Before the
Tennessee Regulatory Authority

Docket No. 11-_____

Petition of Piedmont Natural Gas Company, Inc. for an Adjustment to its Rates, Approval of Changes to Its Rate Design, Amortization of Certain Deferred Assets, Approval of New Depreciation Rates, Approval of Revised Tariffs and Service Regulations, and Approval of a New Energy Efficiency Program and GTI Funding.

Testimony and Exhibits
of
Pia K. Powers

On Behalf Of
Piedmont Natural Gas Company, Inc.

Piedmont Natural Gas

September 2, 2011

Q. Ms. Powers, please state your name and business address.

A. My name is Pia K. Powers. My business address is 4720 Piedmont Row Drive, Charlotte, North Carolina.

Q. By whom and in what capacity are you employed?

A. I am the Manager of Regulatory Affairs for Piedmont Natural Gas Company, Inc., ("Piedmont" or "the Company").

Q. Please describe your educational and professional background.

A. I graduated from Fairfield University with a B.A. in Economics. I received a Master's Degree in Environmental and Resource Economics from the University College London. From 1999 through 2003, I was employed as an Economist with the Energy Information Administration, the statistical agency of the U.S. Department of Energy, where I focused on international energy forecasting and environmental issues. I was hired by Piedmont as a Regulatory Analyst in 2003 and promoted to Supervisor – Federal Regulatory in 2005. I was promoted to my current position as Manager of Regulatory Affairs in 2006.

Q. Ms. Powers, have you previously testified before the Tennessee Regulatory Authority ("TRA" or "Authority") or any other regulatory authority?

A. I have not previously testified before the TRA, but I have filed testimony before the North Carolina Utilities Commission and the Public Service Commission of South Carolina.

Q. What is the purpose of your testimony in this proceeding?

A. My testimony is filed in support of Piedmont's application in this case. Specifically, my testimony will support Piedmont's cost of service, including all pro forma adjustments to test period operating expenses, depreciation expense, general taxes and income taxes on the income statement. I will also provide support for the accounting and amortization of certain deferred expenses that have been previously granted regulatory asset treatment by the Authority. Finally, I will provide support for Piedmont's proposed energy efficiency program and proposed funding of safety related research and development by the Gas Technology Institute ("GTI").

Q. Do any other Piedmont witnesses provide testimony on related matters?

A. Yes. Mr. David Carpenter will provide support for Piedmont's rate base, pro forma revenue and gas cost calculations, Ms. Rhonda Watts will provide testimony supporting our proposed depreciation rates, Mr. Gary Shambaugh will present the results of a lead-lag study prepared for the Company, Mr. David Dzuricky will provide support for the capital structure, debt cost rates and amortization of certain deferred regulatory assets, and Dr. Donald Murry will present testimony in support of the capital structure and return on equity requested in this filing.

Q. Do you have any exhibits supporting your testimony?

A. Yes. Schedules 1 through 3 attached hereto as Exhibit ___(PKP-1), as well as all supporting data set forth in Piedmont's Minimum Filing Requirements are part of my testimony. In addition, a copy of Piedmont's proposed School Energy Pledge Program and relevant analysis on it is attached hereto as Exhibit ___ (PKP-2) and Exhibit __(PKP-3), and a description of GTI's program on natural gas pipeline safety related research and development is attached hereto as Exhibit ___ (PKP-4).

Q. Were these exhibits prepared by you or under your direction and supervision?

A. Yes.

Piedmont's Cost of Service

Q. What is shown on Schedules 1 and 2 of Exhibit ___ (PKP-1)?

A. Schedules 1 and 2 reflect, respectively, Piedmont's current and proposed rates and charges.

Q. What is shown on Page 1 of Schedule 3 of Exhibit ___ (PKP-1)?

A. Page 1 shows Piedmont's net operating income for return, original cost rate base and rate of return on original cost rate base for Tennessee on per books and pro forma bases.

Amounts in Column (1) were taken from our books and records as of May 31, 2011, adjusted for rate making purposes. We have selected the twelve-month period ended May 31, 2011 as the test period for this proceeding, as it was the most recently completed period available at the

time we began preparation of the filing. Line 16 of Column (1) shows per books net operating income for return for the test period of $20,216,215. Line 26 shows per books original cost rate base of $298,257,475. Line 27 shows the per books rate of return on original cost rate base before accounting and pro forma adjustments of 6.78%.

Column (2) shows certain accounting and pro forma adjustments. Since we start with test period amounts in Column (1), it is necessary to adjust those amounts to reflect "probable future expenses" and other anticipated changes that can be identified and quantified in order to establish attrition period figures.

Q. Ms. Powers, please further explain the adjustments in Column (2) of Page 1 of Schedule 3.

A. The amounts appearing in Column (2) are the accumulation of all adjustments necessary to reflect changes in revenues, expenses, taxes, and investment anticipated to occur from the end of the test period through the end of the attrition period. The attrition period selected by the Company for this case is the 12 months ended February 28, 2013. The attrition period has traditionally been defined by this Authority as the first year in which new rates will be in effect.

Mr. Carpenter computed pro forma operating revenues from the sale and transportation of gas and he will testify to this computation. The revenue decrease of $11,890,726 shown on Line 1, Column (2) [Adjustment 1], was obtained by subtracting Line 1, Column (1) from

Line 1, Column (3). The computation of pro forma revenues from the sale and transportation of gas shown on Line 1, Column (3) is drawn from Mr. Carpenter's testimony. Mr. Carpenter also computed the pro forma cost of gas adjustment [Adjustment 4].

The $23,285 increase in Other Operating Revenues shown on Line 1, Column (2) [Adjustment 2] represents revenue from a new lease of certain gas utility property in Nashville to a third-party. Adjustment 3 for Forfeited Discounts is a direct result of the revenue decrease reflected in Adjustment 1.

Adjustment 5 on Line 7 increases operations and maintenance expenses ("O&M") by $5,211,747. The components of this adjustment are shown on Page 3 of Schedule 3. The first item of this adjustment, an increase to expenses of $1,708,709, is the amount necessary to annualize the expense portion of payroll costs on a going-level basis as of May 31, 2011. This adjustment annualizes the Company's payroll expense on that date and includes anticipated payroll increases through the end of the attrition period. Other O&M adjustments detailed on Page 3 of Schedule 3 were similarly made to place expenses on a going-level basis given the latest available information.

Q. Are there adjustments made to operations and maintenance expense in this case that need additional explanation?

A. Yes. While many of the O&M adjustments reflected on Line 7 in Column (2) of Schedule 3 are customary and typical of pro forma

adjustments made in prior Piedmont rate cases, a few bear additional discussion. Namely, a $500,000 adjustment has been made to capture the going-level cost of a new, school-based energy efficiency education program, a $150,000 adjustment has been made for annual funding of a GTI research and development program on gas pipeline safety and integrity, and a $2,791,560 total adjustment has been made to refresh amortizations of regulatory asset accounts and deferred costs previously approved by the Authority. These new expenses and updated regulatory assets amortizations are discussed in more detail later in my testimony. All of the O&M adjustments are detailed on Page 3 of Schedule 3.

Q. Please continue with your explanation of Column (2) of Schedule 3.

Adjustments 6 through 9 in Column (2) are detailed on Page 4 of Schedule 3 and were similarly made to place cost of service amounts for depreciation expense, general taxes and state and federal income taxes on a going-level basis. Of these adjustments, the change in depreciation expense (Adjustment 6) is most notable. The testimony of Ms. Watts supports the update to depreciation rates for the Company's depreciable property. Piedmont is requesting in this filing that the Authority approve the use of these new depreciation rates effective March 1, 2012. Accordingly, the current depreciation rates, as previously approved by the Authority, were used to calculate depreciation expense through February 29, 2012, and the proposed rates presented by Ms. Watts were used to calculate depreciation expense thereafter. As shown on Line 8 of

Schedule 3, the proposed change in depreciation rates, taken in conjunction with the expected changes to plant in service from the test period through the attrition period, will produce a $2,799,785 decrease in depreciation expense. The information presented on Page 6 of Schedule 3 shows in more detail the depreciation expense for the attrition period. Using the existing depreciation rates in the attrition period rather than the new proposed depreciation rates would have resulted in a higher depreciation expense for the attrition period.

Adjustments 10 through 17 in Column (2) are detailed on Pages 4 and 5 of Schedule 3. Adjustment 10 of $4,398 for interest expense on customers' deposits was calculated based upon a 13 month average test period balance for customer deposits adjusted for customer growth through the attrition period. Adjustment 11 shows a $1,074,986 increase in allowance for funds used during construction ("AFUDC") between the test period and the attrition period. To calculate this adjustment, the forecasted 13 month average attrition period balance of construction work in progress ("CWIP") was multiplied by the estimated weighted average cost of capital for the attrition period (i.e. the cost rate after adjustments for proposed rates) to arrive at an attrition period estimate of AFUDC shown on Line 15 of Column (3). The calculation of Adjustments 12 through 17, which are for the various rate base components, are discussed in Mr. Carpenter's testimony.

Q. What is shown in Column (3) of Page 1 of Schedule 3?

A. Column (3) shows the effect of the adjustments in Column (2) on the amounts in Column (1). In total, the adjustments anticipated to occur through the attrition period will erode the current earnings of the Company. Line 16 in Column (3) shows a net operating income for return in the attrition period of $18,787,892. Considering that the necessary rate base investment through the attrition period is expected to be $338,574,703, the expected rate of return for the attrition period is only 5.55%. This return on rate base equates to a return of only 2.95% on common equity in the attrition period.

Q. Would you briefly describe the procedures you used in developing the attrition period income statement amounts shown in Column (3) of Page 1 of Schedule 3?

A. The attrition period amounts in this case were projected using the methodologies adopted by the Authority in the Company's previous rate cases. Generally speaking, the items that could be calculated from a zero base were calculated in that manner. For those items that could not reasonably be calculated using a zero base procedure, I projected the amounts by applying growth factors to the test period amounts.

Q. Please give some examples of how you used the described procedures to project attrition period income statement amounts?

A. An example of a zero-based calculation is the projection of salaries and wages expense. Generally, this calculation involves pricing employees individually at the pay rate projected for the attrition period. To this amount, anticipated

overtime is added and appropriate amounts were capitalized and assigned to non-utility functions.

An example of the growth factor procedure is the projection of various maintenance accounts. Due to the number of these accounts and the volume of activity, it would be practically impossible to employ the zero-based procedure. Therefore, accounts were grouped, and a growth factor was applied to the test period amounts to arrive at the attrition period projections.

Q. Does Column (3) of Page 1 of Schedule 3 reflect your best judgment as to the attrition period return on the investment of Piedmont in property which is used and useful in providing natural gas service to jurisdictional customers in Tennessee under existing rates?

A. Yes.

Q. What is shown in Column (4) of Page 1 of Schedule 3?

A. Column (4) reflects adjustments to the Company's pro forma revenues and expenses necessary to reflect the margin increase proposed by the Company in this filing. As is reflected in Line 6 of Column (4), the Company proposes a $16,712,711 gross margin revenue increase in this proceeding. The other adjustments shown in Column (4) simply reflect the "flow through" impact on various items of expense associated with that revenue increase.

Q. What is shown in Column (5) of Page 1 of Schedule 3?

A. Column (5) shows Piedmont's net operating income and rate of return on original cost rate base after the proposed revenue adjustments. The

adjustments to gross margin revenues shown on Line 6 of Columns (2) and (4), when added to Piedmont's test period gross margin revenues, total $111,031,444 and yield a return on common equity of 11.25%, based on Piedmont's proposed capital structure. Dr. Murry will discuss Piedmont's cost of capital and this rate of return request in his testimony. As shown on Line 27 of Column (5), Piedmont's overall rate of return on original cost rate base would be 8.53% after the requested rate adjustments.

Q. What is shown on Page 2 of Schedule 3?

A. Page 2 of Schedule 3 is a computation of Piedmont's return on common equity and original cost net investment. Lines 1 through 3 of Column (1) show Piedmont's proposed capital structure, as discussed in Mr. Dzuricky's testimony. Column (2) shows the breakdown between the proposed capital structure components for the Company's attrition period net investment of $338,574,703. Column (3) shows the embedded costs of these components and Column (4) shows the overall cost rates. Column (5) is a breakdown of Piedmont's net operating income for return, as determined on Page 1 of Schedule 3, to the components of capitalization. Columns (6) through (8) show the embedded cost rates, overall cost rates and net operating income after the requested revenue adjustment of $16,712,711. The proposed rates associated with this revenue adjustment will give us the opportunity to earn 11.25% on common equity.

Q. Does this complete the cost of service portion of your testimony?

A. Yes, however, as stated in our petition, we plan to offer at the hearing such additional relevant, material and competent evidence as may be permitted under Tennessee law and the rules of the Authority. Except as shown in the exhibits, working papers and testimony filed with the petition, information is not currently available that would enable us to provide details of any actual changes in revenues, costs and rate base that may occur from the time of the filing of the petition and my testimony up to the time the hearing is closed. We reserve the right to file such updated information at or before the hearing of this docket to the extent such information is relevant to a determination of the matters at issue in this proceeding.

Q. Is Piedmont making additional information available to the Authority with respect to the matters presented above in your testimony?

A. Yes. Piedmont has compiled and is filing concurrent with its application in this proceeding, and incorporating into my testimony, the information required by the Authority's Minimum Filing Requirements for utility rate cases. That information was prepared by Piedmont on the basis of business records kept and maintained in the ordinary course of its business.

Q. What level of rate case expense has Piedmont included in its rate filing?

A. Piedmont projects that it will incur expenses of $719,870 in the pursuit of this proceeding. This level of expense will be incurred in order to provide for experienced legal counsel as well as several outside consultants needed to support Piedmont's application. This level of expense will also support non-professional fee expenses associated with the preparation, filing, and prosecution of this rate case. Piedmont believes that this level of rate case expense is reasonable and prudent and consistent with its experience in Tennessee and in other states. Piedmont proposes an 8 year amortization of these costs.

Amortization of Deferred Regulatory Assets

Q. Does Piedmont currently maintain any regulatory assets in the form of deferred accounts that it proposes to recover through this rate case?

A. Yes. Piedmont currently maintains three deferred accounts containing regulatory assets that were previously authorized by Authority order. The first contains deferred pension expense and is discussed in the testimony of Mr. Dzuricky. The other two contain environmental remediation and flood response costs.

