ 14,154,319		\$ 14,154,319	As Distribution
Admin	\$ 6,062,868	\$ 3,277,753	\$ 1,900,898	\$ 884,217	As Total Gen, Trans, Dist
<b>Total Accumulated Depreciation</b>	<b>\$ 61,020,179</b>	<b>\$ 33,186,201</b>	<b>\$ 12,795,442</b>	<b>\$ 15,038,536</b>	
<b>Net Plant in Service</b>	<b>\$ 100,298,766</b>	<b>\$ 54,027,259</b>	<b>\$ 37,783,077</b>	<b>\$ 8,488,430</b>	
		<b>53.9%</b>	<b>37.7%</b>	<b>8.5%</b>	

Values from 'Electric Fixed Asset Listing 9-28-2017' file provided by SUA

Distributed Generation Rate Supporting Documentation  
Revenue Requirement Development

Functional Allocation of Expenses

Expenses to Allocate	
Total Expenses 2017	\$ 56,387,462
Less 2017 Capital Investments	\$ 2,643,105
Less 2017 Interest Expense	\$ 2,843,050
Less 2017 Premium Amortization	\$ 233,963
Total Expenses to Allocate	\$ 50,667,344

Expenses from Operating and Rate Stabilization Fund  
Projected Capital Needs Added Below (forward looking)  
Actual Debt Service Added Below (principal and interest)  
Non-cash expense

Direct Expense Allocations		\$ 29,062,797	
Demand	\$ 11,123,024	Demand driven expenses from 2017 Expenses	
Energy	\$ 17,863,407	Energy driven expenses from 2017 Expenses	
Customer	\$ 76,365	Customer driven expenses from 2017 Expenses	

Plant in Service		\$ 7,798,378	
Demand	53.9%	\$ 4,200,699	Net Plant in Service Allocation from Asset Functionalization
Energy	37.7%	\$ 2,937,690	Net Plant in Service Allocation from Asset Functionalization
Customer	8.5%	\$ 659,988	Net Plant in Service Allocation from Asset Functionalization

Gen., Trans, Dist		\$ 184,173	
Demand	54.1%	\$ 99,569	Gen, Trans, Dist from Asset Functionalization
Energy	31.4%	\$ 57,744	Gen, Trans, Dist from Asset Functionalization
Customer	14.6%	\$ 26,860	Gen, Trans, Dist from Asset Functionalization

Revenue Related	\$ 14,089,923	Revenue driven expenses from 2017 Expenses
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Projected Debt Service and Capital Needs

Debt Service		\$ 4,104,000	
Demand	53.9%	\$ 2,210,674	From 'RSF Cash Flow Analysis 5-3-17 Model 3' file
Energy	37.7%	\$ 1,545,999	Net Plant in Service Allocation from Asset Functionalization
Customer	8.5%	\$ 347,327	Net Plant in Service Allocation from Asset Functionalization

Projected Capital Needs		\$ 3,000,000	
Demand	53.9%	\$ 1,615,990	Averaged From 'SEU 20 Year Capital Plan File'
Energy	37.7%	\$ 1,130,116	Net Plant in Service Allocation from Asset Functionalization
Customer	8.5%	\$ 253,894	Net Plant in Service Allocation from Asset Functionalization

	Revenue Requirement			
	Residential	Commercial	Power	
<b>Total Revenue Requirement</b>	\$ 10,002,994	\$ 3,003,194	\$ 4,165,669	\$ 2,078,098
Demand	\$ 9,938,194	\$ 3,776,359	\$ 6,206,926	\$ 3,613,477
Energy	\$ 832,067	\$ 470,824	\$ 57,582	\$ 3,962
Customer	\$ 20,773,255	\$ 7,250,377	\$ 10,430,178	\$ 5,695,537
<b>Functional Allocation by Class</b>				
Revenue	\$ 6,791,079	\$ 2,170,074	\$ 3,454,181	\$ 1,674,590
Less: Sales Tax Transfer In	\$ (3,871,000)	\$ (1,236,969)	\$ (1,968,927)	\$ (954,537)
Less: Other Operating Fund	\$ (1,594,579)	\$ (509,544)	\$ (811,059)	\$ (393,202)
Offsets	\$ (1,959,397)	\$ (626,121)	\$ (996,618)	\$ (483,161)
Less: Stabilization Fund	\$ 20,139,357	\$ 7,047,816	\$ 10,107,755	\$ 5,539,226
Revenue Offsets				
<b>Total Revenue Requirement</b>	\$ 20,139,357	\$ 7,047,816	\$ 10,107,755	\$ 5,539,226

Allocated based on Allocation Factors  
Allocated based on Allocation Factors  
Allocated based on Allocation Factors

