KgPCo Exhibit No. ___
Witness: WKC

DIRECT TESTIMONY OF
WILLIAM K. CASTLE
ON BEHALF OF KINGSPORT POWER COMPANY
D/B/A AEP APPALACHIAN POWER
BEFORE THE TENNESSEE REGULATORY AUTHORITY
DOCKET NO. 16- __

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

A. My name is William K. Castle. My business address is 1051 E. Cary St, Suite 1100, Richmond, VA. I am the Director of Regulatory Services VA/TN for Kingsport Power Company d/b/a AEP Appalachian Power (Kingsport, KgPCo or the Company).

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I earned a Bachelor of Science degree in Mechanical Engineering from Tulane University in 1988, and a Masters of Business Administration degree from the University of Texas – Austin in 1998. I hold the Chartered Financial Analyst (CFA) designation. I have worked in the utility industry since 1998, beginning with the Columbia Energy Group, Herndon, Virginia, where I held positions in financial planning and corporate finance. Subsequent to the acquisition of Columbia Energy Group by Merrillville, Indiana based NiSource in 2000, I performed financial planning and analysis functions. Since 2004, and prior to my current position, I was employed by AEP Service Corporation in the Corporate Planning and Budgeting department. Assignments included resource planning and demand-side management analysis, which encompasses Energy Efficiency and Demand Response. I have been in my current position since July, 2014.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY AS A WITNESS BEFORE ANY REGULATORY COMMISSION?

A. Yes. I presented testimony on behalf of APCo before the Virginia State Corporation Commission in Case Nos. PUE-2009-00023, PUE-2014-00026, PUE-2014-00039, PUE-2015-00040, and PUE-2015-00036. I have also presented testimony in the states of Ohio, Oklahoma, Indiana, West Virginia, and Arkansas.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I will provide the rationale for the Company's allocation of the requested increase among customer classes; sponsor a rate realignment plan; support the proposed amortization period for rate case expense and demand response regulatory asset; and describe the affect of new base rates on the Company's Fuel Adjustment Clause (FAC) and Purchased Power Adjustment Rider (PPAR). I discuss proposed changes to Tariff N.M.S. and propose Tariff N.M.S.-2. Last, I will recommend the expansion of the Company's Demand Side Management (DSM) program and sponsor the accompanying economic analysis.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. I am sponsoring the following four exhibits:

- Exhibit No. 1(WKC) Tariff N.M.S. (Revised)
- Exhibit No. 2(WKC) DSM Program Descriptions
- Exhibit No. 3(WKC) DSM Cost-Benefit Test Results
- Exhibit No. 4(WKC) Optional Rider R.P.R.P.

Q. DESCRIBE KINGSPORT POWER COMPANY'S CURRENT COST RECOVERY?

A. Kingsport Power Company has not sought a base rate increase since 1992. Since then, changes in revenues and costs have occurred such that current rates are no longer adequate to allow the Company to fully recover its costs. To some degree, a portion of the Company's incremental costs are recovered through mechanisms other than base rates, primarily the FAC and the PPAR. Kingsport's current base rates include partial recovery of fuel, transmission costs, and purchased power costs. The riders are designed to recover the difference between actual costs and the level of costs in base rates, and will continue to operate in that manner.

Q. WHAT LEVEL OF GENERATION, TRANSMISSION, AND FUEL COSTS IS THE COMPANY PROPOSING TO REFLECT IN BASE RATES TO BE APPROVED IN THIS PROCEDING?

A. The Company is proposing to reflect the going level of those costs in base rates., Currently, these costs reside partially in base rates, with significant portions recovered through riders, which are subject to periodic adjustment..

Q. DESCRIBE THE INTERRELATIONSHIP BETWEEN FAC AND PPAR RIDERS ONCE NEW BASE RATES ARE PUT INTO EFFECT.

A. Both riders will continue to operate as they currently do. The monthly adjustment to the FAC will capture the new level of fuel in base rates relative to the fuel costs in the month new base rates go into effect. Since the PPAR has been historically updated annually, in August, an interim adjustment to that rider will likely be needed to to reflect the difference in actual costs and the level included in new base rates prior to the annual change in base rates.

Q. PLEASE DISCUSS THE COMPANY'S PROPOSED REVENUE INCREASE ALLOCATION AMONG CLASSES AND RATE REALIGNMENT PLAN.

A. As Company witness Buck describes, the Company's current rates result in disparate rates of return among the rate classes. If, in addition to allocating the requested increased revenue requirement, class rates of return were immediately equalized, the impact on certain classes, primarily the residential and public school classes, would be overly burdensome. To gradually equalize the class rates of return, the Company proposes to realign the base rates over a six year period. The initial allocation of the revenue increase maintains the current level of subsidy for the residential and public school classes, and institutes an equal percentage increase for other customer classes, thus keeping the increases for each class within a reasonable range in the first year. For the following five years the residential and public school base rates will be increased no more than 2.33% annually, with concomitant reductions to the other classes annually so as to produce no additional base rate revenues for the Company, until the class rates of return have been equalized based upon the cost-of-service data filed in this case. Company witness Buck's testimony shows the annual rate reductions and increases by class over the realignment period.

Q. WHAT OTHER ITEMS DO YOU SPONSOR?

A. I sponsor the Company's proposal to amortize rate case expenses over a 5-year period (Adjustment OM-10). Additionally, I sponsor Kingsport's proposal to recover deferred expenses associated with the Company's Tariff RTODR, approved in Cases Nos. TRA 2012-00012 and TRA 2012-00026, over the same 5-year period (OM-27). The period of five years is consistent with the statutory time allowed between base rate cases to opt into

an annual review (§65-5-103). I also sponsor revisions to the Company's Tariff N.M.S. or Net Metering Service Rider, included as Exhibit No. 1(WKC) Tariff N.M.S. (Revised).

Q: PLEASE DESCRIBE THE CHANGES THE COMPANY IS PROPOSING TO ITS NET METERING SERVICE RIDER.

A: The current rider has some provisions that are confusing to current customers and has the potential to compensate them unequally based simply on the month they installed their generator. The proposed changes to the rider address these shortcomings and are consistent with the provisions contained in APCo Virginia's Optional Rider N.M.S. (Net Metering Service Rider). The changes are threefold. First, when determining the customer's billed consumption for purposes of determining the net energy, accumulated billing credits that are carried forward and applied from the previous net metering period are currently excluded from the calculation. Second, it is clarified that a $50 inspection will only be charged to customers whose generators require inspections, as not all generators are necessarily inspected. Last, the proposed tariff clarifies that insurance requirements are specific to losses that arise from the use of the generator. The Company proposes to close this rider to new customers December 31, 2016. Customers wishing to interconnect renewable generators and engage in "net metering, on or after January 1, 2017 would be required to take service under proposed Rider N.M.S.2.

Q: PLEASE DESCRIBE THE RIDER N.M.S.-2.