Q. Could you please describe the nature of these assets and when they were approved for regulatory asset treatment?

A. Yes. Our environmental cleanup deferred account was authorized by TPSC Order dated December 21, 1992 in Docket No. 92-16160. This account contains expenses incurred by Piedmont since our last rate

case in 2003 that are not otherwise being recovered in Piedmont's rates. These environmental cleanup costs were incurred for two projects on Company property in Tennessee. Specifically, Piedmont performed an environmental assessment and soil cleanup of a small property that formerly housed a manufactured gas plant ("MGP") gas holder, the expenses of which were incurred and deferred starting in 2007; the other environmental cleanup project, which is lead-based paint abatement for certain areas at the Company's liquefied natural gas storage facility in Nashville, began in 2010 and is still ongoing. The unamortized balance in this deferred account anticipated at the start of the attrition period is $1,950,083. Piedmont proposes an 8 year amortization of that balance and a continuation of the deferral mechanism for future costs of this nature.

Our flood response cost deferred account was authorized by Authority Order dated November 10, 2010 in Docket No. 10-00185. The costs in this account were incurred in response to the catastrophic flooding that occurred in the Nashville metropolitan area in May 2010 and are comprised of the following types of costs: (a) contract labor and services; (b) company overtime labor; and (c) materials. These expenses were incurred as a result of the need to immediately address the safety and system reliability issues caused by the flooding, as well as the need to repair and restore services and facilities over the ensuing weeks. The balance in this deferred account is $959,701. Piedmont

proposes an 8 year amortization of this balance and a termination of this regulatory asset account upon the full recovery of this balance.

Energy Efficiency Program

Q. Please describe the energy efficiency program that Piedmont proposes to implement in this docket.

A. Piedmont seeks approval of a School Energy Pledge™ Program ("SEP"). Under this program, energy efficiency takes place in students' homes when families adopt energy efficiency measures that students learn about at school. Through SEP, students learn about energy efficiency, participate in a school fundraising drive, and help their families to implement energy-saving measures at home. Major program elements include:

Preparation: On-site coordinators are selected and trained for each participating school for each semester of the program.

Launch: Schools announce the program with a short, energizing video for students during a kick-off assembly.

Learn: Students engage in hands-on lessons linking scientific concepts with practical applications.

Pledge: Families have the opportunity to sign a pledge to install energy efficiency measures contained in an energy saving kit.

Track: A graphic display at school shows the number of pledge forms returned to school by students and progress toward school fundraising, energy savings and greenhouse gas reduction goals.

Reward: Schools receive energy efficiency incentive funds for the pledges

returned. The Program provides schools with cash incentives in return for energy efficiency implementation by students and their parents.

Q. What are the goals of the program?

A. The goals of the program are to inform and educate students, through assemblies and announcements of home energy efficiency practices and supplemental lesson plans. Students at assemblies are called to energy efficiency action by agreeing to install the contents of the kit. Daily or weekly announcements are made to encourage the students to take actions related to energy efficiency measures. Existing science curriculum is supplemented with age-appropriate lesson plans and handouts provided in conjunction with specific state curriculum. The program is cost effective resulting in student education, energy bill savings in hard to reach populations, and is a least cost alternative to utility supply resources.

Q. What is the objective of this program?

A. The objective of the SEP program is to provide energy and demand savings by featuring innovative ways to simultaneously teach students about the environment while reducing energy consumption, which serves to lower utility bills for households. The proposal is to reach about 6,800 households in our service territory each school year, producing a projected savings of 17,660 MBTU. The program framework and deliverables are shown in the attached Exhibit ___(PKP-2).

Q. Please describe the background for the development of this program?

A. SEP is a trademarked program developed following a comprehensive national

benchmarking of school-based programs. Overall, the national review showed that traditional school-based programs were complex, produced limited market penetration, required teachers to do more, only targeted one or two grades, tended not to produce verifiable benefits, and did not constitute cost-effective additions to resource program portfolios (referred to as information and outreach and sector "equity" programs). SEP was designed to address the shortcomings identified above by being less complex, easy to implement, definitive in its beginning and end, while producing measurable and verifiable results.

Q. What is to be gained by a child and parent/guardian working together to install the contents of the kit?

A. In addition to the energy efficiency gains that will be realized from installing the measures contained in the kit, the child will be better prepared to learn the importance of saving energy. Pledge forms also offer a unique opportunity to invite households to go to the Company's energy efficiency website for other programs or energy savings tips that may be offered.

Q. How will SEP be implemented?

A. SEP implementation is performed on a "turnkey" basis by a specialized team of professionals with extensive energy efficiency and education experience. Implementation includes all program materials, standardized forms, lesson plan development and review, site coordinator training, tracking and reporting. Energy saving kits are customized for Piedmont and provided by mail directly to participating households at no cost to the participants after the

Pledge form is signed and returned to the school.

Q. Please describe the contents of the customized kit for Piedmont.

A. The customized kit for Piedmont will contain the following: (1) one low flow showerhead; (2) two faucet aerators; (3) weather-stripping; (4) one 13 W compact fluorescent light; (5) one 20 W compact fluorescent light; (6) a furnace whistle; and (7) a nightlight.

Q. How do these devices reduce energy consumption?

A. These devices reduce the demand for natural gas and electricity (including natural gas fired electric generation) by reducing consumption of these energy sources in participating students' homes. Individually, they will reduce the energy needed for water and space heating, lighting, and water purification and treatment.

Q. Why did you include electric saving devices as well as measures that would lower gas usage?

A. The standards applicable to natural gas companies in the Public Utilities Regulatory Policies Act of 1978 ("PURPA") speak in terms of energy savings, not just natural gas savings. Moreover, in order to develop future energy savers, the SEP program teaches children how to install measures that save energy regardless of the fuel type. Finally, all energy consumers in Tennessee are natural gas customers, either directly or indirectly, because natural gas is used as an incremental fuel source by the TVA. Thus, when electricity is saved, downward pressure is created on the TVA's need to use natural gas to generate electricity.

Q. What assumptions were made regarding the savings associated with the kit given that both electric energy savings and gas energy savings will be realized?

A. The basis for the savings is tied to regional housing stock and Piedmont's estimate that 24% of the local population will have gas space and water heating and 76% of the local population will have electric water and space heating. Avoided costs were calculated using Nashville Electric Service ("NES") costs as well as Piedmont energy costs. Table 1 in Exhibit __(PKP-3) provides the total annual energy savings impact by participating household for installation of the kit measures.

Q. You indicate SEP promotes energy efficiency through energy education and implementation of energy saving technologies. How have energy savings associated with education been quantified?

A. SEP curricula, learning activities, and assemblies educate students about energy saving behaviors. Targeted behavioral change includes such activities as lowering water heater settings, adjusting thermostats (for heating and air conditioning), adjusting refrigerator and freezer settings and using less hot water. Table 2 in Exhibit __(PKP-3) summarizes evaluation measurement and verification study findings for programs implemented in Iowa, South Carolina and Indiana that provided energy efficiency kits and education. In the three verification studies referenced in Table 2, on average, education and behavioral changes account for 47% of total electric energy savings and 62% of total natural gas savings. While there is evidence education contributes

significantly to saving energy, relatively few studies have been completed to document the persistence of these savings. Persistence, or the number of years a given action will continue to produce energy savings, is required to determine life-cycle utility avoided costs. For this reason only savings associated with the installation of energy saving technologies with documented useful life values are used to determine program cost-effectiveness. In this manner projected savings stated here are conservative. Piedmont recognizes that behavior changes will result from this program, but because the research to quantify savings related to that type of change is limited, we have not included any of the anticipated behavior savings to justify the cost effectiveness of the program. Consequently, we are confident that our projected savings presented here are understated.

Q. Please describe the California Standard Practice Manual costs tests that were performed on the SEP program.

A. The two tests used to measure effectiveness of the SEP program are the Total Resource Cost ("TRC") test and the Utility Cost ("UCT") test. The Total Resource Cost test measures the total cost of the program, including both the participant's and the utility's costs - including all equipment and program administration costs. Benefits are the avoided costs, the reduction in energy, capacity, and delivery (transmission and distribution) costs, valued at marginal cost for the periods when there is a load reduction.

The Utility Cost Test measures the costs of a demand-side management program based on the costs incurred by the program

administrator (including incentive costs) and excludes any costs incurred by the participant. Program benefits are the avoided supply costs described above under the TRC test description.

Q. Is the SEP program cost-effective?

A. Yes, SEP program benefits exceed costs as measured by the TRC and UCT cost tests. Projected annual energy savings impacts and attendant life-cycle avoided cost benefits that result from implementing the SEP program kit measures are quantified in the table below. Natural gas avoided costs are based on Piedmont's gas costs[1] and electric avoided costs are NES' residential electricity costs.[2] Based on this analyses, the SEP program produces a TRC test ratio of 3.59:1 and a UCT ratio of 2.86:1.

Q. With regard to your calculations of kit content savings, can you provide any other references relevant to the savings being claimed?

A. Yes, the SEP program kit component energy savings projections are provided in Table 3 of Exhibit __(PKP-3). The projected savings are supported by the program study results shown in Table 4 of Exhibit __(PKP-3).

Q. Are the results of the SEP program verifiable and measurable?

A. Yes. We know how many kits will be distributed and based on prior experience, we can project how much energy will be saved by the measures contained in each kit.

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[1] Piedmont's natural gas costs effective April 2011 are projected through 2017 consistent with the Energy Information Administration 2011 Annual Energy Outlook (AEO 2011) for residential natural gas.

[2] Nashville Electric Service's EIA form 861 filings for 2009 projected through 2017 consistent with AEO 2011 for residential electricity, reduced to remove fixed customer charges and past transmission and distribution infrastructure investments.

Q. How can Piedmont be assured that the contents of the kit will be installed?

A. Experience with the SEP program in other jurisdictions has shown that the combination of a participant's written commitment to install energy efficiency kit measures in conjunction with the payment of a cash incentive to the child's school of $15 for each signed pledge is effective in causing parents to install the energy efficiency kit measures. Parents understand their commitment to install is not passive – schools receive $15 for each family's commitment.

Q. How will Piedmont report to the TRA on SEP?

A. Piedmont will regularly monitor progress of the program throughout implementation. Additionally, Piedmont proposes to provide to the TRA an annual reporting of costs, activities, and the resulting energy savings associated with the program.

Q. Can you provide an example where SEP has been successfully implemented, measured and verified?

A. Yes. I am aware that SEP has been very successfully implemented, measured and verified most recently in Pennsylvania, where it was implemented as part of a utility's comprehensive energy efficiency and demand response portfolio. The program was subsequently measured and verified in accordance with the Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs ("PA Audit Plan"). Evaluation, Measurement and Verification ("EM&V") results for the program demonstrated a 97.1% realization rate based on program sampling that

achieved 4.7% absolute precision at 90% confidence, exceeding the 90% ± 10% standard that was required by the PA Audit Plan.

Q. What is your recommendation regarding School Energy Pledge ™ Program?

A. I recommend that the TRA approve the proposed funding for SEP at $500,000 annually and authorize the program as described in my testimony and in Exhibit ___(PKP-2). As related above, SEP savings impacts are verifiable, cost-effective and significant. At the proposed funding levels, a minimum of 6,800 households will be able to participate each program year.

Q. Does this conclude your testimony relating to the SEP program?

A. Yes, this concludes my testimony relating to SEP at this time.

Gas Technology Institute Funding

Q. What is the Company's proposal with respect to funding research and development activities by the Gas Technology Institute ("GTI")?

A. Piedmont proposes to contribute, and recover in its rates, $150,000 a year in support of research and development activities by GTI regarding safety and reliability of the operation of the natural gas distribution network.

Historically, this type of research and development has been primarily conducted by GTI (or its predecessor the Gas Research Institute). Prior to 2004, a significant portion of the funding for this research and development activity was accomplished through rates paid to interstate pipelines. In 2004, the Federal Energy Regulatory Commission ("FERC") eliminated the mandatory funding of this research and, instead, opted for a voluntary

contribution scheme. Since that date, GTI's research and development efforts have been supported primarily through voluntary contributions by local distribution companies and state-by-state funding authority.

Q. Is Piedmont's GTI funding targeted at a specific initiative?

A. Yes. Piedmont proposes to target its funding to the Operations Technology Development ("OTD") initiative. This initiative is funded by local distribution companies and is a collaborative effort designed to develop, test, and implement new technology relating to gas transmission and distribution operations, with a particular emphasis on safety and reliability. The intent is for the program to develop new tools, equipment, software, processes, and procedures that will enhance safety, increase operating efficiency, reduce operating costs, and help maintain system reliability and integrity. The requested annual contribution level of $150,000 represents the threshold contribution level that is required for participation in the OTD program. A description of the OTD program is attached as Exhibit __(PKP-4).

Q. Will Piedmont's customers benefit from funding the OTD Initiative?

A. Yes. GTI has a documented record of cost beneficial research and development activity. In fact, the calculated cost/benefit ratio for its historic research and development activities is 1 to 8. As such, it is entirely reasonable to believe Tennessee natural gas consumers will benefit from its continued research.