Allocated based on Allocation Factors

Residential Customer Fixed Rate Analysis

<b>Residential Fixed Cost per Customer Based on Revenue Requirement</b>	
Total Residential Customer Revenue Requirement	\$ 832,067
Total Residential Demand Requirement	\$ 10,002,994
<hr/>	<hr/>
Total Annual Residential Fixed Revenue Requirement	\$ 10,835,061
Monthly Residential Fixed Revenue Requirement	\$ 902,922
Less 2017 Premium Ammortization	18,526
<b>Avg. Fixed Cost per Residential Customer per Month</b>	<b>\$ 48.74</b>

# Distributed Generation Rate Supporting Documentation

## Residential Rate Modeling

Avant Energy, Inc.  
SUA Rate Modeling

### Net Metering Rate

Solar Facility													
Capacity	6 kW												
Cap. Factor	20%												
Total Annual Energy Generated	10,512 kWh												
Monthly % of Ann. Total	5.5%	8.6%	9.5%	9.4%	9.7%	10.2%	10.8%	8.7%	8.9%	8.2%	6.0%	4.5%	100.0%

Energy Assumptions	SUMMER													Customer Characteristics	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total		
Usage (monthly % annual)	8.26%	7.40%	6.03%	6.05%	5.94%	7.31%	11.58%	12.93%	12.24%	9.25%	6.19%	6.80%	100.00%		
Usage kWh	885	792	646	648	636	783	1,240	1,385	1,311	991	663	728	10,708	Total Annual Energy Usage (kWh)	10,708 kWh
Solar Production	578	904	999	988	1,020	1,072	1,135	915	936	862	631	473	10,513		
Demand (monthly % annual)	8.12%	8.01%	5.89%	6.08%	5.75%	7.77%	11.66%	12.51%	12.40%	9.02%	6.18%	6.61%	100.00%		
Demand (kw)	3.89	3.84	2.83	2.92	2.76	3.73	5.59	6.00	5.95	4.33	2.96	3.17	47.97	Peak Summer Demand (kW)	6 kW

Standard Residential Rate	SUMMER													Current Rate		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total			
Customer Charge	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 115.32	Customer Charge	\$ 9.61
Demand Charge per kW	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Summer Demand Price/kW	
Total Demand Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Winter Demand Price/kW	
Energy Quantity - Base	600	600	600	600	0	0	0	0	0	600	600	600	4,200	Base kWh Summer		
Energy Rate - Base	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$ -	\$ -	\$ -	\$ -	\$ -	\$0.1058	\$0.1058	\$0.1058		Summer Base Price/kWh		
Energy \$ - Base	\$ 63.47	\$ 63.47	\$ 63.47	\$ 63.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 63.47	\$ 63.47	\$ 63.47	\$ 444.28	Base kWh Winter	600	
														Winter Base Price/kWh	\$ 0.10578	
Energy Quantity - Above Base	285	192	46	48	636	783	1,240	1,385	1,311	391	63	128	6,508	Summer Above Base Price/kWh	\$ 0.10578	
Energy Rate - Above Base	\$0.0619	\$0.0619	\$0.0619	\$0.0619	\$ 0.1058	\$ 0.1058	\$ 0.1058	\$ 0.1058	\$ 0.1058	\$0.0619	\$0.0619	\$0.0619		Winter Above Base Price/kWh	\$ 0.06185	
Energy \$ - Above Base	\$ 17.63	\$ 11.88	\$ 2.85	\$ 2.97	\$ 67.28	\$ 82.83	\$ 131.17	\$ 146.51	\$ 138.68	\$ 24.18	\$ 3.90	\$ 7.92	\$ 637.76			
<b>Total Current Monthly Billing</b>	<b>\$ 90.71</b>	<b>\$ 84.95</b>	<b>\$ 75.92</b>	<b>\$ 76.05</b>	<b>\$ 76.89</b>	<b>\$ 92.44</b>	<b>\$ 140.78</b>	<b>\$ 156.12</b>	<b>\$ 148.29</b>	<b>\$ 97.26</b>	<b>\$ 76.97</b>	<b>\$ 80.99</b>	<b>\$ 1,197.36</b>			