A: The Company proposes to close its current Rider N.M.S. to new customers at the end of 2016 and introduce a new Rider N.M.S.-2. Participation in Rider N.M.S.-2 will require customers to take service under a demand-metered tariff. Customers on those tariffs will be required to pay, in addition to their basic service charge, a charge based on their

highest peak demand realized during the month, as measured by the demand meter. Further, the energy component of the customer's bill will be charged, or credited, at the Company's variable cost of production as described in the tariff.

Q: WHAT IS THE BASIS FOR CLOSING THE RIDER N.M.S. TO NEW CUSTOMERS AND ADDING A NET METERING SCHEDULE THAT REQUIRES DEMAND METERS?

A: The proposed rider reduces or eliminates the cross-subsidization that occurs with the current net metering construct. Currently, a customer on Rider N.M.S. that is served on a tariff that does not have a demand charge can effectively avoid paying a large portion of fixed charges by having his or her excess generation valued at the fully delivered cost, or retail rate. Those avoided fixed costs must be recovered from other customers. With the incorporation of demand meters, participating customers will be charged for the fixed infrastructure they utilize and their excess generation will effectively be valued at the Company's cost to purchase that generation from other sources. With both net metering riders, the customer retains all environmental attributes associated with this generation.

DEMAND SIDE MANAGEMENT

Q. WHY IS KINGSPORT PROPOSING TO EXPAND ITS DSM PROGRAMS?

A. The Company is proposing to expand the DSM Programs beyond Tariff RTODR to provide an opportunity for participating residential customers to lower their monthly electric bills. A well-implemented DSM program will provide benefits to both the Company and its customers and is proposing two programs.

Q. PLEASE DESCRIBE THE RESIDENTIAL DSM PROGRAMS THAT KINGSPORT POWER PROPOSES TO IMPLEMENT.

A. KgPCo is proposing to implement two programs that reduce energy and demand requirements for its residential customers. The programs included in this portfolio, as well as a short description, are listed below. A more detailed description of each program can be found in Exhibit No. 2 (WKC).

- **Residential Direct Load Control Program:** This program is designed to reduce residential summer peak demand by cycling off air conditioners and electric heat pumps through the use of separately installed control devices. KgPCo will operate this equipment during times such as utility system peak, high loading on distribution circuits, and/or emergency conditions. The instances that KgPCo will be allowed to operate the equipment will be predefined and customers will be provided a financial incentive should they elect to participate. Participants will be subject to the provisions in Optional Rider R.P.R.P. (Residential Peak Reduction Program).
- **Residential Low Income Program:** This program aims to generate savings for high usage low income residential customers through the evaluation of energy improvement opportunities, installation of cost-effective weatherization upgrades, and other energy savings for dwellings. To administer the program, KgPCo will partner with existing Weatherization Assistance Program providers. The program is also designed to reduce residential energy use by partnering with local food banks to distribute compact fluorescent light ("CFL") bulbs to food bank recipients.

Q. WHAT ARE THE EXPECTED ENERGY AND DEMAND SAVINGS OF THE DSM PROGRAMS?

A. Figure 1 below displays the expected energy and summer peak demand savings of each program in the proposed Portfolio. The savings for the Residential Direct Load Control program reflect the expected impacts for each year. The savings for the Residential Low Income program are the incremental savings in each year; the cumulative or on-going effect after Year 3 is also shown.

Figure 1 – DSM Programs – Energy and Summer Demand Savings

Residential Direct Load Control		Year 1	Year 2	Year 3
Participants	Annual	300	600	900
Demand Savings (kW)	Summer	270	540	810
Energy Savings (kWh)	Annual	12,000	24,000	36,000

Residential Low Income		Year 1	Year 2	Year 3	Cumulative
Energy Savings (kWh)	Annual	505,000	170,000	170,000	845,000
Demand Savings (kW)	Annual	45	14	14	73

Q. WHAT IS THE ESTIMATED COST FOR THE PORTFOLIO?

A. KgPCo estimates that it will spend approximately $300,000 annually on the Portfolio, which is detailed in the table below.

Figure 2 – Total KgPCo Projected Program Costs

Projected Program Cost	Year 1	Year 2	Year 3
Residential Direct Load Control	$150,000	$162,000	$162,000
Residential Low Income	$150,000	$138,000	$138,000
Total	**$300,000**	**$300,000**	**$300,000**

A more detailed breakdown of the estimated costs of these programs is provided in Exhibit No. 2 (WKC).

Q. IS THE DSM PORTFOLIO COST EFFECTIVE?

A. Yes, the Portfolio is cost-effective from several perspectives as measured by industry-standard benefit-to-cost tests. The Company evaluated the cost-effectiveness of the Portfolio using several tests because each test quantifies the benefits and costs of the programs from different perspectives. This ensures that the Portfolio strikes the appropriate balance between the impact on ratepayers and the overall public interest.

Q. HOW DOES THE COMPANY PLAN TO RECOVER THE COSTS OF ITS DSM PROGRAMS?

A. KgPCo is proposing to recover the costs of the Programs primarily through base rates. In particular, the costs associated with the design, implementation and operation of the Programs have been added to KgPCo's test year Administrative and General (AG) expenses as Adjustment OM-14.

Q. IF THE AUTHORITY APPROVES KGPCO'S REQUEST, WHEN DOES KGPCO PLAN TO IMPLEMENT THE RESIDENTIAL DSM PROGRAMS?

A. Approximately 120 days after the TRA's approval, KgPCo plans to implement the Residential Low Income Program, with the program continuing for three years. In

addition, both programs will be evaluated during the three-year portfolio period and, if deemed successful, could become ongoing elements of the Company's DSM portfolio.

Q. HOW DOES KGPCO PLAN TO IMPLEMENT ITS RESIDENTIAL DSM PROGRAMS?

A. The Residential Low Income Program is expected to be implemented by Community Housing Partners. Appalachian Power Company, an affiliate of Kingsport, selected a third-party program contractor through a competitive bidding process to implement the Residential Direct Load Control Program in its Virginia service territory. KgPCo will be able to "bolt on" to this capability, effectively reducing the cost to implement the program in its service territory. In this initial three-year Program plan, third-party program implementation contractors can provide a number of benefits. These contractors have successfully operated similar programs in various parts of the United States and have the ability to develop forms, processes, tracking databases, payment procedures, as well as the systems, materials, and market understanding to quickly and effectively launch customer programs.

During the three-year program period, KgPCo intends to review the performance of selected implementation contractors, determine best practices, and refine operational plans as deemed necessary. All costs for the KgPCo programs will be charged to work orders set up to capture only those costs related to the KgPCo programs. Further detail regarding the implementation of these programs is provided in Exhibit No. 2 (WKC).

Q. HOW WILL THE COMPANY MEASURE PROGRAM SAVINGS?

A. Program Evaluation, Measurement, and Verification (EM&V) activities are an important component of the Portfolio and will be used to verify program savings and monitor program performance in Tennessee. Effective EM&V ensures that expected results are measurable, achieved results are robust and defensible, and program delivery is effective in maximizing participation. KgPCo will use the EM&V results to monitor and further develop its DSM Programs.