Q. Do you have anything further to add to your testimony?

A. Not at this time.

EXHIBIT__(PKP-1)

Thirtieth Revised Sheet No. 1

PIEDMONT NATURAL GAS COMPANY, INC.
Tennessee Service Territory
Billing Rates Effective: April 1, 2011

Rate Schedule	Rate Class.	Description	Tariff Rate Approved In Docket No. 03-00313 <1>	Cumulative PGA Demand <2>	Cumulative PGA Commodity <3>	Current Refund <4>	Current ACA Demand <5a>	Current ACA Commodity <5b>	Current IPA <6>	Total Adj. Factor (Sum Col.2 thru Col.6) <7>	Proposed Billing Rate (Col.1+Col.7) <8>
		Customer Charge-Nov.-Mar.	$13.00								$13.00
Residential		Customer Charge-Apr.-Oct.	$10.00								$10.00
301	Value	Nov.- Mar. per TH	0.32000	0.01750	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50936	0.82936
301	Value	Apr.- Oct. per TH	0.27000	0.01750	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50936	0.77936
321	Standard	Nov.- Mar. per TH	0.32000	0.04733	0.47660	0.00000	0.03450	-0.02597	0.00673	0.53919	0.85919
321	Standard	Apr.- Oct. per TH	0.27000	0.04733	0.47660	0.00000	0.03450	-0.02597	0.00673	0.53919	0.80919
Small General		Customer Charge	$29.00								$29.00
302	Standard	Nov.- Mar. per TH	0.35400	0.04811	0.47660	0.00000	0.03450	-0.02597	0.00673	0.53997	0.89397
302	Standard	Apr.- Oct. per TH	0.30300	0.04811	0.47660	0.00000	0.03450	-0.02597	0.00673	0.53997	0.84297
332	Value	First 2,000 TH/TH (Nov.-Mar.)	0.35400	0.01683	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50869	0.86269
332	Value	Over 2,000 TH/TH (Nov.-Mar.)	0.35400	0.00903	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50089	0.85489
332	Value	First 2,000 TH/TH (Apr.-Oct.)	0.30300	0.01683	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50869	0.81169
332	Value	Over 2,000 TH/TH (Apr.-Oct.)	0.30300	0.00903	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50089	0.80389
Medium General		Customer Charge	$75.00								$75.00
352	Standard	Nov.- Mar. per TH	0.35400	0.01750	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50936	0.86336
352	Standard	Apr.- Oct. per TH	0.30300	0.01750	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50936	0.81236
362	Value	First 5,000 TH/TH (Nov.-Mar.)	0.35400	0.01646	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50832	0.86232
362	Value	Over 5,000 TH/TH (Nov.-Mar.)	0.35400	0.00890	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50076	0.85476
362	Value	First 5,000 TH/TH (Apr.-Oct.)	0.30300	0.01646	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50832	0.81132
362	Value	Over 5,000 TH/TH (Apr.-Oct.)	0.30300	0.00890	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50076	0.80376
		Customer Charge	$300.00								$300.00
303		Peak Demand (Per DT)	8.00000	4.92520		0.00000	5.26520			10.19040	18.19040
Firm		First 15,000 TH/TH	0.09742	0.00374	0.47660	0.00000	0.00225	-0.02597	0.00673	0.46335	0.56077
Industrial		Next 25,000 TH/TH	0.08953	0.00222	0.47660	0.00000	0.00225	-0.02597	0.00673	0.46183	0.55136
		Next 50,000 TH/TH	0.06450	0.00172	0.47660	0.00000	0.00225	-0.02597	0.00673	0.46133	0.52583
		Over 90,000 TH/TH	0.02764	0.00000	0.47660	0.00000	0.00000	0.00000	0.00673	0.48333	0.51097
304		Customer Charge	$300.00								$300.00
Interruptible		First 15,000 TH/TH	0.09742	0.03333	0.47660	0.00000	0.00225	-0.02597	0.00673	0.49294	0.59036
Industrial		Next 25,000 TH/TH	0.08953	0.01672	0.47660	0.00000	0.00225	-0.02597	0.00673	0.47633	0.56586
		Next 50,000 TH/TH	0.06450	0.01374	0.47660	0.00000	0.00225	-0.02597	0.00673	0.47335	0.53785
		Over 90,000 TH/TH	0.02764	0.01019	0.47660	0.00000	0.00000	0.00000	0.00673	0.49352	0.52116
		Customer Charge	$300.00								$300.00
313		Peak Demand (Per DT)	8.00000	4.92520		0.00000	5.26520			10.19040	18.19040
Firm		First 15,000 TH/TH	0.09742	0.00262		0.00000	0.00225			0.00487	0.10229
Transportation		Next 25,000 TH/TH	0.08953	0.00171		0.00000	0.00225			0.00396	0.09349
		Next 50,000 TH/TH	0.06450	0.00100		0.00000	0.00225			0.00325	0.06775
		Over 90,000 TH/TH	0.02764	0.00000		0.00000	0.00000			0.00000	0.02764
314		Customer Charge	300.00								$300.00
Interruptible		First 15,000 TH/TH	0.09742	0.00282		0.00000	0.00225			0.00507	0.10249
Transportation		Next 25,000 TH/TH	0.08953	0.00188		0.00000	0.00225			0.00413	0.09366
		Next 50,000 TH/TH	0.06450	0.00106		0.00000	0.00225			0.00331	0.06781
		Over 90,000 TH/TH	0.02764	0.00000		0.00000	0.00000			0.00000	0.02764
310		Demand per DT	8.00000	4.92519		0.00000	5.27700			10.20219	18.20219
Resale Service		Commodity Charge	0.09000	0.00093	0.47660	0.00000	0.00000	-0.02597	0.00673	0.45829	0.54829

NOTE: In accordance with the Tennessee Public Service Commission order in Docket U-7074 customers metered inside Davidson County are required to pay an additional 6.93% for collection of the Metro Franchise Fee. Customers served by the Fairview, Greenbrier, Hartsville, Mt. Juliet and White House systems are required to pay 5.0%. Customers served by the Franklin and Nolensville systems are required to pay 3%. Commercial customers on the Ashland City system are required to pay 5%.

PIEDMONT NATURAL GAS COMPANY, INC.
Tennessee Service Territory
Billing Rates Effective: March 1, 2012

Rate Schedule	Description	Tariff Rate Approved In Docket No. 11-_____	Cumulative PGA Demand	Cumulative PGA Commodity	Current Refund	Current ACA Demand	Current ACA Commodity	Current IPA	Total Adj. Factor (Sum Col.2 thru Col.6)	Proposed Billing Rate (Col.1+Col.7)
		<1>	<2>	<3>	<4>	<5a>	<5b>	<6>	<7>	<8>
	Monthly Charge-Oct.-Apr.	$22.00								$22.00
Residential	Monthly Charge-May-Sep.	$17.00								$17.00
301	Oct.- Apr. per TH	0.27140	0.03404	0.47660	0.00000	0.03450	-0.02597	0.00673	0.52590	0.79730
301	May- Sep. per TH	0.22140	0.03404	0.47660	0.00000	0.03450	-0.02597	0.00673	0.52590	0.74730
Small General	Monthly Charge	$40.00								$40.00
302	Oct.- Apr. per TH	0.37870	0.03301	0.47660	0.00000	0.03450	-0.02597	0.00673	0.52487	0.90357
302	May- Sep. per TH	0.32770	0.03301	0.47660	0.00000	0.03450	-0.02597	0.00673	0.52487	0.85257
Medium General	Monthly Charge	$125.00								$125.00
352	Oct.- Apr. per TH	0.39080	0.01616	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50802	0.89882
352	May- Sep. per TH	0.33980	0.01616	0.47660	0.00000	0.03450	-0.02597	0.00673	0.50802	0.84782
Natural Gas Vehicle Fuel	Monthly Charge	$40.00								$40.00
342	Rate per TH	0.23109	0.03301	0.47660	0.00000	0.03450	-0.02597	0.00673	0.52487	0.75596
342	Rate per GGE	0.29117	0.04159	0.60052	0.00000	0.04347	-0.03272	0.00848	0.66134	0.95251
303	Monthly Charge	$450.00								$450.00
Firm	Demand Charge per TH	1.00000	0.49252		0.00000	0.52652			1.01904	2.01904
General Sales	First 15,000 TH/TH	0.09948	0.00374	0.47660	0.00000	0.00225	-0.02597	0.00673	0.46335	0.56283
	Next 25,000 TH/TH	0.09159	0.00222	0.47660	0.00000	0.00225	-0.02597	0.00673	0.46183	0.55342
	Next 50,000 TH/TH	0.06656	0.00172	0.47660	0.00000	0.00225	-0.02597	0.00673	0.46133	0.52789
	Over 90,000 TH/TH	0.02970	0.00000	0.47660	0.00000	0.00000	0.00000	0.00673	0.48333	0.51303
304	Monthly Charge	$450.00								$450.00
Interruptible	First 15,000 TH/TH	0.09948	0.03333	0.47660	0.00000	0.00225	-0.02597	0.00673	0.49294	0.59242
General Sales	Next 25,000 TH/TH	0.09159	0.01672	0.47660	0.00000	0.00225	-0.02597	0.00673	0.47633	0.56792
	Next 50,000 TH/TH	0.06656	0.01374	0.47660	0.00000	0.00225	-0.02597	0.00673	0.47335	0.53991
	Over 90,000 TH/TH	0.02970	0.01019	0.47660	0.00000	0.00000	0.00000	0.00673	0.49352	0.52322
313	Monthly Charge	$450.00								$450.00
Firm	Demand Chargeper TH	1.00000	0.49252		0.00000	0.52652			1.01904	2.01904
Transportation	First 15,000 TH/TH	0.09948	0.00262		0.00000	0.00225			0.00487	0.10435
	Next 25,000 TH/TH	0.09159	0.00171		0.00000	0.00225			0.00396	0.09555
	Next 50,000 TH/TH	0.06656	0.00100		0.00000	0.00225			0.00325	0.06981
	Over 90,000 TH/TH	0.02970	0.00000		0.00000	0.00000			0.00000	0.02970
314	Monthly Charge	$450.00								$450.00
Interruptible	First 15,000 TH/TH	0.09948	0.00282		0.00000	0.00225			0.00507	0.10455
Transportation	Next 25,000 TH/TH	0.09159	0.00188		0.00000	0.00225			0.00413	0.09572
	Next 50,000 TH/TH	0.06656	0.00106		0.00000	0.00225			0.00331	0.06987
	Over 90,000 TH/TH	0.02970	0.00000		0.00000	0.00000			0.00000	0.02970
310	Demand Charge per TH	1.00000	0.49252		0.00000	0.52770			1.02022	2.02022
Resale Service	Commodity Charge	0.09870	0.00093	0.47660	0.00000	0.00000	-0.02597	0.00673	0.45829	0.55699

NOTES:

1) In accordance with the Tennessee Public Service Commission order in Docket U-7074 customers metered inside Davidson County are required to pay an additional 6.93% for collection of the Metro Franchise Fee. Customers served by the Fairview, Greenbrier, Hartsville, Mt. Juliet and White House systems are required to pay 5.0%. Customers served by the Franklin and Nolensville systems are required to pay 3%. Commercial customers on the Ashland City system are required to pay 5%.

2) The Monthly Charge for Rate Schedule 342 is not applicable to gas service provided at the Company's Premises. The Company may bill in units of Gas Gallon Equivalent ("GGE") for gas service provided at the Company's Premises under Rate Schedule 342. The rates convert 1.26 Therms to 1 GGE.

Piedmont Natural Gas Company, Inc.
Tennessee Operations
Test Period: 12-months Ending May 31, 2011
Attrition Period: 12-months Ending February 28, 2013

Exhibit_ (PKP-1)
Schedule 3
Page 1

Line No.		(1) Test Period	(2) Attrition Adjustments		(3) After Attrition Adjustments	(4) Adjustments For Proposed Revenues		(5) After Adjustments For Proposed Revenues
	Operating Revenues							
1	Sale and Transportation of Gas	$ 198,556,792	$ (11,890,726)	[1]	$ 186,666,066	$ 16,578,738	[18]	$ 203,244,804
2	Other Operating Revenues	382,262	23,285	[2]	405,547	-		405,547
3	Forfeited Discounts	1,769,519	(169,978)	[3]	1,599,542	133,973	[19]	1,733,515
4	Total Operating Revenue	200,708,573	(12,037,419)		188,671,154	16,712,711		205,383,865
5	Less: Cost of Gas	106,798,985	(12,446,564)	[4]	94,352,421	-		94,352,421
6	Gross Margin	93,909,588	409,145		94,318,733	16,712,711		111,031,444
	Operating Expenses							
7	Operation & Maintenance	37,832,217	5,211,747	[5]	43,043,964	55,489	[20]	43,099,453
8	Depreciation & Amortization	22,464,487	(2,799,785)	[6]	19,664,702	-		19,664,702
9	Taxes Other Than Income	8,909,911	(124,480)	[7]	8,785,431	-		8,785,431
10	State Income Taxes	1,193,075	(76,013)	[8]	1,117,062	1,132,691	[21]	2,249,753
11	Federal Income Taxes	4,627,620	696,586	[9]	5,324,206	5,433,586	[22]	10,757,792
12	Total Operating Expenses	75,027,310	2,908,056		77,935,366	6,621,766		84,557,132
13	Net Operating Income	18,882,279	(2,498,911)		16,383,368	10,090,945		26,474,313
14	Less: Interest on Customers' Deposits	408,193	4,398	[10]	412,591	-		412,591
15	Plus: AFUDC	1,742,129	1,074,986	[11]	2,817,115	-		2,817,115
16	Net Operating Income for Return	$ 20,216,215	$ (1,428,323)		$ 18,787,892	$ 10,090,947		$ 28,878,839

		Average Test Period	Attrition Adjustments		After Attrition Adjustments	Adjustments For Proposed Revenues	After Adjustments For Proposed Revenues
	Original Cost Rate Base						
17	Plant in Service	$ 631,840,502	$ 82,012,479	[12]	$ 713,852,981	$ -	$ 713,852,981
18	Plus: CWIP	23,925,096	9,100,866	[13]	33,025,962	-	33,025,962
19	Less: Accumulated Depreciation	313,910,990	22,782,822	[14]	336,693,812	-	336,693,812
20	Less: Customer Advances for Construction	-	-		-	-	-
21	Less: Contributions In Aid of Construction	5,117,404	59,543	[15]	5,176,946	-	5,176,946
22	Net Plant in Service	336,737,204	68,270,981	-	405,008,185	-	405,008,185
23	Less: Unamortized Investment Tax Credits-Pre '71	-	-	-	-	-	-
24	Plus: Allowance For Working Capital	32,266,454	(5,065,282)	[16]	27,201,172	-	27,201,172
25	Less: Accumulated Deferred Income Taxes	70,746,183	22,888,471	[17]	93,634,654	-	93,634,654
26	Total Original Cost Rate Base	$ 298,257,475	$ 40,317,228		$ 338,574,703	$ -	$ 338,574,703
27	Return on Rate Base (Line 16 / Line 26)	6.78%			5.55%		8.53%

Piedmont Natural Gas Company, Inc.
Tennessee Operations
Test Period: 12-months Ending May 31, 2011
Attrition Period: 12-months Ending February 28, 2013

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			After Attrition Adjustments			After Adjustments For Proposed Rates		
CAPITAL STRUCTURE AND COST RATES	Capitalization Ratio %	Original Cost Net Investment	Embedded Cost %	Overall Cost Rate %	Net Operating Income	Embedded Cost %	Overall Cost Rate %	Net Operating Income
1 Long-term Debt	41.42%	$ 140,237,642	6.05%	2.51%	$ 8,485,780	6.05%	2.51%	$ 8,485,780
2 Short-term Debt	5.87%	$ 19,874,335	1.59%	0.09%	$ 316,002	1.59%	0.09%	$ 316,002
3 Common Equity	52.71%	$ 178,462,726	5.60%	2.95%	$ 9,986,110	11.25%	5.93%	$ 20,077,057
4 Total	100.00%	$ 338,574,703		5.55%	$ 18,787,892	0.00%	8.53%	$ 28,878,839

Piedmont Natural Gas Company, Inc.
Tennessee Operations
Test Period: 12-months Ending May 31, 2011
Attrition Period: 12-months Ending February 28, 2013