Net Metering Rate	SUMMER													Future Rate	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total		
Customer Charge	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	115.32	Customer Charge	\$ 9.61
Demand Charge per kW	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Summer Demand Price/kW	
Total Demand Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Winter Demand Price/kW	
Net Energy Purchased/(Sold)	307.00	(112.00)	(353.00)	(340.00)	(384.00)	(289.00)	105.00	470.00	375.00	129.00	32.00	255.00			
Energy Quantity - Base	307	0	0	0						129	32	255	723	Base kWh Summer	
Energy Rate - Base	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$ -	\$ -	\$ -	\$ -	\$ -	\$0.1058	\$0.1058	\$0.1058		Summer Base Price/kWh	
Energy \$ - Base	\$ 32.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13.65	\$ 3.38	\$ 26.97	\$ 76.48	Base kWh Winter	600
														Winter Base Price/kWh	\$ 0.10578
Energy Quantity - Above Base	-	-	-	-	-	-	105	470	375	-	-	-	950	Summer Above Base Price/kWh	\$ 0.10578
Energy Rate - Above Base	\$0.0619	\$0.0619	\$0.0619	\$0.0619	\$ 0.1058	\$ 0.1058	\$ 0.1058	\$ 0.1058	\$ 0.1058	\$0.0619	\$0.0619	\$0.0619		Winter Above Base Price/kWh	\$ 0.06185
Energy \$ - Above Base	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11.11	\$ 49.72	\$ 39.67	\$ -	\$ -	\$ -	\$ 100.49		
<b>Total Monthly Energy Purchases</b>	<b>\$ 42.08</b>	<b>\$ 9.61</b>	<b>\$ 9.61</b>	<b>\$ 9.61</b>	<b>\$ 9.61</b>	<b>\$ 9.61</b>	<b>\$ 20.72</b>	<b>\$ 59.33</b>	<b>\$ 49.28</b>	<b>\$ 23.26</b>	<b>\$ 12.99</b>	<b>\$ 36.58</b>	<b>\$ 292.29</b>		
<i>Change from Standard Tariff</i>	<i>-54%</i>	<i>-89%</i>	<i>-87%</i>	<i>-87%</i>	<i>-88%</i>	<i>-90%</i>	<i>-85%</i>	<i>-62%</i>	<i>-67%</i>	<i>-76%</i>	<i>-83%</i>	<i>-55%</i>	<i>-76%</i>		
Energy Sold - All	-	112	353	340	384	289	-	-	-	-	-	-	1,478	Generation Summer Price/kWh Paid	\$ 0.0320
Energy Price - All	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320	\$0.0320		Generation Winter Price/kWh Paid	\$ 0.0320
Energy Revenue (\$) - All	\$ -	\$ 3.58	\$ 11.29	\$ 10.88	\$ 12.29	\$ 9.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 47.29	*GRDA whole sale cost avoided Jul 2016 - Jun 2017	
Cumulative Credit	42.08	6.03	(1.68)	(2.95)	(5.63)	(5.27)	15.45	59.33	49.28	23.26	12.99	36.58			
<b>Net Monthly Billing</b>	<b>\$ 42.08</b>	<b>\$ 6.03</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 15.45</b>	<b>\$ 59.33</b>	<b>\$ 49.28</b>	<b>\$ 23.26</b>	<b>\$ 12.99</b>	<b>\$ 36.58</b>	<b>\$ 245.00</b>		
<i>Change from Standard Tariff</i>	<i>-54%</i>	<i>-93%</i>	<i>-100%</i>	<i>-100%</i>	<i>-100%</i>	<i>-100%</i>	<i>-89%</i>	<i>-62%</i>	<i>-67%</i>	<i>-76%</i>	<i>-83%</i>	<i>-55%</i>	<i>-80%</i>		

# Distributed Generation Rate Supporting Documentation

## Residential Rate Modeling

Avant Energy, Inc.  
SUA Rate Modeling

### Avoided Cost Rate

Solar Facility													
Capacity	6 kW												
Cap. Factor	20%												
Total Annual Energy Generated	10,512 kWh												
Monthly % of Ann. Total	5.5%	8.6%	9.5%	9.4%	9.7%	10.2%	10.8%	8.7%	8.9%	8.2%	6.0%	4.5%	100.0%

Energy Assumptions	SUMMER												Customer Characteristics	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Total
Usage (monthly % annual)	8.26%	7.40%	6.03%	6.05%	5.94%	7.31%	11.58%	12.93%	12.24%	9.25%	6.19%	6.80%	100.00%	
Usage kWh	885	792	646	648	636	783	1,240	1,385	1,311	991	663	728	10,708	Total Annual Energy Usage (kWh) 10,708 kWh
Solar Production	578	904	999	988	1,020	1,072	1,135	915	936	862	631	473	10,513	
Demand (monthly % annual)	8.12%	8.01%	5.89%	6.08%	5.75%	7.77%	11.66%	12.51%	12.40%	9.02%	6.18%	6.61%	100.00%	
Demand (kw)	4.54	4.48	3.30	3.40	3.22	4.35	6.52	7.00	6.94	5.05	3.46	3.70	55.97	Peak Summer Demand (kW) 7 kW