EM&V will be conducted throughout the program through activities such as review of program-specific data, surveys, and periodic field visits to randomly selected participant sites, where appropriate. Process evaluations may be conducted in an early stage of program implementation to assure program delivery mechanisms are effective. Impact evaluations will be periodically conducted and may include, as appropriate for each program, compilation and review of all costs, installed measures, demand and energy impacts, review of the measurement and verification field visit results, surveys of samples of participating and non-participating customers, analyses of participant's billed energy and available interval usage, and cost/benefit analyses based upon actual program costs and achieved savings.

Q. PLEASE DISCUSS THE FOUR COST/BENEFIT TESTS USED IN THE ECONOMIC EVALUATION.

A. The four tests used to evaluate the proposed programs are commonly referred to as the "California Tests," as they have their origin in that state in the 1980s. The tests have been updated over the years and are industry standard tests and are defined in the California Standard Practice Manual: Economic Analysis of Demand-side Programs and Projects, October 2001. The tests seek to quantify the benefits and costs associated

with demand-side investments from different perspectives. The results are often expressed, as they are here, in terms of a ratio, where a ratio of the benefits to costs that exceeds 1.0 is "cost-effective."

1. The Total Resource Cost (TRC) test is also known as the "all ratepayers" test and it evaluates costs and benefits from that perspective. In the plainest sense, it compares the value of all the resources saved to the cost of installing and operating the energy efficiency or demand response measure, regardless of who pays.

2. The Program Administrator, or Utility Cost (UCT) test, quantifies cost-effectiveness from the perspective of the utility (or program administrator) that is implementing the program. It compares utility benefits (avoided costs) to the costs of the program. This test is also referred to as the "revenue requirement" test as it provides an indication of the effect on revenue requirements the programs will have on the utility.

3. The Participant Cost test evaluates cost-effectiveness from the perspective of the utility customer that participates in the program.

4. The Ratepayer Impact Measure (RIM) test is also called the "non-participant" test as it takes the perspective of a utility customer that does not participate in the program. It compares the utility benefits (avoided costs) to the costs of the program and utility net lost revenues. It is indicative of the direction of rates as a result of the program implementation.

Q. PLEASE PROVIDE AN OVERVIEW OF THE ELEMENTS OF THE TESTS.

A. **Discount Rate** - Because the savings from an energy efficiency investment accrue over the useful life of the measure, the benefits are discounted back to the period when the

investment was made using an appropriate discount rate. For all but the Participant test, the utility's weighted average cost of capital is typically used. For participants, the discount rate is arguably higher as efficiency investments often need payback periods of five years[1] to be viable.

Avoided Costs - Energy efficiency and demand response investments are said to "avoid costs." All things being equal, less energy needs to be produced and transmitted as a result of the investment: thus, the marginal, variable costs of production (largely fuel) are not incurred; and/or less capacity is necessary during peaks to produce and transport energy, thereby avoiding the marginal cost of capacity. This analysis uses forecasted market prices of energy and capacity within the PJM market, and the most recent NITS rate for transmission for the avoided costs.

Retail Rates – The retail rates are those rates and tariffs that will be in effect in 2016, escalated at 2% for the lives of the measures.

Cost and Impact Data – The estimates for costs and multi-year demand and energy impacts were developed by AEPSC Consumer Programs using information from programs in effect in other AEP companies.

Q. ON WHAT BASES WERE THE PROGRAMS EVALUATED?

A. Capacity impacts were evaluated at the time of PJM's system peak (summer). Generation capacity values used consist of PJM market auction results, actual and forecasted. Similarly, energy costs are a forecast of the marginal energy costs at the AEP Hub within PJM. Avoided transmission costs are reflective of the rate included in the most recent PPAR.

[1] Commercial and Institutional Building Energy Use Survey 2000, December 2003, Office of Energy Efficiency, Natural Resources Canada.

Q. DESCRIBE THE RESULTS OF THE COST BENEFIT TESTS.

A. The test results tabulated in Exhibit 3 (WKC) show that the proposed Residential Direct Load Control (DLC) Program is solidly cost-effective (benefit-to-cost ratios greater than 1) from all perspectives, while the Residential Low Income Program is cost-effective from all but the non-participant's perspective, which is typical across the industry for these types of programs. The Portfolio is cost-effective from all perspectives, with the exception of the RIM test, where it is "break-even."

Q. DID YOU EMPLOY SENSITIVITY ANALYSIS?

A. Yes. The absolute value of these programs over their useful lives can only be estimated. Thus, it is instructive to vary the estimates of avoided costs to understand how robust the determination of cost-effectiveness is. The tests were calculated under "Base," "Low," and "High" commodity price scenarios which varied energy and capacity costs +/- 15%. The results are shown in Exhibit 3 (WKC).

Q. DO YOU CONSIDER THE PORTFOLIO TO BE COST-EFFECTIVE AND REASONABLE TO IMPLEMENT?

A. Yes. Even under scenarios of substantial reductions in future avoided costs, the Portfolio remains cost-effective from the perspective of all rate payers, the utility, and program participants. The impact on rates, as described by the RIM score, is nearly neutral when evaluating the Portfolio in the context of the forecast of PJM market prices for energy and capacity. Additionally, other system benefits will result from the implementation of the Portfolio, including reduced rate volatility associated with fuel and emissions costs.

Q. HAS THE COMPANY SUBMITTED A PROPOSED TARIFF FOR PARTICIPATION IN THE RESIDENTIAL PEAK LOAD CONTROL PROGRAM?

A. Yes. Exhibit 4 (WKC) is the Company's proposed Optional Rider R.P.R.P.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

KINGSPORT POWER COMPANY
d/b/a AEP Appalachian Power
Kingsport, Tennessee

Original Sheet Number 17-1
T.R.A. Tariff Number 1

TARIFF N.M.S.
(Net Metering Service Rider)

AVAILABILITY OF SERVICE

Available for new or existing Customers who operate an eligible renewable fuel generator designed to operate in parallel with the Company's system and who request Net Metering Service (NMS) from the Company. NMS Customers must take service under Tariff R.S., Tariff S.G.S., Tariff M.G.S.-Secondary, or Tariff P.S. NMS is limited to those customers who do not utilize time-of-day energy charge provisions. Tariff N.M.S. is closed to new customers effective January 1, 2017.

The total capacity of all NMS Customers shall be limited to 1% of the Company's Tennessee peak load forecast ("Renewable Generator Limit"), and shall be available to customers with eligible renewable fuel generators on a first come, first serve basis. Customer's may not take service under this tariff and simultaneously take service under any alternative co-generation agreement.

Formatted: Font: (Default) Times New Roman, 9 pt

DEFINITIONS

The following terms shall solely be used to define the applicability of Schedule N.M.S.

"Billing Period Credit" means the quantity of electricity generated and fed back into the electric grid by the customer's renewable fuel generator in excess of the electricity supplied to the customer over the billing period.

"Excess Generation" means the amount of electricity generated by the renewable fuel generator in excess of the electricity consumed by the customer over the course of the net metering period.

"Net Metering Customer (Customer)" means a customer owning and operating, or contracting with other persons to own or operate, or both, a renewable fuel generator under a net metering service arrangement.