Exhibit_ (PKP-1)
Schedule 3
Page 3

ACCOUNTING AND PRO FORMA ADJUSTMENTS

Line No.			
1		Operating Revenues - Sale and Transportation of Gas	
		To decrease revenues to going-level basis.	$ (11,890,726)
2		Operating Revenues - Other	
		To increase revenues for the new gas property lease to a third-party	23,285
3		Operating Revenues - Forfeited Discounts	
		To decrease revenues to the going-level basis following adjustment 1.	(169,978)
4		Cost of Gas	
		To decrease cost of gas expense to the going-level basis following adjustment 1.	(12,446,564)
5		Operations and Maintenance Expenses	
	A	To increase payroll expenses to the going-level basis.	1,708,709
	B	To increase expenses for the salary and payroll investment plans.	46,358
	C	To increase expenses for the long-term incentive plan.	596,051
	D	To increase expenses for the short-term incentive plan.	37,775
	E	To increase expenses for the MVP performance incentive plan.	104,903
	F	To increase expenses for transmission and distribution costs.	266,692
	G	To increase expenses for uncollectible accounts cost.	255,575
	H	To increase expenses for other customer accounts expense.	9,072
	I	To decrease expenses for advertising and other sales costs.	6,283
	J	To increase expenses for pension administrative costs and defined contribution plan.	8,678
	K	To increase expenses for amortization of deferred pension expense (defined benefit pension plan).	2,337,853
	L	To increase expenses for amortization of deferred environmental cleanup costs.	243,760
	M	To increase expenses for amortization of deferred TN 2010 flood costs.	119,963
	N	To increase expenses for group insurance.	237,415
	O	To increase expenses for risk insurance.	300,525
	P	To decrease expenses for other compensation, other benefits and training.	(327,033)
	Q	To decrease expenses for the TN regulatory fees and costs.	(12,138)
	R	To increase expenses for rents.	17,312
	S	To increase expenses for outside services.	177,251
	T	To decrease expenses for other administrative and general costs.	(1,663,242)
	U	To increase expenses for amortization of rate case costs.	89,984
	V	To increase expenses for GTI program funding.	150,000
	W	To increase expenses for energy efficiency program funding.	500,000
		Total	$ 5,211,747

ACCOUNTING AND PRO FORMA ADJUSTMENTS

Line No.			
6		Depreciation and Amortization Expense	
		To decrease depreciation and amortization expense to the going-level basis, calculated using the proposed depreciation rates in this filing and following adjustment 12.	$ (2,799,785)
7		Taxes Other Than Income	
	A	To increase payroll tax expense to the going-level basis.	33,336
	B	To decrease TN franchise tax expense to the going-level basis.	190,508
	C	To increase property tax expense to the going-level basis.	756,857
	D	To decrease TN gross receipts tax expense to the going-level basis.	(1,105,180)
		Total	(124,480)
8		State Income Taxes	
		To decrease state income taxes (effective rate of 6.8%) following a computation after adjustments to operating revenues and expenses.	(76,013)
9		Federal Income Taxes	
		To increase federal income taxes (effective rate of 35%) following a computation after adjustments to operating revenues, expenses and state income taxes.	696,586
10		Interest on Customers' Deposits	
		To increase interest on customers' deposits to the going-level basis.	4,398
11		Allowance for Funds Used During Construction	
		To increase AFUDC to the going-level basis.	1,074,986
12		Plant in Service	
		To increase plant in service for additions (net of retirements) to the 13-month average balance anticipated between February 29, 2012 and February 28, 2013.	82,012,479
13		Contruction Work in Progress	
		To increase CWIP to the 13-month average balance anticipated between February 29, 2012 and February 28, 2013.	9,100,866
14		Accumulated Depreciation	
		To increase accumulated depreciation to the 13-month average balance anticipated between February 29, 2012 and February 28, 2013.	22,782,822
15		Contributions in Aid of Construction	
		To increase CIAC to the 13-month average balance anticipated between February 29, 2012 and February 28, 2013.	$ 59,543

ACCOUNTING AND PRO FORMA ADJUSTMENTS

Line No.		
16	Allowance for Working Capital To decrease the allowance for working capital to the 13-month average balance anticipated between February 29, 2012 and February 28, 2013.	$ (5,065,282)
17	Accumulated Deferred Income Taxes To increase ADIT to reflect to the 13-month average balance anticipated between February 29, 2012 and February 28, 2013.	22,888,471
18	Operating Revenues - Sale and Transportation of Gas To increase revenues for the proposed margin increase.	16,578,738
19	Operating Revenues - Forfeited Discounts To increase revenues following the adjustment 18.	133,973
20	Operations and Maintenance Expenses To increase the provision for uncollectible accounts (rate of 0.3347%) following adjustments 18 and 19.	123,552
21	State Income Taxes To increase state income taxes (effective rate of 6.8%) following adjustments 18, 19 and 20.	1,132,691
22	Federal Income Taxes To increase federal income taxes (rate of 35%) following following adjustments 18, 19, 20 and 21.	$ 5,433,586

ATTRITION PERIOD DEPRECIATION EXPENSE BY PLANT CATEGORY

	Per Existing Depreciation Rates			Per Proposed Depreciation Rates		
	Tennessee Direct	Joint Property	Total Tennessee	Tennessee Direct	Joint Property	Total Tennessee
Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
Storage Plant	649,480	-	649,480	1,242,400	-	1,242,400
Transmission Plant	1,008,804	-	1,008,804	605,873	-	605,873
Distribution Plant	19,345,034	529,374	19,874,408	14,242,410	511,686	14,754,096
General Plant *	968,813	2,397,657	3,366,470	664,676	2,397,657	3,062,333
Total Plant	$ 21,972,131	$ 2,927,031	**$ 24,899,162**	$ 16,755,359	$ 2,909,343	**$ 19,664,702**

* The amounts for General Plant reflect depreciation and amortization expense, in total.

EXHIBIT__(PKP-2)

School Energy Pledge Program™

A School-based Education and Efficiency Kits Campaign

"The School Energy Pledge Program™ is a fresh and creative way to simultaneously teach students about the environment, help reduce energy usage and a household's environmental footprint, lower home utility bills, and raise funds for participating schools and school-related needs.

Introduction

Piedmont Natural Gas Company, Inc. is proposing to implement the School Energy Pledge Program™ to combine energy education with the installation of energy efficiency kits. This Program will enable residents in the Company's Tennessee service areas to achieve significant energy savings.

Services to the Company will be provided by MCR Performance Solutions, LLC, with assistance from their strategic partner, Strategic Energy Innovations ("SEI"). MCR is a national management consulting firm specializing in energy matters. SEI is a California based, not-for-profit firm that specializes in education. The two service providers' innovative approach successfully achieves goals of energy education and awareness, while implementing changes that result in measurable and verifiable energy savings in the hard to reach residential segment.

Proposed Approach

The School Energy Pledge Program™ is an energy education program that is focused on elementary school students and their teachers. Below is a summary of the program.

School Energy Pledge Program™: The School Energy Pledge Program™ ("SEP Program™") was developed specifically for the energy efficiency market. With a unique approach to energy efficiency, the program engages elementary school students and their families in saving energy by offering optional energy lessons at school, engaging the school in a pledge program, and providing a toolkit for families to install energy-saving measures at home. The program emphasizes home energy reduction tools and techniques. When a family implements energy efficiency measures contained in the toolkit, the program provides the school a cash incentive. The program is implemented in the course of a semester, typically over a period of five months.

Major Program elements include:

- Launch: Schools announce the program with a short, energizing video for students during a kick-off assembly.
- Learn: Students engage in hands-on lessons linking scientific concepts with practical applications (classroom curricula).
- Pledge: Families sign a pledge form to install energy efficiency measures contained in an energy-saving toolkit.
- Track: A graphic display at school shows the number of pledge forms returned to school by students and progress toward school fundraising, energy savings and greenhouse gas reduction goals.
- Reward: Schools receive energy efficiency incentive funds for the pledges returned.

The SEP Program™ was developed following a comprehensive national benchmarking of schools-based programs. Overall, the national review showed that most schools-based programs are complex, produce limited market penetration, require teachers to do more, only target one or two grades, tend not to produce verifiable benefits and do not constitute cost-effective additions to resource program portfolios (information and outreach, sector "equity" programs). In response to these limitations, the SEP Program™ was designed to be less complex, easy to implement, definitive in its beginning and end, while producing verifiable results.

The SEP Program™ was recently evaluated as part of comprehensive energy initiatives in the State of Pennsylvania. Examples of verified the SEP Program™ impacts are:

- Program results were measured and verified in accordance with the Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (PA Audit Plan).
- EM&V results for the program period demonstrate a 97.1% realization rate based on program sampling that achieved 4.7% absolute precision at 90% confidence (exceeding 90% ± 10% required by the PA Audit Plan).
- Energy efficiency kit measures have specific deemed savings included in the PA Technical Resource Manual ("TRM").
- Consistent with the TRM, deemed savings values from energy efficiency kit measures are reduced to incorporate benchmarked in-service rates applicable to each technology.

No other residential program, to our knowledge, asks participants to sign and date a document pledging to install energy efficiency measures. The exceptional record of participation is tied to voluntary school support activism and to the effective education and engagement of children. The SEP Program™ design was tailored to overcome barriers to participation that are characteristic of other schools programs. SEP Program™ schools routinely report student body participation rates of 70% to 90%. These participation rates contrast sharply to programs that target one or two grades or even selected classes within one or two grades. Our proposed SEP Program™ plans adopt a conservative 65% student participation rate, though every program cycle has exceeded that level of participation.

The company anticipates that comparable results can be obtained in Tennessee.

Approach to Implementing the SEP Program™ in Tennessee

The School Energy Pledge Program™ is a turnkey program, whereby energy efficiency impacts take place in student homes when families adopt energy efficiency measures the students learn about at school. Through the SEP Program™, students learn about energy efficiency, participate in a school fundraising drive and help their families implement energy saving measures at home. The SEP Program™ was carefully tailored to overcome barriers common to many educational schools information and outreach programs, and has a track record of achieving more than 70% student engagement at participating schools.

The design of the program under our proposal will meet the following specific objectives:

- Achieve quantifiable and verifiable energy impacts
- Provide a cost-effective school program
- Provide energy education and training for teachers to disseminate in their classrooms

General Scope of Work and Deliverables

Program Launch, Operations and Implementation

Task 1: Kick-off Meeting

Piedmont Natural Gas and the MCR team will have a kick-off meeting to establish a common understanding of the contract, schedule and expectations regarding the delivery of the SEP Program™ and to provide the foundation for development of the implementation plan.

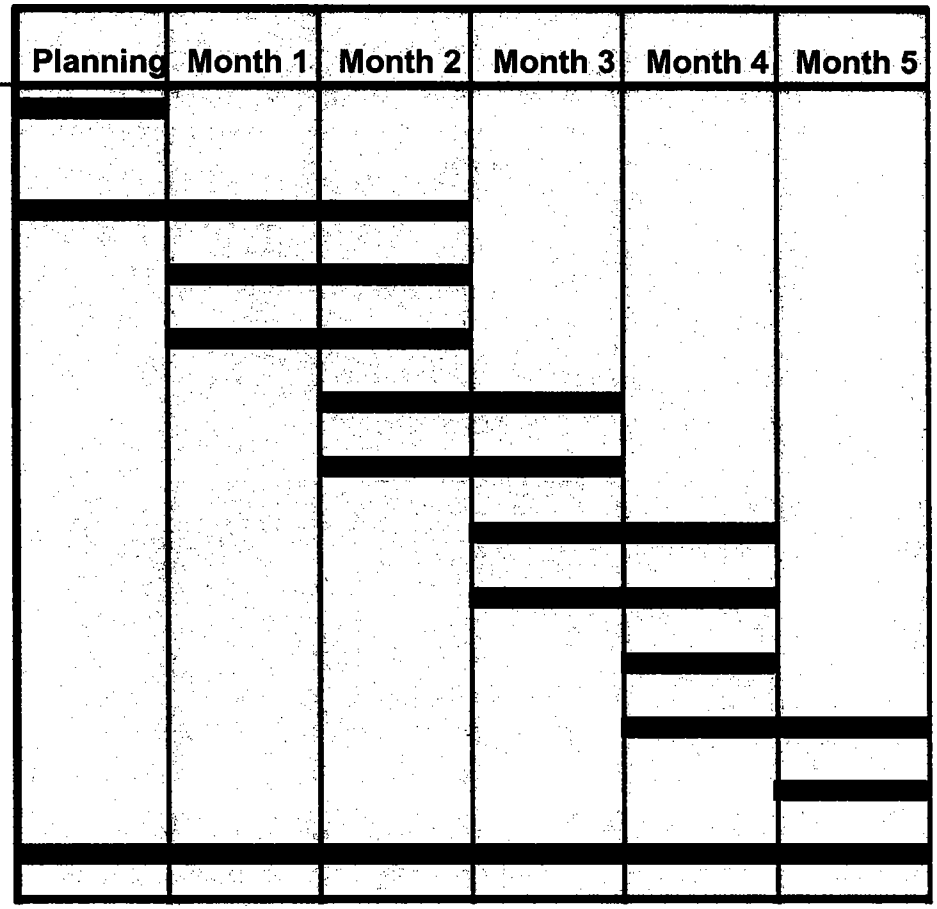
Task 2: Implementation Plan

The sample Work Plan presented below outlines tasks, events and program cycles for deliverables. This initial plan will be built out with dates and details in preparation for the kick-off meeting.

Example of One Program Cycle Rollout

Summary of Tasks

- Coordinate and get sign offs from Piedmont on outreach, materials and reporting
- Recruit schools
- Collect signed MOUs
- Schedule training sessions
- Provide materials to schools
- Hold assemblies and training sessions
- Manage pledge collection
- Verify pledges
- Send kits
- Verify installation
- Send Certificate of Appreciation to schools
- Submit reporting to Piedmont Natural Gas



As part of the implementation plan, MCR and SEI will work with the Company to verify and, if necessary, refine the design of the energy efficiency toolkit to be installed in the homes of the students that participate in the program. The cash incentive payment per pledge will also be established.

Task 3: Program Delivery:

The following steps summarize the key tasks in delivering the program:

School Recruitment and Marketing Plan

In the current climate, there are considerable barriers to providing new programs to schools. Teachers are hard pressed to find time to teach additional material, given the curriculum requirements placed upon them. In addition, schools are suffering from reduced funding and a reduction in programs.