Standard Residential Rate	SUMMER												Current Rate	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Total
Customer Charge	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 9.61	\$ 115.32	Customer Charge \$ 9.61
Demand Charge per kW	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Summer Demand Price/kW
Total Demand Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Winter Demand Price/kW
Energy Quantity - Base	600	600	600	600	0	0	0	0	0	600	600	600	4,200	Base kWh Summer
Energy Rate - Base	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$ -	\$ -	\$ -	\$ -	\$ -	\$0.1058	\$0.1058	\$0.1058	\$ -	Summer Base Price/kWh
Energy \$ - Base	\$ 63.47	\$ 63.47	\$ 63.47	\$ 63.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 63.47	\$ 63.47	\$ 63.47	\$ 444.28	Base kWh Winter 600
														Winter Base Price/kWh \$ 0.10578
Energy Quantity - Above Base	285	192	46	48	636	783	1,240	1,385	1,311	391	63	128	6,508	
Energy Rate - Above Base	\$0.0619	\$0.0619	\$0.0619	\$0.0619	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$0.0619	\$0.0619	\$0.0619	\$ -	Summer Above Base Price/kWh \$ 0.10578
Energy \$ - Above Base	\$ 17.63	\$ 11.88	\$ 2.85	\$ 2.97	\$ 67.28	\$ 82.83	\$ 131.17	\$ 146.51	\$ 138.68	\$ 24.18	\$ 3.90	\$ 7.92	\$ 637.76	Winter Above Base Price/kWh \$ 0.06185
<b>Total Current Monthly Billing</b>	<b>\$ 90.71</b>	<b>\$ 84.95</b>	<b>\$ 75.92</b>	<b>\$ 76.05</b>	<b>\$ 76.89</b>	<b>\$ 92.44</b>	<b>\$ 140.78</b>	<b>\$ 156.12</b>	<b>\$ 148.29</b>	<b>\$ 97.26</b>	<b>\$ 76.97</b>	<b>\$ 80.99</b>	<b>\$ 1,197.36</b>	

Avoided Cost Rate	SUMMER												Future Rate	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Total
Customer Charge	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	9.61	115.32	Customer Charge \$ 9.61
Demand Charge per kW	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Summer Demand Price/kW
Total Demand Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Winter Demand Price/kW
Energy Quantity - Base	600	600	600	600	0	0	0	0	0	600	600	600	4,200	Base kWh Summer
Energy Rate - Base	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$ -	\$ -	\$ -	\$ -	\$ -	\$0.1058	\$0.1058	\$0.1058	\$ -	Summer Base Price/kWh
Energy \$ - Base	\$ 63.47	\$ 63.47	\$ 63.47	\$ 63.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 63.47	\$ 63.47	\$ 63.47	\$ 444.28	Base kWh Winter 600
														Winter Base Price/kWh \$ 0.10578
Energy Quantity - Above Base	285	192	46	48	636	783	1,240	1,385	1,311	391	63	128	6,508	
Energy Rate - Above Base	\$0.0619	\$0.0619	\$0.0619	\$0.0619	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$0.1058	\$0.0619	\$0.0619	\$0.0619	\$ -	Summer Above Base Price/kWh \$ 0.10578
Energy \$ - Above Base	\$ 17.63	\$ 11.88	\$ 2.85	\$ 2.97	\$ 67.28	\$ 82.83	\$ 131.17	\$ 146.51	\$ 138.68	\$ 24.18	\$ 3.90	\$ 7.92	\$ 637.76	Winter Above Base Price/kWh \$ 0.06185

GRDA Wholesale Rates*													Rate		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Total	
On-Peak (w/losses)														0.03086	5
Off-Peak (w/losses)														0.03604	2
Generation Summer Price/kWh Paid*														\$ 0.03234	
Generation Winter Price/kWh Paid*														\$ 0.03234	
*Estimated blended avg. on/off peak avoided GRDA cost per kWh															
<b>Net Monthly Billing</b>	<b>\$ 72.01</b>	<b>\$ 55.72</b>	<b>\$ 43.62</b>	<b>\$ 44.09</b>	<b>\$ 43.90</b>	<b>\$ 57.77</b>	<b>\$ 104.07</b>	<b>\$ 126.52</b>	<b>\$ 118.02</b>	<b>\$ 69.38</b>	<b>\$ 56.57</b>	<b>\$ 65.70</b>	<b>\$ 857.37</b>		**Assumes no demand capacity credit earned
Change from Standard Tariff	-21%	-34%	-43%	-42%	-43%	-38%	-26%	-19%	-20%	-29%	-27%	-19%	-28%		