"Net Metering Service" means providing retail electric service to a customer operating a renewable fuel generator and measuring the difference, over the net metering period between electricity supplied to the customer from the electric grid and the electricity generated and fed back to the electric grid.

" Person" means any individual, corporation, partnership, association, company, business, trust, joint venture, or other private legal entity and the State or any municipality.

"RF Generator" is an electrical generating facility which complies with all of the following requirements:

(a) has an alternating current capacity less than or equal to 10 KW for customers taking service under Schedule R.S.;
(b) uses solar, wind or hydro energy as its total fuel source;
(c) the Net Metering Customer's facility is located on the customer's premises and is connected to the customer's wiring on the customer's side of it's interconnection with the distributor;
(d) is designed and installed to operate in parallel with the Company's system without adversely affecting the operation of equipment and service of the Company and its customers and without presenting safety hazards to the Company and Customer personnel; and
(e) is intended primarily to offset all or part of the customer's own electricity requirements.

KINGSPORT POWER COMPANY
d/b/a AEP Appalachian Power
Kingsport, Tennessee

Original Sheet Number 17-2
T.R.A. Tariff Number 1

TARIFF N.M.S.
(Net Metering Service Rider)

CONDITIONS OF SERVICE

A. Notification

1. For a renewable fuel generator with an alternating current capacity of 25 KW or less, the customer shall submit the required Company Interconnection Notification Form to the Company at least thirty (30) days prior to the date the customer intends to interconnect the renewable fuel generator to the Company's facilities. For a renewable fuel generator with an alternating current capacity greater than 25 KW, the customer shall submit the required Interconnection Notification Form to the Company at least sixty (60) days prior to the date the customer intends to interconnect the renewable fuel generator to the Company's facilities. The submission may either be directly to the Company or by registered mail with return receipt. All sections, including appropriate signatures, of the Interconnection Notification Form must be completed for the notification to be valid. The customer shall have all equipment necessary to complete the interconnection prior to such notification. For renewable fuel generators with capacities greater than 25 KW, the customer should contact the Company prior to making financial commitments. If mailed, the date of notification shall be the third day following the mailing of the Interconnection Form. The Company shall provide a copy of the Interconnection Notification Form to the customer upon request

2. The Company shall, within thirty (30) days of the date of notification for RF Generators with a rated capacity of 25 KW or less, and within sixty (60) days of the date of notification for RF Generators with a rated capacity greater than 25 KW, either return to the customer a copy of the valid Interconnection Notification Form or return any incomplete form. If the Company determines that the Interconnection Notification Form is incomplete or that any of the other requirements for interconnection are not satisfied, the customer shall submit another completed Interconnection Notification Form and notify the Company once the customer has completed all work necessary to satisfy the deficiencies prior to interconnection. This notification requirement shall not replace or supersede any other applicable waiting period, or required interconnection authorization when other applicable law, rule, regulation or code would permit authorization to be withheld or delayed.

3. The Net Metering Customer shall immediately notify the electric distribution company of any changes in the ownership of, operational responsibility for, or contact information for the generator. The Net Metering Customer shall not assign this tariff or any part hereof without the prior written consent of the Company, and such authorized assignment may result in the termination of availability of tariff to Customer.

B. Conditions of Interconnection

1. RF Generator equipment shall be installed in accordance with the manufacturer's specifications as well as all applicable provisions of the National Electrical Code. Renewable fuel generator equipment and installations shall comply with all applicable safety and performance standards of the National Electrical Code, the Institute of Electrical and Electronic Engineers and accredited testing laboratories in accordance with IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, July 2003, and safety and performance standards established by local and national electrical codes including, the institute of Electrical and Electronics Engineers, the National Electrical Safety Code, and Underwriters Laboratories.. Customer's renewable fuel generator equipment and installations shall also comply with the Company's Interconnection Guidelines. The Company shall provide a copy of its Interconnection Guidelines to the customer upon request.

2. The Customer shall obtain any governmental authorizations and permits required for the construction and operation of the RF Generator facility and interconnection facilities.

KINGSPORT POWER COMPANY
d/b/a AEP Appalachian Power
Kingsport, Tennessee

Original Sheet Number 17-3
T.R.A. Tariff Number 1

TARIFF N.M.S.
(Net Metering Service Rider)

CONDITIONS OF SERVICE (Cont'd)

3. In the case of renewable fuel generators with an alternating current capacity greater than 25 KW, the following requirements shall be met before interconnection may occur:

   a. Electric Distribution Facilities and Customer Impact Limitations. A renewable fuel generator shall not be permitted to interconnect to the Company's distribution facilities if the interconnection would reasonably lead to damage of any of the Company's facilities or would reasonably lead to voltage regulation or power quality problems at other customer revenue meters due to the incremental effect of the Company's electric distribution system, unless the customer reimburses the Company for its cost to modify any facilities needed to accommodate the interconnection.

   b. Secondary, Service and Service Entrance Limitations. The capacity of the RF Generator shall be less than the capacity of the Company-owned secondary, service, and service entrance cable connected to the point of interconnection, unless the customer reimburses the Company for its cost to modify any facilities needed to accommodate the interconnection.

   c. Transformer Loading Limitations. The RF Generator shall not have the ability to overload the Company's transformer, or any transformer winding, beyond manufacturer or nameplate ratings, unless the customer reimburses the Company for its costs to modify any facilities needed to accommodate the interconnection.

   d. Integration With Company Facilities Grounding. The grounding scheme of the renewable fuel generator shall comply with IEEE 1547, Standard for Interconnecting Distributed Resources With Electric Power Systems, July 2003, and shall be consistent with the grounding scheme used by the Company. If requested by a prospective net metering customer, the Company shall assist the customer in selecting a grounding scheme the coordinates with the Company's distribution system.

   e. Balance Limitation. The RF Generator shall not create a voltage imbalance of more than 3.0% at any other customer's revenue meter if the Company's transformer, with the secondary connected to the point of interconnection, is a three-phase transformer, unless the customer reimburses the Company for its cost to modify any facilities needed to accommodate the interconnection.

4. The customer shall provide a copy of its insurance policy to the Company. If the customer's renewable fuel generator does not exceed 10 KW, then such coverage shall be an amount of at least $100,000 ~~per claim~~ for the liability of the insured against loss arising out of the use of a generation facility. If the customer's renewable fuel generator exceeds 10 KW, then such coverage shall be an amount of at least $300,000 ~~per claim~~ for the liability of the insured against loss arising out of the use of a generation facility. The customer must submit evidence of such insurance to the Company with the Interconnection Notification Form.

   The Company's receipt of evidence of liability insurance does not imply an endorsement of the terms and conditions of the coverage.

   Neither party assumes any responsibility of any kind with respect to the construction, maintenance, or operation of the system or other property owned or used by the other party. The Customer agrees that the Company shall not be liable for any claims, costs, losses, suits or judgments for damages to any Person or property in any way resulting from, growing out of, or arising in or in connection with the use of, or contact with, energy delivered after it is delivered to Customer and while it is flowing through the lines of Customer, or is being distributed by Customer, or is being used by retail load.