The MCR team has found success through offering schools a financial incentive. For each pledge returned to the school, the utility makes a financial contribution. This approach has generated excitement and receptivity among educators and administrators, and has created an upbeat learning environment for students in the school. Teachers willingly participate because they not only learn new, timely information, but their participation helps the school financially. In fact, we have found that once the program is up and running in a school district, we are showered with inquiries from neighboring schools who want to sign up.

The focus of the marketing and communication plan is to recruit schools, teachers and students for participation in the program. The following summarizes our general approach:

- Develop a list of targeted schools for participation in the program.
- Analyze the schools and school districts to determine if there has been participation in any previous, current or planned energy-related or "green" school programs. Oftentimes, some schools or districts may have existing programs in place. These schools can be valuable candidates for the program.
- Discuss with the Company the energy-related or "green" programs or marketing efforts that have been promoted in the past. Departments outside of energy efficiency may facilitate typical programs. The project team will leverage those relationships where appropriate.
- Develop and customize marketing and outreach materials announcing the program and provide an overview of the program and benefits. These materials are to be included in mailings to the schools and teachers as well as on the Company's website.
- Link to the SEP Program™ webpage.
- Develop and customize school recruitment letters announcing the program and asking the school if they would like to participate in the program. Letters typically are addressed to the principal or assistant principal under the cover signature of a School Energy Pledge Program™ representative.
- Schools receiving a recruitment letter can respond through email, the Company's website or through a toll-free number provided by the project team. We use an 800 number to enable school personnel to reach us easily.

- Schedule visits to the schools, as requested, to conduct face-to-face meetings with school officials to enhance recruitment.

The tools used for marketing and school recruitment are:

- Marketing brochures, website content, email
- Direct mail for recruitment letters, phone calls
- Face-to-face meetings with school officials

The above marketing and communication plan has been successfully used in recruiting between 70% and 100% of our targeted number of schools. The project team will coordinate all promotional activities with the Company's in-house marketing and communications team and marketing vendor. Coordination and collaboration will occur on all PR and media materials with the Company, the community and schools, inclusive of the Company's branding. Where appropriate, MCR provides text and stock photos for press releases, announcements, marketing and outreach materials.

The MCR team will recruit students to participate in the program. Of those students, approximately 65% of the students (about 15,000) will return signed pledges to the school. MCR's experience implementing this program in other states provides confidence and good reason to believe that Tennessee schools will be extremely receptive to the program and, after the first semester, there may be a waiting list for schools to participate in this program.

As each school is recruited, MCR will also recruit a Site Coordinator at the school. The Site Coordinator can be a teacher, administrative staff member or parent. Their role is to assist the project team in facilitating the kick-off assembly, collecting pledge forms from the school classrooms and sending them to the project team. They are given a modest stipend for their assistance in coordinating the program.

Kick-Off Assembly

Students at participating schools will be educated about energy and the importance of energy efficiency and conservation via a school assembly and in-class instruction. The project team will assist the Site Coordinators in facilitating the kick-off assemblies to explain the program to students and school staff. Per the SEP Program™, the project team will obtain a pledge from each student and their family to install the energy efficiency measures contained in the Energy Efficiency Kit that will be delivered to the student's house.

Classroom Curricula

The SEP Program™ provides participating schools curricula linked to Tennessee's academic standards for elementary school students. Lessons address content such as reducing energy, water and waste consumption, and home energy efficiency, air quality and health. These lessons are available for use by teachers to supplement the instruction presented at the kick-off assembly.

Pledge Form Collection

Following the kick-off assembly, each student will be provided with a Pledge Form (Opt-In) whereby the student and their parent(s) or guardian pledge to install the energy efficient measures contained in the Energy Efficiency Kit. Students will have their parents fill out the information on the Pledge Form and the students will return it to their teachers. The project

team will arrange for the Site Coordinator to gather the pledge forms, perform initial validation and forward the forms to the project team for further validation and reporting.

The Pledge Form may be customized to serve as a gateway for enrollment uptake of other Company programs. For example, pledge forms can include optional selections to receive additional information about other energy efficiency opportunities.

Energy Efficiency Kits Delivery

After collecting signed Pledge Forms, the project team will schedule delivery of kits to the students' homes. The project team will record dates of kit delivery and take measures to ensure that kits are delivered and students and their families received them.

The SEP Program™ is 100% verified. Each parent is asked to sign a pledge that bears the Customer's service account number(s), address(es) and a self-reporting inventory of installed measures. The signature attests to the program's influence in motivating each participant's decision to install program measures. SEP Program™ savings impacts will be based on deemed savings values published in the TRM or other documented energy savings values if the TRM fails to address specific program measures. The project team will perform spot checks to ensure energy saving toolkits are received and measures are installed. Follow-up satisfaction surveys are conducted with participating schools, students and families.

Donation to School

Family participation and motivation to install energy efficiency measures is linked to a school fundraising activity. Schools receive a cash incentive payment from the Company when a family pledges to install a home energy kit and returns the pledge form to the school. In the current economy, the Company's financial contribution to schools carries tremendous value and strengthens its relationship with the school communities. MCR's experience shows that in recruiting and achieving school receptivity to the SEP Program™, providing financial contributions to the school has been extremely successful.

At the conclusion of each semester, the project team will determine the total incentive for each participating school and a check from the Company representatives will be presented to the schools. This step presents a valuable public relations opportunity for the Company to promote the SEP Program™, as well as to communicate the importance of energy efficiency. As an option, schools may apply the incentive payments toward energy efficiency measures in the school. In this way, energy efficiency measures are adopted in the primary residence and in the participating school.

Addressing Customer Complaints

The project team will address any Customer complaints that arise. If customer complaints occur, the project team will document and notify the Company of these issues along with a recommended solution.

MCR has encountered very few Customer complaints in the implementation of this program. The majority of issues relate to questions about why a potential participant has been disqualified, and can usually be resolved by working with the client utility to identify an account number or with the kit vendor to correct an address.

In the toolkit that is delivered to the student's home, there are instructions on how to install the items, as well as an 800 number, which can be used to contact the vendor for individual

assistance. For example, in the event a kit arrives damaged, the participant can call the 800 number and the kit will be replaced immediately. In addition, the SEP Program™ gives school personnel an 800 number to use in case assistance is needed.

Task 4: Program Tracking and Reporting

The SEP Program™ will be implemented on a "per semester" basis over the life of the program. Monthly, quarterly and annual reports will be provided.

To facilitate data tracking, the SEP Program™ uses the SEP SmartPost™ (SmartPost™) tracking system. SmartPost™ is an application specifically developed to capture pledge form data for each student along with calculated savings, both behavioral and from specifically installed measures (where applicable). The application stores and reports the information and performance metrics for internal and Tennessee Regulatory Authority reporting and has been used to support data requirements for EM&V of the SEP Program™. The system is web-based and developed in Java with an Oracle database.

The data captured in SmartPost™ is determined by the data on the pledge forms that the students and parents fill out, and can be customized along with other relevant program information. Typical data captured include:

- Account numbers
- Full name
- Address of premise
- Number of students in the household
- Student or school staff member indicator
- School code
- Measure (s) taken
- Date the pledge form was scanned or entered

As pledge forms are received each day during the pledge period, they are logged into a database and await posting and validation in SmartPost™. Once pledge form data enters the system, it is ready for validation. Piedmont Natural Gas personnel will provide the project team with a "seed file" from its customer information system that contains all residential customers by account number, name and address. The SmartPost™ system runs a validation routine against the seed file to verify the existence and accuracy of all pledge records. An exception report is produced for those accounts that are missing or invalid. The project team will work with members of the Piedmont Natural Gas to analyze and resolve the exceptions.

Batch lists of valid pledge records are generated and sent to the energy efficiency kit vendor. The kit vendor uses the list to generate mail labels and send the kits to the student/Customer house or apartment. This step ensures that only qualified students receive a kit.

Standard and custom reports may be generated out of the system to report the results by time period, school, county, measure and any other data that is captured on the pledge form or calculated internal to the system, such as deemed behavioral savings, savings from

specific measures, etc. These reports are available to Piedmont Natural Gas and may be generated at any time.

The SmartPost™ system can generate output files in a variety of formats (XML interface, text, CSV, Excel) that may be used to upload into FirstEnergy's DSM Portfolio Tracking System.

Additional details for monthly, quarterly and annual reports will be prepared and submitted as required by the Company. These reports or additional reports will also be used to support EM&V efforts.

Addressing Other Potential Issues

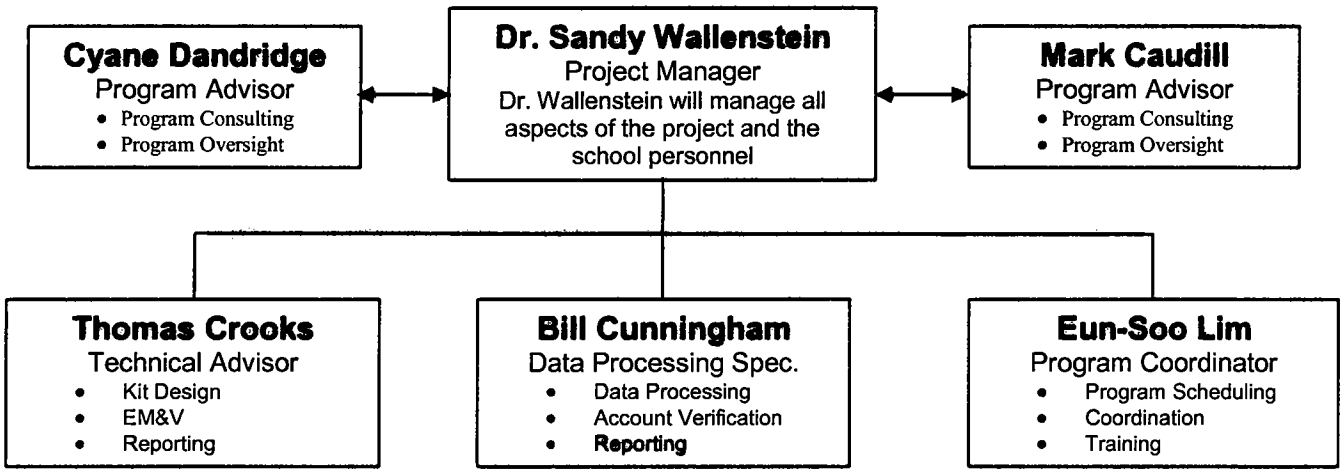
The program manager will attend, as requested by the Company, regulatory and other stakeholders meetings to present and discuss program operations and performances.

Progam Management Plan

Team Members

The Company's SEP Program™ proposal is to staff the Program with consultants from MCR Performance Solutions, LLC and Strategic Energy Innovations. As depicted in the project organization chart below, the key team members are: Dr. Sandy Wallenstein, Project Manager; Tom Crooks, Technical Advisor; Eun-Soo Lim, Program Coordinator; and Bill Cunningham, Data Processing Specialist. Dr. Wallenstein will report to Pia Powers at Piedmont Natural Gas for this Program.

Organization Chart



Sandy Wallenstein, Project Manager. Sandy will serve as the Project Manager for the program. She has experience running the SEP Program™ on a large scale (35 schools) in Pennsylvania, a smaller scale in (4 schools) in Maryland, and has been managing SEI's work with the Palo Alto Unified school green teams (21 schools), San Francisco green teams (15 schools) and Marin green teams (4 schools) over the last three years. In addition, she co-chairs the California Public Utility Commission's K-12 working group for Workforce, Education and Training. Sandy has thirty years experience managing educational programs.

Tom Crooks, Technical Advisor. In his role as a Technical Advisor, Tom will provide technical assistance in designing the energy efficiency toolkit as well as EM&V oversight to the project. Tom has more than 30 years of energy industry experience. He has been retained by energy commissions, utility commissions, energy utilities, electric distribution, transmission and generation cooperatives, statewide associations, city governments, state agencies and large end-use energy consumers located throughout the United States and Canada.

Eun-Soo Lim, Program Coordinator. Eun-Soo will serve as the Program Coordinator on the project. She will be responsible for assisting Sandy with school and teacher recruitment, program scheduling and coordination and teacher training. Eun-Soo has an extensive background in climate change policy and science with a special interest in program implementation involving local governments and youth. She has been involved in developing sustainability audit toolkits for small businesses and homes and training youth on audit techniques.

Bill Cunningham, Data Processing Specialist. Bill will serve as the Data Processing Specialist for the project. He will be responsible for managing the capture, verification, storage and reporting of all pledge form data from the SEP Program™. He has experience providing all of the data management and reporting services for the multi-year implementation of the SEP Program™ in other jurisdictions.

Mark Caudill, Program Advisor. In his role as a Program Advisor for utility issues, Mark will provide program consulting assistance and will oversee program activities within the project. He has extensive experience with rate, regulatory and public policy matters. Mark's energy experience includes serving as an attorney advisor to the Federal Energy Regulatory Commission, providing expert testimony, and representing numerous energy providers on regulatory and legislative initiatives.

Cyane Dandridge, Program Advisor. Cyane will serve as a Program Advisor for educational-related matters, providing program consulting and overseeing program activities within the project. She has broad and deep experience in establishing new business concepts and in combining a technical and policy oriented approach to clean energy, green buildings and energy efficiency. Cyane received her masters degree in building technology from the Massachusetts Institute of Technology for her work in international energy policies and technologies.

The Project Team's Qualifications and Experience

Firm Qualifications

MCR has worked with clients representing investor owned utilities, G&T cooperatives and public power agencies. MCR works with Boards of Directors, senior management and mid-management on projects imperative to the organization's success. Below is a representative list of MCR's clients.

Investor Owned

- AGL Resources
- Alliant Energy
- Ameren
- American Electric Power
- Arizona Public Service
- Atmos Energy
- CH Energy
- Constellation Generation
- DTE Energy
- Dominion Generation
- Duke Energy
- Duquesne Light Company
- Empire District
- Entergy
- Great Plains Energy
- OGE Energy
- Oklahoma Natural Gas
- Progress Energy
- Sierra Pacific Resources
- Southern California Edison
- Southern Company
- Southern Natural Gas

Electric Cooperatives

- Big Rivers Electric Cooperative
- Brazos Electric Cooperative
- Buckeye Power, Inc.
- Central Iowa Power Cooperative
- Dairyland Power Cooperative
- Deseret Power
- East Kentucky Power Cooperative
- Georgia Transmission
- Great River Energy
- N.C. Electric Membership Corp.
- Old Dominion Electric Cooperative
- Southern Maryland Electric Cooperative
- Wabash Valley Power Association

Public Power

- American Transmission Company
- CapEx 2020 Transmission
- Central Minnesota Municipal Power Association
- Colorado Springs Utilities
- Energy Northwest
- Heartland (SD) Consumers Power District
- Marshall (MN) Municipal Utilities
- Minnesota Municipal Power Agency
- Missouri River Energy Services
- Municipal Electric Authority of Georgia
- New York Power Authority
- Ontario Power Generation
- Rochester Public Utilities
- Southern Minnesota Municipal Power Agency
- Willmar Municipal Utilities

The following summarizes some of MCR's recent work in the energy efficiency arena:

New York State Department of Public Service (Case 07-M-0548): Assisted in drafting the Department's proposal for energy efficiency program design and delivery to implement the Energy Efficiency Portfolio Standard to achieve the state's "15/15" energy reduction targets (15/15 - Executive order to reduce state energy consumption to levels 15% below 2006 levels by 2015).