5. Following Notification by the Customer, the Company shall have the right to inspect and test the RF Generator equipment and installation prior to interconnection. The nature and extent of these tests shall be determined solely by the Company. The Company reserves the right to conduct additional tests and inspections and to install additional equipment or meters at any time following interconnection of the RF Generator. The Customer shall not commence parallel operation of the RF Generator until the facility has been approved by the Company. Notwithstanding the foregoing, the Company's approval to operate the facility in parallel with the Company's system should not be construed as an endorsement, confirmation, warranty, guarantee, or representation concerning the safety, operating characteristics, durability of reliability of the RF Generator.

Formatted: Font color: Red, Strikethrough

Formatted: Font color: Red, Strikethrough

TARIFF N.M.S.
(Net Metering Service Rider)

6. The RF Generator installation must have a visibly open, lockable, manual disconnect switch which is accessible by the Company at all hours and clearly labeled. A licensed certified technician must certify via the Interconnection Notification Form that the disconnection switch has been installed properly. The Company reserves the right to install any additional equipment, including controls and meters, at the facility.

7. The Customer shall periodically maintain and test the RF Generator in accordance with the manufacturer's specifications and all applicable safety and performance standards. The Customer shall notify the Company at least fourteen (14) days prior to making any material changes to the renewable fuel generator facility or installation, including, but not necessarily limited to, any modification to the equipment or protective equipment settings or disconnection of the RF Generator from the Company's system, excluding temporary disconnects for routine maintenance. Modifications or changes made to the RF Generator shall be evaluated by the Company prior to being made. The Customer shall provide detailed information describing the modifications of changes to the Company in writing prior to making the modification the RF Generator. The Company shall review the proposed changes to the RF Generator and provide the results of its evaluation to the Customer within sixty (60) days of receipt of the Customer's proposal. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy violations. Following a notification of disconnection of the renewable fuel generator, the customer must again complete the Notification process specified above prior to any subsequent reconnection.

   In addition, the customer shall notify the Company immediately regarding either any damage to the RF Generator facility or safety-related emergency disconnections.

8. The Company may enter the Customer's premises to inspect the Customer's protective devices and read or test the meter. The Company may disconnect the interconnection facilities without notice if the Company reasonably believes a hazardous condition exists and such immediate action is necessary to protect persons, or the Company's facilities, or property of others from damage or interference caused by the Customer's facilities.

9. Interconnection authorization is not transferable or assignable to other persons or service locations.

C. Other

1. The Company shall not be obligated to accept energy from the Customer and may require Customer to interrupt or reduce delivery of energy, when necessary, in order to construct, install, repair, replace, remove, investigate, or inspect any of the Company's equipment or part of it's system; or if it reasonably determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outage, force majeure, or compliance with prudent electrical practices. Whenever possible, the Company shall give the Customer reasonable notice of the possibility that interruption or reduction of deliveries may be required. Notwithstanding any other provision of this tariff, if at any time the Company reasonably determines that either the Renewable fuel generator facility may endanger the Company's personnel or other persons or property, or the continued operation of the RF Generator may endanger the integrity of safety of the Company's system, the Company shall reserve the right to disconnect and lock out the RF Generator from the Company's system. The RF Generator shall remain disconnected until such time as the Company is reasonably satisfied that the conditions referenced in this section have been satisfied.

2. To the fullest extent permitted by law, neither customer nor company, nor their respective officers, directors, agents, and employees members parents or affiliates, successors or assigns, or their respective officers directors, agents, nor employees successors or assigns shall be liable to the other party or their respective members, parents, subsidiaries, affiliates, officers, directors, agents employees successors or assigns, for claims ,suits, actions or causes of action for incidental, indirect, special, punitive ,multiple, or consequential damages connected with or resulting from performance or non-performance of such agreement , or any actions undertaken in connection with or related to this agreement, including without limitation, any such damages which are based upon causes of action for breach of contract, tort (including negligence and misrepresentation), breach of warranty, strict liability, statute, operation of law under any indemnity provision or any other theory of recovery. The obligor's liability shall be limited to direct damages only, and such direct damages shall be the sole and exclusive measure of damages and all other judicial remedies or damages are waived. The provisions of this section shall apply regardless of fault and shall survive termination, cancellation, suspension, completion or expiration of this agreement. Notwithstanding anything in this section to the contrary, any provisions of this section will not apply to the extent it is finally determined by a court of competent jurisdiction, including appellate review if pursued, to violate the laws of the Constitution of the State of Tennessee.

KINGSPORT POWER COMPANY
d/b/a AEP APPALACHIAN POWER

1st Revised Sheet No. 20
T.R.A. Tariff Number 1

FACILITIES CHARGES

The customer is responsible for all equipment and installation costs of the renewable fuel generator facility.

The Company shall inspect the inverter settings of a static inverter-connected renewable fuel generator prior to interconnection. The customer shall pay $50 to the Company for each generator that requires inspection.

The Company shall inspect the protective equipment settings of a non-static inverter-connected renewable fuel generator prior to interconnection. The customer shall pay $50 to the Company for each generator that requires inspection.

The customer shall pay to the Company any additional charges, as determined by the Company, for equipment, labor, metering, testing or inspections requested by the customer.

METERING

Net metered energy shall be measured in accordance with standard metering practices by metering equipment capable of measuring (but not necessarily displaying) power flow in both directions.

In instances where a Net Metering Customer has requested, and where the electric distribution company would not have otherwise installed, metering equipment, the Company may charge the Net Metering Customer its actual cost of installing any additional equipment necessary to implement Net Metering Service.

MONTHLY CHARGES

All monthly charges shall be in accordance with the Schedule under which the customer takes service. Such charges shall be based on the customer's net energy for the billing period, to the extent that the net energy exceeds zero. To the extent that a customer's net energy is zero or negative during the billing period, the customer shall pay only the non-usage sensitive charges of the Schedule. The customer shall receive no compensation from the Company for Excess Generation during the billing period. The Excess Generation during the billing period shall be carried forward and credited against positive energy usage in subsequent billing periods.

The Net Metering Period shall be defined as each successive 12-month period beginning with the first meter reading date following the date of interconnection of the RF Generator with the Company's facilities. Any Excess Generation at the end of a Net Metering Period shall be carried forward to the next Net Metering Period only to the extent that the Excess Generation does not exceed the customer's billed consumption for the current net metering period, adjusted to exclude accumulated billing credit carried forward and applied from the previous net metering period.

Excess generation is not transferable, and the Customer, shall receive no compensation from the Company for any Excess generation upon termination of service from the Company.

Residential Low Income Program
Kingsport Power Company - Tennessee

Objective:	Generate energy savings for high usage residential low income customers through evaluation and implementation of energy saving improvement opportunities. The program will provide participants with the installation of cost-effective weatherization and energy saving product upgrades based upon auditor recommendations in eligible dwellings. The Residential Low Income Program will also include an education component for participating customers on ways to most effectively manage their energy usage. Enhance services available to low income customers in KgPCo's Tennessee service territory through a coordinated effort with existing local Weatherization Assistance Program (WAP) providers in order to provide comprehensive assistance at lower administration costs. Distribute energy efficient light bulbs to area Food Bank recipients. The program will assist those facing economic hardships in KgPCo's service territory reduce energy costs.
Target Market:	The KgPCo Residential Low Income Program will target electrically heated homes of customers including those that have above average electric usage, have a total annual household income (before taxes) below the amounts used in the Tennessee WAP, and receive electric service from KgPCo Tennessee. Services would be targeted to those living in single family buildings, both homeowners and renters. Only customers living in electrically heated homes will be weatherized using KgPCo funds. KgPCo customers who are identified as "high users" with excessive use of kilowatt hours per year will be a priority, but the program will not be exclusive to "high users." The partnership with area Food Banks will allow compact fluorescent lamps (CFLs) to be distributed to customers in KgPCo's Tennessee service territory. The Food Banks will distribute the CFLs to the local food pantries who will then distribute the CFLs along with energy educational materials to the recipients of their goods.
Program Duration:	This program will operate for an initial three-year period. The first program year should begin approximately 120 days after Tennessee Regulatory Authority approval. Depending upon the results of this three-year initiative, the Residential Low Income Program will be evaluated and, if deemed appropriate, could become an ongoing element of the KgPCo Tennessee program portfolio. The Food Bank distribution of CFLs will operate for a one-year period.
Program Description:	The Residential Low Income Program is designed to provide home energy services to KgPCo's Tennessee customers with limited income to assist them in reducing their electric energy use and to manage their utility costs. This program would help

	facilitate the implementation of cost-effective electric energy-savings measures in residential low income households. These services would be provided free of charge to qualifying participants. Weatherization services utilizing KgPCo funds will generally be provided by non-profit WAP providers, as well as any approved subcontractors, to provide services through the Low-income Weatherization Assistance Program. This will include the initial energy audit and some or all of the subsequent work prescribed and identified by the audit. All work will adhere to a set of prescribed installation standards, which are approved by the U.S. Department of Energy and monitored by the Tennessee Housing Development Agency. Some slight variation of these standards may be allowed in order to make the weatherization services provided more focused on electricity reduction. The program will also reduce energy consumption by educating residential customers about the energy and money saving benefits associated with energy efficiency in the home. All customers participating in this program will receive educational materials and an opportunity to discuss ways that they can continue to conserve and maintain the energy efficiency of their home after the weatherization process has been completed. The Food Bank distribution will assist those facing economic hardships in KgPCo's service territory to reduce energy costs and free up limited resources for other necessities. KgPCo will participate with the local Food Banks to determine a set amount of CFLs to be distributed. Once the final amount is decided, the CFLs will be delivered to the Food Bank in bulk. The Food Bank will then distribute the CFLs to the pantries that participate. The number of CFLs allotted to each pantry will be based on the number of customers served in that area. The pantry will then provide the CFLs to customers on a first-come basis.
Incentive Strategy:	Equipment and installation costs for all eligible measures as well as CFLs distributed through Food Banks would be provided free of charge to eligible customers and properties. Residential Low Income Program funding, to the extent possible, will supplement the existing WAP funding during the weatherization of the homes.
Eligible Measures:	The measures listed below have been specified for planning purposes. KgPCo may revise eligible measures as needed in accordance with current market conditions, technology development, Evaluation Measurement and Verification (EM&V) results, and program implementation experience. The Low-Income Weatherization Assistance Program targets measures which have been proven to save energy, reduce consumption, and protect the health and safety of occupants while helping to lower their energy bills. KgPCo will establish eligible measures and incentive levels as needed in accordance with current market conditions, planning studies, technology development, EM&V results, and program implementation experience.

	Eligible measures may include, but are not limited to, those listed below. Electric Baseload and Water Heating Measures • CFLs (screw-in) • Refrigerator and freezer replacement based on metered usage of existing equipment • Efficient showerheads • Efficient faucet aerators • Water heater insulation • Hot water pipe insulation • Hot Water Tank temperature reduction • Water heater replacement Weatherization Measures • HVAC measures to include electric furnace repair, heat pump tune-up, repair or replacement. Any system replacement will need to be verified by an approved whole-house savings calculation. • Insulation (attic, basement, sidewall, crawlspace, mobile home floors and ceilings) • Blower door directed air-sealing • Duct system repair, replacement and/or insulation
Implementation Strategy:	Program administration and implementation would be conducted by a third-party program implementation contractor with oversight by KgPCo. This contractor may ultimately be one of the existing WAP providers serving the KgPCo area, but who also has the capability of organizing, planning, and administering the program on behalf of the other regional WAP providers. Responsibilities will include: • Administrative coordination with local agencies • Marketing strategy, implementation and materials • Payment processing • Data tracking and reporting • Budget tracking and reporting • Contact (call) center services • Managing public relations • Customer satisfaction/problem resolution • Quality assurance and field monitoring The regional WAP providers would schedule an assessment or "energy audit," of the residence to identify specific measures to increase energy efficiency. This visit will include an analysis of the customer's usage, infiltration testing, equipment inspection for health and safety, and an action plan listing the most cost-effective energy conservation measures for the home. The regional WAP provider will then schedule the customer for the remaining measures. The installation of measures will take one to two days, followed by a Quality Assurance Inspection.

<table>
<tr><td></td><td>The Food Bank CFL distribution will be conducted by a third-party implementation contractor. This contractor will be separate from the contractor administering the Residential Low Income Program.</td></tr>
<tr><td>Marketing Strategy:</td><td>Marketing will be directed to customers that are selected and recruited based on an analysis of income and customer electric usage data. The KgPCo Residential Low Income Program would recruit customers based on an analysis of annual household income.

Additional marketing efforts could target those hard-to-reach segments of the population, would build on existing efforts, and would be closely coordinated with local providers. Key elements of the marketing strategy include:

• Targeted outreach through local agencies
• Websites and newsletters
• Press releases
• Posters in municipal buildings</td></tr>
<tr><td>Evaluation, Measurement & Verification:</td><td>Evaluation activities would be conducted in cooperation with the selected Weatherization Agency and by a third-party EM&V Contractor. Impact evaluation for these types of programs, where the energy savings per participant is expected to be significant, is often done primarily with pre/post energy usage analysis.

The goal of the impact evaluation will be to validate and re-calibrate the deemed energy savings values, verify installation and determine cost-effectiveness of the program. Key impact metrics are: energy savings per home, program/contractor participants, and program cost effectiveness.</td></tr>
<tr><td>Estimated Program Impacts:</td><td>Estimated impacts, both energy and demand, are provided in the table below.