Arkansas Public Service Commission (Docket No. 06-004-R): Under contract to a Midwest utility, evaluated regulatory decisions, drafted comments and provided testimony addressing measurement and verification, deemed savings and cost-effectiveness tests.

Oklahoma Corporation Commission (Case No. PUD 2005005516): Under contract to the Plain State utility, forecast energy efficiency potential and responded to commission questions concerning energy efficiency program incentive levels, rate class participation, projected energy savings, emissions reductions, program costs and program selection.

California Public Utilities Commission (Rulemaking 06-04-010): Intervened, filed comments and participated in Commission workshops to implement changes to state energy policy whereby the embedded energy savings in water conservation are included in the energy efficiency programs of California investor-owned energy utilities.

California Energy Commission (CEC Docket 04-IEP-1H): Performed regulatory, technical and financial analysis to support the development of the Integrated Energy Policy Report (IEPR). The CEC is directed by statute to prepare the IEPR to ensure consistency in state energy policy; other state agencies and entities are directed to carry out their energy-related responsibilities using the information and analyses in the report. Presented at working group meetings and hearings, and assisted in drafting the staff report comprising 2005 IEPR findings. The CEC's 2005 IEPR was delivered to and accepted by the California legislature and governor in December 2005.

California Public Utilities Commission (Rulemaking R.01-08-028): Managed and implemented an energy efficiency program prototype demonstration project authorized in the

2004-2005 funding cycle. Funded at $3 million, the project focused on developing sustainable energy efficiency initiatives through local government engagement channels. The program implemented prototype energy efficiency programs in six participant communities.

California Department of Water Resources (CDWR): Following California's energy crisis (2000-2001), CDWR become responsible for procuring energy required to supply 75 percent of California's energy requirements. Mr. Crooks projected the impacts on energy demand resulting from statewide energy efficiency and demand response programs in support of a power procurement financing bond issuance of $13 billion.

California Public Utilities Commission (CPUC): While employed by Southern California Edison, managed program impact verification projects including writing RFPs to subcontract engineering review, evaluating bidder responses and integrating final evaluation contractor work products into the CPUC filings.

In delivering energy efficiency to the educational market, MCR has a strategic partnership with SEI. SEI is a California based, not-for-profit firm. For more than a decade, the SEI staff has delivered numerous projects that help empower schools and universities, small businesses, local governments, affordable housing agencies and agricultural communities to reduce pollution and save money through resource and energy efficiency. Their services include program design, strategic planning and program implementation. SEI is a Marin County, California-certified green business and a minority, women-owned business.

The following summarizes some of the SEI staff's recent, noteworthy educational programs:

School Energy Pledge Program™: SEI and MCR developed the School Energy Pledge Program™ specifically for the utility energy efficiency market. With this unique approach to energy efficiency, a utility engages students and their families in saving energy by offering energy lessons at school, engaging the school in a pledge program and providing a toolkit for families to install energy-saving measures at home. The SEP Program™ emphasizes home energy reduction tools and techniques. Once a family pledges to take energy saving actions, the utility sends them a free energy efficiency toolkit to help reduce the family's energy use. Toolkits typically include measures such as low-flow showerheads, CFL bulbs, faucet aerators, LED nightlights and weather stripping. When the family implements energy efficiency measures contained in the toolkit, the utility provides the school a cash incentive. Everybody wins! Monthly energy bills for students and families are reduced, the utility spends less money supplying energy and the school becomes a focal point for energy education while obtaining greatly needed funds.

The School Energy Pledge Program™ is a fresh and creative way to simultaneously teach students about the environment, help reduce energy usage and a household's environmental footprint, lower home utility bills and raise funds for participating schools and school-related needs.

Awareness for Communities about Energy (ACE): This program promotes energy conservation and efficiency in communities by training students to perform energy audits in their schools, at local businesses and in senior communities. Since 1998, ACE-trained students have worked in more than 500 senior facilities, small businesses and residences to

help reduce energy use and costs with a potential for savings of almost 1,500,000 kWh of electricity and $200,000 in costs.

Protect Your Climate: This program is a full year of project-based learning activities that elementary school teachers can use to teach youth about protecting the climate and reducing energy use. Working with the Bay Area Air Quality Management District, SEI developed the curriculum and uses it to train teachers throughout the United States to integrate climate protection learning activities into their classrooms. The program provides continuing education credit to teachers who participate in a training course and integrate the lessons in their classrooms.

School Energy Efficiency (SEE) Program: SEI helps educate students about energy, trains teachers about energy efficiency and improves district facilities by lowering energy usage. The SEI team gains participation among the school districts, conducts training workshops and coordinates the implementation of demonstration projects. The SEE program has served 55 school districts in 11 counties in California's Central Valley.

Planet Energy: This program works with K-6 students in an after-school or summer camp setting. The program has an exploratory science and clean energy theme, which includes hands-on, highly interactive, projects-based instruction; age-appropriate experiments and design/build projects; training in the use of energy analysis equipment and energy auditing; and strengthening environmental literacy and values among students. The program can be delivered in various formats, ranging from one-hour segments to all-day activities.

High School Sustainability Certificate: This certificate program helps students understand and solve climate change issues. The first certificate focuses on energy efficiency and solar assessment and design.

The Green Campus Program: SEI partners with the Alliance to Save Energy to co-present the California Green Campus Program. Through Green Campus, SEI works to train students and staff on 12 University of California and California State campuses to adopt energy efficient technologies and to increase behaviors that promote energy conservation across campus housing, dining and facilities.

Green Workforce Internship Program: During the summer of 2009, SEI piloted a green job training and placement program with Marin County underserved youth. The pilot, which trained 15 low-income or at-risk youth (ages 18-24) in the Marin area, yielded marvelous results, demonstrating the program's ability to serve as a vehicle for long-term employment in the green workforce. Upon the pilot's completion, ten of the fifteen participating interns were offered jobs as energy-efficiency contractors. In addition to serving as the program designer and administrator, SEI staff provided participants with a comprehensive introductory training in energy efficiency, weatherization, and alternative energy concepts and techniques, in addition to communication and job readiness skills. SEI mentored and placed program participants within six-week apprenticeships with area energy efficiency and solar contractors.

Relevant Project Experience and References

Over the last 12 years, the MCR/SEI Team ("Team") has developed a core expertise designing and implementing innovative and hands-on energy education programs within the

K-12 sector. We have worked with hundreds of teachers, school communities and more than 10,000 students to enhance their scientific and technological understanding of energy issues and climate protection. The Team has developed curriculum and trained teachers across the country, in states as diverse as Maryland, Pennsylvania, Virginia, California and Hawaii. The Team is comprised of technical staff, including curriculum developers, teachers, trainers, marketing specialists and engineers.

The Team brings to this initiative expertise in supporting program implementation at the ground level (in schools) as well as at highly visible levels (community meetings and school administration platforms). One of the Team's strengths is the ability to be flexible and responsive in working with clients to ensure the delivered product meets and, in most cases, exceeds client expectations. The Team customizes educational energy conservation programs that have been honed over the last decade, to ensure they accurately support statewide standards and regional requirements while meeting regulatory objectives.

The SEP Program™ grows out of research and case studies that were compiled by the Team, documenting relevant regional and national initiatives. In point of fact, the team demonstrated through its research that existing educational energy efficiency programs are limited in one of two ways: they tend to be information and outreach initiatives with limited regard for energy savings; or they tend to be highly resource intensive without school-wide integration. The SEP Program™ was designed through an intensive process of examining results of many different programs and honing in on a design that was most suitable as both a cost effective utility program and one with broad appeal to school communities. The School Energy Pledge Program™ was launched in 2007 as a turnkey program, whereby measurable energy impacts take place in student homes when families install energy efficient measures the students learn about in school. The entire school community is enlisted to participate in the program.

The following excerpts provide examples of recent engagements performed by the MCR/SEI team:

Southern Maryland Electric Cooperative
Jeff Shaw, Environmental and Energy Conservation Manager
(240) 528-9801
jeff.shaw@smeco.coop.com

Scope: To achieve goals for the company's overall energy efficiency plan by developing and delivering a programmatic approach to schools with the goal of achieving quantifiable and verifiable energy efficiency impacts. To foster expanded awareness and willingness to take actions that produce measurable reductions in energy consumption and demand among youth and their families. The project implemented the Schools Energy Pledge Program™. The program engaged over 1,600 students and staff in four schools to learn about energy efficiency and conservation, and to install a kit of energy efficiency measures in the home with the help of their parents. The program educated all of the students and nearly 80% of the students installed the energy efficiency measures, representing an estimated annual energy savings of 570,600 kWh.

Our work with the Southern Maryland Electric Cooperative (SMECO) and our partnership with the St. Mary's School District was successful, as indicated by a quote from the superintendent of schools.

"This program creates a win-win situation for families, the school system and SMECO. It is our desire to educate all students about ways to conserve energy, and this will serve as a way for our students to become better stewards of our environment and resources."

—Dr. Michael J. Martirano, Superintendent of Schools, St. Mary's County Public Schools

Duquesne Light Company
Dave Defide, Manager of Energy Efficiency and Demand Response
(412) 335-1199
ddefide@duqlight.com.

Scope: To implement the School Energy Pledge Program™ as part of the energy efficiency program portfolio as approved under Pennsylvania Act 129 Energy Efficiency and Conservation Programs for the company. Under the SEP Program™, energy efficiency impacts took place in student homes when families adopted energy efficiency measures the students learned about at school. Through the program, students learned about energy efficiency, participated in a school fundraising drive and helped their families implement energy saving measures at home. The program was implemented in the fall semester of 2009 with seven Pittsburgh-area schools. Nearly 70% of eligible student and staff households participated, producing approximately 647,500 kWh in annual savings.

The program had commitments from approximately 30 schools for the spring 2010 semester implementation. The program was suspended, pending a competitive bidding process to be held by Duquesne Light Company for a Residential School Program.

Our work with Duquesne Light was also successful, as indicated below by a testimonial from one of the schools in a newspaper article from the Pittsburgh Post-Gazette on January 21, 2010 and a letter to MCR from the Pittsburgh Board of Education.

"The Duquesne Light Energy Program was a huge success. It truly empowered the students to become more energy efficient. Becoming more 'green' is such a global issue, and the students were able to see that they can make a change right inside their homes. I would highly recommend this program to any school district. It was very easy and very rewarding."

—School Site Coordinator, Shaler Area Elementary School

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Two Schools Shine in Energy Program

Eden Hall, Shaler elementaries lead way

By Jennifer Kissel

Fifth-grader Mac Gruber learned something during a recent School Energy Pledge Program assembly.

"Each person saving just one drop of water can help out a lot," said Mac, 11, a student at Eden Hall Upper Elementary in the Pine-Richland School District.

He and his sister, Kelsey, 9, a fourth-grader, also learned that each family turning in one pledge form can help out a lot, too. That simple act helped to raise $9,100 for their school.

Eden Hall and Shaler Elementary, in the Shaler Area School District, were two of four Pittsburgh area schools to participate in Duquesne Light's pilot School Energy Pledge Program during November. Our Lady of Fatima School in Hopewell and Regency Park Elementary in Plum also participated.

The schools earned $25 for each family that signed and returned an Energy Pledge form. The electricity provider mailed those families energy kits containing five compact fluorescent, energy-saving light bulbs, two LED night lights, weather stripping, a furnace whistle that sounds when the furnace filter needs to be changed and a booklet about saving energy.

Shaler Elementary students were shocked to learn in late December that their commitment to saving energy had earned the school $18,200, said Kerry Zobb, Shaler Elementary activities director. "Out of 981 possible participants, including teachers and staff, we received 732 pledge forms," or about 75 percent participation, the activities director said.

Energy kits began arriving at homes in early December. "I've had a lot of kids say, 'We put in those light bulbs, and my parents say in a little bit we'll see a difference in our bill.' So parents were using it as a teaching and math moment," she said.

"It empowered the students to make a change, to start being more green. It's hard for them to take on such a global issue, but this is something they can do at home."

Duquesne Light spokesman Joseph Vallerian said the pledge program was developed in response to a 2008 state law mandating reduced consumption among all customers.

Mr. Vallerian said the pilot schools were chosen, in part, because of past participation in the company's "Watt Do You Know Game Show" educational assemblies.

At least 13 schools are expected to participate in the pledge program in the spring, but the names have not been released. A school may participate in the educational fundraiser only once, but other schools in the same district are eligible, he said.

To Eden Hall Parent-Teacher Organization Vice President Holly Montanari, such an "electrifying" opportunity "seemed like a no-brainer." Eden Hall had a 70 percent participation rate, said Mrs. Montanari, of Pine, noting that not all Eden Hall families are Duquesne Light customers.

For information, visit www.duquesnelight.com/wattchoices. Jennifer Kissel: suburbanliving@post-gazette.com.

Pittsburgh Board of Public Education
School District of Pittsburgh
Facilities/Plant Operations
#8 South 12th Street Pittsburgh, PA 15203
Phone (412) 488-5120 Fax (412) 488-5124

EXCELLENCE FOR ALL

February 09, 2010

MCR Performance Solutions, LLC.
400 Skokie Boulevard
Northbrook, IL 60062

Dear Cindy:

Thank you for implementing the Duquesne Light School Energy Pledge Program in the Pittsburgh School District. The presentation that Colleen Mackin and you gave during our S.E.C.T.E.M. awards ceremony was very well received. The follow-up meeting with Dave Defide and you answered many of the technical questions the District had regarding Act 129.

Thank you for all your support. I look forward to working with Duquesne Light and you in the future.