Total Program Impact
<table>
<tr><th></th><th></th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Total</th></tr>
<tr><td>Energy Savings (kWh)</td><td>Annual</td><td>336,000</td><td>170,000</td><td>170,000</td><td>676,000</td></tr>
<tr><td>Demand Savings (kW)</td><td>Annual</td><td>32</td><td>14</td><td>14</td><td>60</td></tr>
</table></td></tr>
</table>

Program Budget:

The anticipated cost to KgPCo for offering this program to customers involves budgets for:

- Direct WAP agency costs for implementing the audits and installed measures.
- Administrative costs of the program implementation contractor to develop, implement, market, advertise, oversee, monitor, track and report on the program.
- Program EM&V
- Utility oversight by KgPCo staffing and corporate support costs
- Utility promotion of the program
- Purchasing and distribution of the CFLs for the Food Bank initiative

	Year 1	Year 2	Year 3	Total
Agency Program Cost	$94,200	$102,000	$102,000	$282,600
Food Bank Distribution	$19,800	-	-	$19,800
Agency Admin	$18,000	$18,000	$18,000	$54,000
Evaluation and Measurement	$10,000	$10,000	$10,000	$30,000
Utility Promotion	-	-	-	-
Utility Admin	$8,000	$8,000	$8,000	$24,000
Total	**$150,000**	**$138,000**	**$138,000**	**$426,000**

Cost Effectiveness Test Results:

The anticipated cost effectiveness results for this program are defined in the table below.

	Cost-Benefit Ratio
Utility Test	1.1
TRC Test	1.0
RIM Test	0.5
Participant Test	1.8

Residential Direct Load Control Program
Kingsport Power Company - Tennessee

Objective:	Develop capacity for electric demand response and associated energy savings in the residential consumer sector by cycling customer air conditioning or heat pump units through the use of separately installed control devices. KgPCo may operate this equipment during times such as utility system peak, high loading on distribution circuits, and/or emergency conditions. Load management events (non-emergency) will be at the discretion of KgPCo, with up to 15 events per calendar year. Emergency events will be at the discretion of PJM as defined in PJM Manual 13 – Emergency Operations, with up to 10 events per PJM delivery year (June 1 – May 31).
Target Market:	This program will target residential customers with existing central air conditioning or heat pump equipment. The existing equipment must be operational to participate in this program. Participants must be either existing owner-occupied single-family or multi-family homeowners who purchase retail electricity from KgPCo on a residential tariff. Non-owner occupied residences could qualify for participation; however, KgPCo would require written permission from the property owner to install auxiliary load control and communication equipment. Although this program will ultimately be available to most all qualifying residential customers, KgPCo will initially stagger program availability to specific metropolitan areas of its Tennessee service territory to control costs and capture economies of scale. Adequate available communications infrastructure, which is necessary to properly operate the load control equipment, will also be a prerequisite for participation.
Program Duration:	Based on customer acceptance / satisfaction and overall effectiveness of this program to reduce load during certain conditions, the Residential Peak Reduction Program will be an ongoing element of KgPCo' s energy efficiency and demand response program portfolio.
Program Description:	This program will focus on Residential load control. In this program, it is anticipated that a load control device will be installed on the outside of the customer's home near the central air conditioning unit. The device will have communication capability such that a signal can be sent from the utility, or its selected third-party program implementation contractor, to operate the device and cycle the air conditioner or heat pump unit. KgPCo estimates an average 0.9 kW demand reduction and an associated 4 kWh energy reduction during an event day for each residential air conditioner or heat pump unit that participates in this program. This Residential Direct Load Control (DLC) program has been designed to initially employ more traditional means of one-way communication to the load control device (i.e., paging or FM radio), but KgPCo will continue to explore

	other control device and communication options and utilize the best available options in the program KgPCo intends to hire a third-party program implementation contractor to deploy and operate this program in a turnkey fashion with oversight from KgPCo.
Incentive Strategy:	A qualified residential customer with a working central air conditioner or heat pump will receive an incentive of $40 per year ($8 for each month of the summer season which is defined as the months of May, June, July, August and September) for each air-conditioning/heat pump unit participating in the program. An incentive will be applicable for each central system participating in the program. Therefore, if the customer has two central systems, and load control devices are installed on both units, the customer will receive an incentive, as described above, for each controlled system. The customer may opt out of one load control event per year by contacting KgPCo' s third-party program implementation contractor. A one-year minimum enrollment period is required.
Eligible Measures:	Residential customers, served by KgPCo through a residential tariff and having an existing central air conditioner or heat pump system, are eligible to participate. Measures to be installed include load control devices which will be installed on the customer's air conditioning or heat pump.
Implementation Strategy:	Key elements of the implementation strategy include: • **Implementation Contractor Selection.** KgPCo's program implementation contractor will install load control devices at the customer's home. To the extent reasonable, this contractor will hire qualified Tennessee-based installers / technicians. • **Provide High Quality Customer Service.** KgPCo' s program implementation contractor will store and track interactions with the customers as well as detailed information related to all costs, participants, and other related program data. Provide trained customer service staff for assisting customers with questions about the program, service-related calls/issues, and facility participation. Staff and maintain the program sufficient to handle customer's inquiries, screen customers for eligibility, and explain program rules and benefits in a prompt and courteous manner. KgPCo will determine when a load control event is to take place, and electronically send that message to KgPCo's program implementation contractor. At this time, KgPCo plans to have the contractor initiate the control event to cycle the load control equipment. However, KgPCo may elect to initiate these control events using software provided by the third-party program implementation contractor. KgPCo plans to initially utilize a 50% cycling strategy of the central air conditioning and heat pump systems. However, other cycling strategies may be employed and evaluated to determine the strategy that optimizes load impact without significantly affecting customer comfort.

	Although this program is designed to utilize a one-way communication technology, such as paging or FM radio signals to initiate the load control event, KgPCo will also accept proposals from prospective contractors for alternative communication approaches, such as broadband or cellular technologies. Although these alternatives will likely be more expensive than traditional communication strategies, KgPCo will evaluate these optional proposals and, if within budget, determine whether or not these options are viable for this initiative.
Marketing Strategy:	KgPCo will develop a marketing and communications program to successfully launch the Residential DLC Program. This will include the development of marketing materials, the identification of channels and key relationships, and the leveraging of contractors involved with heating, ventilation, and air conditioning (HVAC) and other existing energy efficiency measures. Targeted marketing to customers located on heavily-loaded distribution circuits, to possibly defer additional supply-side infrastructure investments, may be employed. KgPCo may elect to perform all marketing associated with this program. Leads generated from these efforts will be provided to the third-party program implementation contractor to determine program eligibility, set appointments (if necessary), secure a signed program agreement from the customer, ensure the equipment can receive the load control signal, provide any additional customer education, and other program implementation requirements. The contractor will also provide a toll-free telephone number where customers can call to receive additional program details, enroll in the program, and ask other program-related questions. The implementation contractor will be asked to provide a separate line item for marketing costs. These costs will be compared to projected costs for KgPCo to market the program directly to customers. Depending on this price, KgPCo may elect to allow the selected contractor to conduct some or all of the necessary marketing efforts to achieve stated participation targets.
Evaluation, Measurement & Verification:	An independent third-party program evaluation contractor will perform process and impact evaluations. The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The impact evaluation will determine the actual demand and energy reductions achieved, and provide cost/benefit analyses of the program, both on historical and prospective bases. The program evaluation objectives are expected to include: • Assessment of the effectiveness of program delivery mechanisms; • Assessment of participant satisfaction with the program and perceived value of the program; • Assessment of the market potential, including the participant characteristics, participation rate, reasons for non-participation, and customer awareness of energy efficiency;

- Determination of the program impacts, including achieved demand reduction (kW), and net energy impacts.
- Assessment of the program's cost-effectiveness based on various economic tests.

KgPCo may supplement the evaluation efforts with customer surveys and additional load analyses. As part of this program, KgPCo may install interval recording meters on a random sample of participant homes to provide additional data for impact evaluation.

Estimated Participation and Impacts

Expected participation and associated estimated impacts, both energy and demand, for the program are provided in the table below.

		Year 1	Year 2	Year 3	Total
Participants	Annual	300	300	300	900
Demand Savings (kW)	Summer	270	270	270	810
Energy Savings (kWh)	Annual	12,000	12,000	12,000	36,000

Program Budget

The anticipated budget associated with this program over a three-year period is shown in the table below. These estimated costs were derived, in part, from information provided by a nationally-recognized third-party program implementation contractor who conducts residential direct load control programs for various electric utilities across the country. KgPCo will leverage similar programs operating in the West Virginia and Virginia territories to secure the lowest reasonable price.

	Year 1	Year 2	Year 3	Total
Customer Incentive	$12,000	$24,000	$36,000	$72,000
Contractor Prgm Costs	$32,000	$34,000	$35,000	$101,000
Communication & Software	$10,000	$10,000	$10,000	$30,000
Materials & Maint.	$66,000	$66,000	$66,000	$198,000
Evaluation	$5,000	$5,000	$5,000	$15,000
Utility Promotion	$15,000	$13,000	$0	$28,000
Utility Admin	$10,000	$10,000	$10,000	$30,000
Total	**$150,000**	**$162,000**	**$162,000**	**$474,000**

Cost Effectiveness Test Results

Based on the assumptions stated above, the anticipated cost effectiveness results for this program are defined in the table below.

	Cost-Benefit Ratio
Utility Test	1.9
TRC Test	2.2
RIM Test	1.6
Participant Test	1.1

DSM COST-BENEFIT TEST RESULTS

Base	Low Income Weatherization	Direct Load Control	Portfolio
TRC	1.2	2.2	1.8
UTC	1.2	1.9	1.7
RIM	0.4	1.6	0.9
PCT	2.2	1.1	2.0

Low	Low Income Weatherization	Direct Load Control	Portfolio
TRC	1.0	1.9	1.6
UTC	1.1	1.7	1.5
RIM	0.4	1.3	0.8
PCT	2.2	1.1	2.0

High	Low Income Weatherization	Direct Load Control	Portfolio
TRC	1.3	2.5	2.0
UTC	1.4	2.2	1.9
RIM	0.5	1.8	1.1
PCT	2.2	1.1	2.0

KINGSPORT POWER COMPANY **TRA Tariff No. 2**
d/b/a AEP Appalachian Power
Kingsport, Tennessee

OPTIONAL RIDER R.P.R.P.
(Residential Peak Reduction Program)

AVAILABILITY OF SERVICE

Available on a voluntary basis to customers receiving residential electric service Participation is limited to the first three hundred (300) residential customers who register for the program in any particular calendar year and any customers who registered for the program in any prior calendar year.

For non-owner occupied dwellings, the Company may require permission from the owner to install load control equipment and, if necessary, auxiliary communicating devices. Customers will not be eligible for this Rider if the owner does not allow installation of such equipment.

CONDITIONS OF SERVICE

(1) To participate, customers must allow the Company, or its authorized agents, to install load control equipment and, if necessary, auxiliary communicating devices to control the customer's central electric cooling unit(s). All such devices shall be installed at a time that is consistent with the orderly and efficient deployment of this program. The Company will utilize the installed control devices to reduce customer's energy use during load management events. Load management events consist of Company planned load management events and PJM load management events. The Company plans to control devices for up to 150 hours per year, or up to twenty-five (25) load management events, with no single event lasting more than six (6) consecutive hours. The Company plans to initially utilize a 50% cycling strategy of the central electric cooling unit(s) during summer months. However, the Company may employ other cycling strategies to optimize load reduction. Before implementing other cycling strategies, the Company shall consider any reasonably expected material effects on customer comfort.

(2) Company planned load management events shall not exceed six (6) hours per day. Such non-emergency load management events shall not exceed 15 events per year and shall occur only during the months of May through September between Noon and 8 pm. The customer may opt out of a single Company planned load management event per year. PJM load management events (for emergency and pre-emergency purposes) shall not exceed 10 events per PJM planning year (June 1 – May 31) and not last longer than six (6) hours duration. Emergencies and pre-emergencies shall be determined by PJM as defined in PJM Manual 13 – Emergency Operations. PJM load management events can only occur between Noon and 8 pm on weekdays during June through September.

(3) The Company or its authorized agents will furnish and install, with the customer's permission, load control equipment, and, if necessary, an auxiliary communicating device at the customer's residence. All equipment will be owned and maintained by the Company. If the Residential Peak Reduction Program is discontinued or the customer requests to be removed from the program after completing the initial mandatory period of one (1) year, the load control equipment and any auxiliary communicating devices will be removed by the Company or its authorized agents. The customer is not required to pay a deposit for any load control or auxiliary communicating equipment; however, failure to relinquish the load control equipment and/ or auxiliary communicating device in good working order may result in additional charges to repair or replace the equipment and device. If the equipment and/or device malfunctions through no fault of the customer, the Company will replace or repair at its expense.

(4) The Company and its authorized agents shall be permitted access to the customer's premises during normal business hours to install, inspect, test, or maintain the load control device(s). The Company may also be allowed access to the customer's premise to repair or remove faulty load control device(s). In the event the Company requires access to load control device(s), and the customer does not provide such access within 30 days of the request, then the Company may discontinue the Rate Credit until such time as the Company is able to gain the required access. The Company shall not be responsible for the repair, maintenance or replacement of any customer-owned equipment. The Company may collect data during the course of this load control program. Customer-specific information will be held as confidential and data presented in any analysis will protect the identity of the individual customer.

KINGSPORT POWER COMPANY **TRA Tariff No. 2**
d/b/a AEP Appalachian Power
Kingsport, Tennessee

OPTIONAL RIDER R.P.R.P.
(Residential Peak Reduction Program)

CUSTOMER CREDIT

Customers shall receive an $8.00 monthly billing credit for each central electric cooling unit controlled during the billing months of May to September for a maximum of $40.00 annual billing credit for each central electric cooling unit. Such credit shall not reduce the customer's bill below the minimum charge as specified in the tariff under which the customer takes service.

TERM

Participating customers must agree to participate for an initial period of one (1) year and thereafter may discontinue participation by providing three business days' notice by telephone. This Rider will be closed after a period of three (3) years from the original Rider effective date unless otherwise ordered by the Authority.

SPECIAL TERMS AND CONDITIONS

This Rider is subject to the Company's Terms and Conditions of Service and all provisions of the tariff under which the Customer takes service, including all payment provisions, as they may be amended from time to time. The customer will not qualify for the program and the Company shall not be required to install load control equipment if the installation cannot be justified for reasons such as: technological limitations, safety concerns, or inadequate usage of electric service resulting from limited occupancy of a residence.