Sincerely yours,

Donald Berg
Chief of Plant Operations

Linwood Holton Elementary
Suzanna Raffenot, parent volunteer who was the school's liaison for the project
(804) 261-5551
sraffenot@verizon.net

Scope: SEI staff coordinated and led a half-day teacher webinar training on SEI's climate protection curriculum, Protect Your Climate (PYC) program, to five teachers from Linwood Holton Elementary in 2010. The PYC curriculum contains 16 lessons for 4th and 5th grades that are geared toward helping students understand the science behind climate change and investigate different actions to reduce greenhouse gas emissions. All the five teachers who participated in the webinar taught the lessons in their classrooms.

San Luis Obispo County
Gary Arcemont, Air Quality Specialist, San Luis Obispo County Air Pollution Control District
(805) 781-5743
garcemont@co.slo.ca.us

Scope: SEI staff led three in-person training sessions with K-12 teachers in 2010 and 2011 to implement the Protect Your Climate curriculum in the San Luis Obispo County, in partnership with the San Luis Obispo County Air Pollution Control District. A total of 32 teachers participated in the training program and have committed to teaching the PYC curriculum in their classrooms.

Appendix A – Resumes

SANDRA L. WALLENSTEIN, Ed.D.

Profile

Sandy is a professional with broad expertise in the development and implementation of environmental education programs in the K-12 sector and higher education settings. She is extremely well practiced in training teachers, adults and students to take leadership roles in promoting environmental education and specifically, climate protection programs.

Experience

Strategic Energy Innovations—San Rafael, CA 2008 – Current
Program Director, K-12 Education

Marin Conservation Corps—Marin, CA 2006 – 2007
Manager, Recycling Environmental and Americorps Program

- Managing $2.5 million annual program budget, guiding staff who supervise corpsmember programs fostering environmental research and stewardship, recycling and education in Marin's schools and parklands.
- Spearheading the Corp's expansion into Sonoma County and establishing a Sustainable Horticulture Center located at the College of Marin

Catalyst Consulting—Fairfax, CA 1995 – Current
Owner

- Consulting services provided to non-profit organizations and businesses in strategic planning, program evaluation including research design, data collection and analysis, employee recruitment, and grant writing.
- Evaluation of educational programs in school districts and counties throughout San Francisco Bay Area (Berkeley, Hayward, Alameda, Marin)

Environmental Education Council of Marin—San Rafael, CA 2000 – 2005
Founding Executive Director

- Built K-12 teacher networks, sustainable business networks, and collaborations of environmental groups, working with hundreds of non profit and for profit organizations
- Fostered dynamic projects based on primarily volunteer efforts including: food systems project connecting farm to school community; sustainable business network with quarterly forums for businesses to learn about sustainable practices; environmental health academy bringing grassroots leaders from underrepresented parts of Marin into leadership positions
- Spearheaded effort to develop regional assessment strategies and outcomes in environmental education
- Raised 2 million dollars in grant funding from private and State foundations, as well as private contributions, to fund council, EECOM.

- Oversight of marketing and communications efforts including bi-monthly newspaper column, weekly radio show, quarterly email newsletter, and resource rich website

Ross Valley School District—Marin County, CA 1996 – 1999
Director of Curriculum

- Led academic program for high achieving K-8 school district in all subjects. Facilitated district wide standards based professional development.
- Created gifted and talented program.
- Worked with leadership team of principals and superintendent to build an atmosphere of respect during a period of testing mania.
- Led text book adoption process

Department of Education, John F. Kennedy University—Orinda, CA 1989 –1996
Founding Chairman

- Established progressive teacher education multiple subject and single subject credential program with Master's degree. Program based on interdisciplinary, anti-bias approach, and urban issues.
- Initiated urban scholarship program for low income students with 100K federal grant
- Received superior ratings from California State accreditation board.

Department of Liberal Studies, John F. Kennedy University—Orinda, CA 1984-1989
Chairman and Core Faculty

- Worked with and supervised faculty to build thematic strands within curriculum: Humanities, Living Systems, Communication and Culture
- Responsible for student enrollment, budget allocations, marketing efforts, program review and overall operations.

Teaching Appointments

Dominican University, Education Dept., Adjunct Professor, San Rafael, CA 2000 – 2002

John F. Kennedy University, Education Dept., Assoc. Professor, Orinda, CA 1994 – 1996

John F. Kennedy University, Liberal Studies and Ed. Depts., Core Faculty, Orinda, CA 1984 – 1994

New College, Humanities Program, Adjunct Professor , San Francisco, CA 1988 – 1990

San Francisco State University, Women's Studies Dept. Adjunct Professor, San Francisco, CA 1981 – 1983

Antioch West, Undergrad. Program, Adjunct Professor, San Francisco, CA 1982

Education

Ed.D. University of Rochester, Curriculum Theory 1980

M.Ed. University of Rochester, Education in Social Contexts 1976

B.A. University of Rochester, Psychology 1973

THOMAS CROOKS

Professional Experience

Thomas Crooks has more than 30 years of energy industry experience. He has been retained by energy commissions, utility commissions, energy utilities, electric distribution, transmission and generation cooperatives, statewide associations, city governments, state agencies and large end-use energy consumers located throughout the United States and Canada. Mr. Crooks possesses a comprehensive understanding of the technical, financial and programmatic approaches to energy-efficiency and direct load control. This experience includes developing and applying computer based models that forecast the technical, economic and program achievable energy efficiency potential across diverse geographies and climates. He planned, implemented and evaluated energy efficiency programs for utilities located throughout the U.S. serving a broad range of consumer target markets. Mr. Crooks has an extensive background within the energy efficiency regulatory regime, knowledge of evolving state and federal policy and a strong professional network.

Professional Experience

Director Energy Efficiency, MCR Performance Solutions, LLC. (2006 – Present)

Associated Director, Navigant Consulting, Inc. (2001 – 2006)

Southern California Edison (1991 - 2001)

2000 - 2001 Senior Advisor - Energy Supply and Management

1995 - 2000 Senior Manager - Business Strategy and Planning

1994 - 1995 Supervisor Third-Party Contracts Residential and Nonresidential EE Programs

1991 - 1993 Manager – Commercial/Industrial/Agriculture Energy Efficiency Programs

Project Experience

MCR Performance Solutions (MCR) 2006 to present: Since joining MCR in May 2006, Mr. Crooks provides client services primarily within the energy efficiency (EE) policy and program development areas, prototypical work is described below:

- **Duquesne Light Company (Duquesne)**: Mr. Crooks forecast the technical, economic and achievable energy efficiency potential for the residential, commercial and industrial customer sectors. He prepared energy efficiency and demand response (EEC & DR) program plans filed by Duquesne with the Pennsylvania Public Utilities Commission pursuant to Pennsylvania Act 129 of 2008. He provided testimony accompanying Duquesne's EEC & DR Plan filing and was Duquesne's witness during evidentiary hearings. Mr. Crooks drafted requests for proposals to implement approved programs, evaluated proposals and drafted associated contract statements of work. He led a team to develop and subsequently authored the final portfolio EM&V Plan and managed its approval process with PUC Statewide Evaluators (SWE). 'Crooks directed the 2009 program year portfolio impact evaluation and drafted the

2009 EM&V Report accepted by the SWE. Additionally, 'Crooks negotiated public agency partnership memoranda of understanding executed by several local governmental agencies resulting in energy efficiency projects to achieve Act 129 mandated reductions. Mr. Crooks was relied upon to review and/or develop energy efficiency project plans and develop site-specific custom measure M&V protocols.

- **Southern California Edison Company (SCE)**: Mr. Crooks supported SCE's energy efficiency program quality control and planning by reviewing 28 program implementation plans for the 2010-2012 funding cycle. Additionally, he assisted by developing planning, management and reporting methodologies for SCE's 19 local government partnership energy efficiency programs. Mr. Crooks worked with SCE staff to develop program planning linkage between energy efficiency potential forecasts, emerging technologies as well as state and federal efficiency codes and standards. Mr. Crooks is retained on an on-going basis to serve on SCE's negotiator's team responsible for negotiating contract statements of work for third-party implemented energy efficiency programs.
- **New York State Department of Public Service**: Assisted in drafting the Department's plan to ramp-up energy efficiency programs to achieve the state's "15/15" energy reduction targets (15/15 - Executive order to reduce state energy consumption to levels 15% below 2006 levels by 2015). Analysis supported sector specific recommendations to expand New York State Energy Research and Development Authority (NYSERDA) fielded energy efficiency programs by a factor of nearly four to achieve targeted energy use reductions. Programmatic focus: up-stream rebates, small commercial direct install and low-income programs.
- **Kansas City Power & Light (KCP&L)**: Mr. Crooks was retained by KCP&L to support their energy efficiency planning activities is three areas: (1) Energy efficiency program rebate derivation - Using payback acceptance probabilities, assisted the utility to set appropriate incentive (rebate) levels and estimated market penetration based on selected incentive levels; (2) forecast the effects on future energy efficiency program measure content given evolving federal efficiency standards, and (3) assisted KCP&L to develop an innovative schools energy efficiency program, the Pledge for Energy Efficiency Drive Program.
- **Similar Support Was Provided for the Following Clients:**
  - Wabash Valley Power Association (28 member electric distribution utilities)
  - Duke Energy Corporation
  - Oklahoma Gas and Electric Company (OG&E)
  - California Public Utilities Commission (Rulemaking 06-04-010 water/energy EE policy)
  - California Energy Commission (CEC) - Water and Energy Policy Development
  - California Energy Commission Public Interest Energy Research (PIER)

Education

B.T., Industrial Process, Oregon State Institute of Technology, Klamath Falls, 1977

Certificates

- HESI - PROSYM Electric Energy Production Cost Modeling
- HESI – EMSS Advanced Regional Modeling

- EPIS - Aurora - Electric Market Modeling
- Oxford Princeton Programme - Commodity Derivatives

Professional Associations

Association of Energy Engineers, Past Director Southern California Chapter

EUN-SOO LIM

Profile

Eun-Soo has extensive background in climate change policy and science, with a special interest and focus in program implementation involving local governments and youth.

Work Experience

Strategic Energy Innovations – San Rafael, CA 04/07 – Present

Project Coordinator

- Heading the support for greenhouse gas emissions inventory analysis and/or Climate Action Plan development for the City of El Cerrito, City of San Pablo, City of Gilroy, City of Walnut Creek, and City of Visalia, CA.
- Heading Northwest Energy Efficiency Council's Building Operator Certification class site-coordination and marketing program in the Bay Area.
- Providing support into the implementation and development of energy-efficiency and renewable energy programs that foster clean energy communities in the San Joaquin Valley, CA.
- Providing support for regionalizing best practices for climate planning in the Bay Area municipalities through the development and implementation of climate policies and programs.
- Developing sustainability audit toolkits for small businesses and homes and training youth on those audit techniques.

City of Oak Harbor – Oak Harbor, WA 08/06 – 10/06

ICLEI Program Assistant (Extension of ICLEI position below)

- Initiated implementation of recommended measures for cutting emissions laid out in City's Climate Action Plan. Measures include lighting upgrades and installation of energy-saving devices at City facilities based on existing incentives from local utility.
- Coordinated and presented talks on climate change, energy efficiency and conservation to various community service groups.

ICLEI – Local Governments for Sustainability, U.S.A – Oak Harbor, WA 06/06 – 08/06

Summer Program Assistant for Cities for Climate Protection Campaign in the Pacific Northwest

- Conducted a GHG emissions inventory through the use of ICLEI's Clean Air & Climate Protection software for both the community and city government of Oak Harbor, WA.

- Working closely with city officials and staff, developed a Climate Action Plan for Oak Harbor, which includes proposed GHG emissions reduction target and recommendations of various measures for reducing emissions along with their cost-benefit analysis.
- Presented preliminary results of GHG emissions inventory and recommendations of Action Plan to the Mayor and City Council of Oak Harbor.

GridPoint, Inc. – Washington, DC 11/04– 07/05

Policy Analyst

- Created and managed a database of U.S. state incentives for solar photovoltaic (PV) renewable energy systems, Renewable Portfolio Standards and Renewable Energy Certificate markets.
- Created a database of U.S. solar PV system installers, dealers, distributors, and manufacturers.
- Researched, compiled, and distributed daily e-news reports to all GridPoint employees on relevant industrial renewable market updates, in particular, solar PV markets.

The Climate Institute – Washington, DC
Climate Policy Intern 05/04 –10/04

- Assisted in the research and write-up of a report for the U.S. Environmental Protection Agency assessing the impact of climate change and climate variability on water availability and management in the U.S.-Mexico border region.

Research Associate 10/04– 07/05

- Completed the above report for the U.S. Environmental Protection Agency.
- Researched climate change topics such as the influence of global warming on hurricanes and water availability.

Lamont-Doherty Earth Observatory of Columbia University–Palisades, NY 09/02– 05/03

Researcher

- Conducted a research project/senior thesis on past climate conditions during the Holocene Period in the tropical Atlantic through Mg/Ca proxy obtained from planktonic foraminifera *Globigerinodies ruber*. Involved sampling and washing deep-sea core sediments, extraction of foraminifera, and Mg/Ca paleothermometry.

Education

M.A., Climate and Society, Graduate School of Arts and Sciences 2006
Columbia University, New York, NY,
Relevant coursework: Managing Climate Variability and Adapting to Climate Change; Dynamics of Climate Variability and Change; Alternative Energy Resources; Energy Management & Policy: Renewable Energy in NYC

B.A., Environmental Science, *summa cum laude* 2003
Barnard College, New York, NY

Biosphere 2 Center, Columbia University – Oracle, AZ 2001
Semester abroad program: concentration in Environmental Science and Biology

WILLIAM CUNNINGHAM

Professional Experience

Bill Cunningham is a system administrator who maintains databases (MS SQL and Oracle) and an Exchange Server (MS 2003). He has expertise in creating and maintaining web servers (MS IIS and Apache – Linux or Unix) as well as establishing protocols for network and security systems.

Bill has worked on numerous MCR client projects where he prepared testing plans, and tested new software for quality assurance. He has also provided training for clients in database use/maintenance and proprietary software systems and developed documentation for user manuals.

Relevant Professional History

IT Support Specialist, Utilities International. (1998 - 2001)
Traveled to clients' facilities (utility companies) to build and maintain servers (enterprise and standard editions), database, networks, and back up systems. Established protocols in very secure environments. Built and maintained a development environment for Java and Visual Basic developers. Configured laptops for traveling financial consultants. Built strong relationships with clients based on fast, efficient service.

Publishing Solutions. (1995 - 1998)
Implemented systems integration for clients in the publishing industry. Troubleshot hardware and software issues. Created online web catalogs. Wrote training manuals for company administrators.

Relevant Project Experience

Bill is responsible for managing the processing and reporting for the School Energy Pledge Program™ using customized software. He also manages the database containing the submitted data for the program, including backup and disaster recovery procedures.

Education

B.A., English, The University of Akron

MARK D. CAUDILL

Profile

Mark Caudill is a Vice President and he leads the Natural Gas Regulatory Practice at MCR. He has more than 30 years of energy utility regulatory, legal, and management experience, including work before numerous state commissions and the Federal Energy Regulatory Commission. Over the years, Mark has served producers, interstate pipelines, local distribution companies, marketers and their regulators.

Prior to joining MCR, Mark was Vice President for Energy Competition, and Corporate Secretary and Vice President for Rates and Regulatory at AGL Resources. Mark also served as the Director of State Regulatory Affairs for Southern Natural Gas Company and Sonat. At the Federal Energy Regulatory Commission, Mark served as the Deputy Assistant General

Counsel and Special Assistant to the Deputy General Counsel. At the United States Department of the Interior, Mark was the Acting Assistant Solicitor and Attorney Advisor – Surface Mining.

Alternative Cost Recovery Techniques Experience
Developed and obtained regulatory approval for various tariffs and riders to address revenue stabilization, weather variances, and infrastructure projects. Obtained regulatory and legislative authorization for some of the earliest weather normalization and economic development cost recovery tariff provisions. Drafted legislation, amendments, testimony, petitions for rulemakings, comments, regulatory applications, pleadings, position papers, and presentations to support legislative and regulatory initiatives related to alternative cost recovery mechanisms. Provided expert testimony in support of alternative rate designs.

Rate Design Experience
Designed rates and drafted tariffs for energy transmission, storage, distribution, and peaking services for residential, commercial and industrial customers.

Energy Efficiency Experience
Develop demand-side management strategies encompassing energy efficiency, conservation and demand response programs. Represented natural gas companies and interveners in various energy efficiency and demand response dockets.

Expert Witness Experience
Developed and presented testimony on a range of topics, including rate design, regulatory policy and support of negotiated stipulations. Developed and supported testimony for others for policy, cost of service studies, cost allocation, O&M, capital spending, depreciation, capital structure, cost of equity, cost of debt, revenue allocation, service unbundling, competitive metering and billing, energy efficiency, consumer education and rate design. Frequently conducts witness effectiveness training programs.

Merger, Acquisition, and Transactional Experience
Organized a group of small and mid-sized companies into a cooperative to achieve economies of scale in procuring shared services. Led numerous comprehensive strategic planning initiatives. Led the assessment of merger and acquisition, and joint venture opportunities for natural gas companies. Directed multi-disciplined teams in conducting business diligence. Actively engaged in negotiations related to such opportunities. Successfully formed joint ventures and accomplished acquisitions. Guided transition and integration teams to capture synergies.

Management and Teaching Experience
Worked with senior executives and middle managers to design and implement business and regulatory solutions to enhance operations, manage risks and improve earnings. Restructured environmental remediation programs for manufactured gas plant sites, including renegotiating engineering and construction contracts, and obtaining regulatory approvals and cost recovery. Conducted audits and reviews for senior management and for boards of directors for compliance with state and federal regulations. Led workshops and presentations for board members and senior officers. Led initiatives to develop comprehensive energy plans.

Managed a multifunctional rate department, a regulatory affairs department, an office of the corporate secretary, and various legal divisions. Led numerous cross-functional teams to develop rate case and regulatory strategies, demand response objectives, and redesign of customer service, rates and operations groups.
Faculty member for the Southern Gas Association rate schools. Regular presenter at numerous utility, bar association and regulatory conferences.

Deregulation Experience
Managed, advised and directed initiatives to unbundle services and rates in multiple jurisdictions. Led and participated on teams related to strategic planning and implementation of new processes associated with customer choice. Led cross-functional teams to develop strategies for comprehensive customer choice programs (downstream natural gas unbundling). Advocated positions as an expert in designing and implementing programs to foster competitive wholesale and retail energy markets.

Supply and Capacity Experience
Managed filings for capacity and gas supply plans, as well as purchased gas cost reviews.

Legal Engagements
Selected legal engagements have included:
- Represented clients in all phases of complex financing transactions, including equipment, generation facilities and utility plant financing
- Negotiated and drafted development agreements, construction agreements, financing commitments, operating agreements and management agreements for multiple major projects
- Represented clients before numerous regulatory boards and agencies

Consulting Engagements
Selected consulting engagements have included:
- Counseled clients regarding state (PUC) and federal (FERC) energy policies and regulations
- Designed rates (traditional and alternative cost recovery mechanisms) and drafted tariffs for energy transmission, storage, distribution and peaking services
- Led cross-functional teams to develop strategies for comprehensive customer choice programs (downstream natural gas unbundling)
- Drafted legislation, amendments, testimony, petitions for rulemakings, comments, regulatory applications, pleadings, position papers and presentations to support legislative and regulatory initiatives
- Conducted witness-effectiveness training sessions in support of regulatory filings
- Advocated positions as an expert in designing and implementing programs to foster competitive wholesale and retail energy markets
- Restructured environmental remediation program for various manufactured gas plant sites; included renegotiating engineering and construction contracts, and obtaining regulatory approvals and cost recovery
- Conducted audits and reviews for compliance with state and federal regulations
- Led workshops and presentations for board members and senior officers

- Worked with senior executives and middle managers to design and implement business and regulatory solutions to enhance operations, manage risks and improve earnings
- Taught classes and conducted workshops for energy associations, bar associations, and energy companies on regulatory policy and the ratemaking process

Education

Doctor of Jurisprudence
Cumberland School of Law, Birmingham, Alabama, 1977-1980. J.D. awarded (Cum Laude) May 25, 1980. Associate Editor, Cumberland Law Review; Curia Honoris; American Jurisprudence Book Awards; National Mock Trial Team; Order of the Coif.
Bachelor of Arts
Samford University, Birmingham, Alabama, 1973-1977. A.B. awarded (Cum Laude, History/Political Science) May 28, 1977. Kiwanis Foundation Scholarship.

CYANE B. DANDRIDGE

Profile

Ms. Cyane Dandridge is the Executive Director of *Strategic Energy Innovations*. She has over 20 years experience in business management and energy policy. Her areas of expertise include establishing new business concepts and combining a technical and policy or business-oriented approach to energy efficiency.

Experience

Executive Director, Strategic Energy Innovations—San Rafael, CA 1997- present

Created, established and manages Strategic Energy Innovations (SEI), a nonprofit organization dedicated to community and business empowerment around energy issues.

- Convener to the California Public Utilities Commission for Low Income Energy Efficiency (LIEE) programs for all California Investor Owned Utilities.
- Serves as a lead consultant to the Marin Community Foundation on their climate change strategic initiative that includes analyzing best practices and devising recommendations for the Foundation to advance energy/water efficiency and renewable energy.
- Helped establish the Green Campus and Green Dorm programs, engaging students in campus-based green practices.
- Designed low-income energy efficiency and sustainability programs for existing multifamily buildings in California.
- Designed energy efficiency school programs and curriculum for multiple utilities and air districts across the country.
- Developed the U.S. Department of Energy's Rebuild America regional Peer Exchange and Peer Mentoring program.
- Built a roadmap for California's Central Valley, to determine economic and workforce development strategies through energy efficiency and renewable energy. Helped established the CV Clean Energy Organization.
- Provides a variety of assistance relating to energy policy/sustainability to communities in Northern California for multiple funding partners.

- Developed community-oriented energy policies with the States of Hawaii and Nevada.
- Researched procurement practices relating to energy efficiency for local governments.

Director, ReEnergize East Bay—Oakland, CA 1995-1997

Established and managed the US Department of Energy's Rebuild America program in the San Francisco Bay Area. Designed and implemented new business models and delivery mechanisms to develop a community-oriented infrastructure to dramatically increase the implementation of energy-efficiency. Annual budget in excess $800,000.

Program Manager, Environmental Protection Agency—Washington, DC 1994-1995

Developed design, implementation and marketing plans for eight new voluntary energy-efficiency programs under the Energy Star label within an eight-month time period. Products include office equipment, and residential heating and air conditioning equipment. Promoted programs through extensive public speaking to industry, utilities, purchasers, energy managers, public interest groups and the general public. Supervise five staff members, manage program budget in excess of $300,000.

Research Associate, Mass. Institute of Technology—Cambridge, MA 1992-1994

Developed technical and policy analyses for international programs on energy-efficient office equipment. Established test procedures for the Energy Policy Act Testing and Information Program for Office Equipment. Produced technology assessment and comparison of energy-efficient office technologies.

Research Associate, University of Bordeaux—Bordeaux, France 1993

Researched and authored a comparison of policies for energy-efficient office technology in Europe, Japan and the United States.

Senior Engineering Technician, Intel Corporation—Portland, OR 1991

Tested quality and reliability of bipolar transistors. Developed process for chip address system.

Founder/President, The Furies Cleaning Service—Wellfleet MA 1985-1991

Established and operated business with a six year growth rate of over 100 percent annually. Directed marketing plan, business development and public relations. Managed and performed personnel functions for 15+ employees.

Education

Massachusetts Institute of Technology, Cambridge, MA 1994
MSc, Building Technology. Thesis: "Energy Efficiency in Office Technology." Focus on business management and energy efficiency in buildings.

University of Bordeaux, Bordeaux, France 1994
Degree des Etudes Superieur. Thesis: "Energy Efficiency in Office Equipment: A Policy Comparison Between Europe, Japan and the United States."

Reed College, Portland, OR 1989
BA, Physics. Thesis: "The Effect of the Sun on the Earth's Atmosphere." Sunlight energy levels. Greenhouse Effect, IR radiation. Minor in Anthropology.

EXHIBIT__(PKP-3)

Piedmont Natural Gas Company, Inc.
Tennessee Operations

School Energy Pledge™ Program

Table 1: Participating Household Savings Annual Impact

EE Kit Measure	Energy Savings (MBTU)		Avoided Cost	
	All-Electric	Gas Space & Water Heating	All-Electric	Gas Space & Water Heating
Low Flow Showerhead	1.214	2.386	$139.24	$68.04
Faucet Aerators	0.352	0.751	$40.41	$21.42
13W CFL	0.143	0.143	$14.76	$14.76
20W CFL	0.159	0.159	$16.83	$16.83
Furnace Whistle	0.132	0.737	$13.29	$15.93
Limelight (nightlight)	0.075	0.075	$6.55	$6.55
Total EE Kits Savings	2.075	4.251	$231.09	$143.54

Table 2: Evaluation, Measurement and Verification Study Findings for 3 Other Programs

Measure Installations	Iowa		South Carolina		Indiana		Average		Avoided Cost	
	Electric kWh	Gas Therms	Electric kWh	Gas Therms	Electric kWh	Gas Therms	Electric kWh	Gas Therms	Electric	Gas
CFL-1	80		28		95		68		$26.48	
CFL-2	75		34		66		58		$22.83	
Low-Flow Showerhead	101	20.7	330	5.4	224	7.4	218	11.2	$85.44	$31.85
Faucet Aerator - Kitchen	30	6.1	89	1.1	59	1.9	59	3.0	$23.22	$8.65
Faucet Aerator - bathroom	44	9.4	195	2.4	29	1.0	89	4.3	$34.96	$12.17
Filter Tone Alarm	8	15.8	48	4.4	28	1.9	28	7.4	$8.34	$15.93
Education Impacts										
Adjust Hot Water Heater	17	4.2	67	1.0	31	1.9	38	2.4	$7.30	$3.28
Adjust Space Heating	58	31.5	161	13.4	108	27.2	109	24.0	$20.75	$33.31
Adjust Air Conditioning	17		26		55		33		$6.22	
Adjust Refrigerator or Freezer	8		8		1		6		$1.08	
Reduce Hot Water Use	22	3.5	90	0.8	696	41.3	269	15.2	$51.26	$21.06
Total	460	91.2	1,076	28.5	1,392	82.6	976	67.4	$287.87	$126.24

Source: US Department of Energy, Energy Efficiency & Renewable Energy Office National Weatherization Training Conference July 22, 2009, Low Cost Kit Case Study, M. Blasnik & Associates

Table 3: Energy Savings Projections for the SEP Program Kit

Kit Savings Bases

Measure	Savings			Avoided Cost		
	Electric kWh	Electric MBTU	Gas MBTU	Electric	Gas	EUL
Low Flow Showerhead	355.8	1.214	2.386	$139.24	$68.04	7
Faucet Aerators	103.2	0.352	0.751	$40.41	$21.42	7
13W CFL	42.6	0.143		$14.76		6
20W CFL	48.6	0.159		$16.83		6
Furnace Whistle	44.6	0.132	0.737	$13.29	$15.93	5
Limelight (nightlight)	22.0	0.075		$6.55		5
Total	616.9	2.075	3.874	$231.09	$105.39	

EUL - Estimated useful life in years. The lowest EUL is taken from the sources referenced below.

Table 4: SEP Program Study Results by Kit Component

Measure	Source	Savings		
		Electric kWh	Electric MBTU	Gas MBTU
Low Flow Showerhead	Arkansas Statewide	190	0.648	0.848
	Connecticut TRM	663	2.261	3.540
	Efficiency Vermont	260	0.887	
	FEMP Watergy	442	1.508	
	Massachusetts TRM	80	0.274	
	New Jersey TRM	178	0.607	
	NY Multi-Family	710	2.423	4.039
	Pennsylvania TRM	461	1.573	
	US DOE	218	0.745	1.117
	Average	356	1.214	2.386
Faucet Aerators	Arkansas Statewide	140	0.478	
	Connecticut TRM	20	0.068	0.944
	Efficiency Vermont TRM	45	0.154	
	FEMP Watergy	207	0.706	
	Massachusetts TRM	80	0.274	
	New Jersey TRM	178	0.607	
	NY Multi-Family	166	0.566	0.944
	Pennsylvania TRM	61	0.208	
	US DOE	74	0.254	0.365
	Average	103	0.352	0.751
CFLs 13W	Efficiency Vermont	44	0.151	
	Massachusetts TRM	24	0.151	
	New Jersey TRM	50	0.147	
	NY Multi-Family	36	0.080	
	Pennsylvania TRM	43	0.124	
	US DOE	58	0.199	
	Average	43	0.143	N/A
CFLs 20W	Efficiency Vermont TRM	44	0.151	
	Massachusetts TRM	24	0.151	
	New Jersey TRM	50	0.173	
	NY Multi-Family	56	0.169	
	Pennsylvania TRM	51	0.080	
	US DOE	68	0.231	
	Average	49	0.159	N/A
Furnace Whistle	Iowa Evaluation	7	0.024	
	Pennsylvania TRM	115	0.024	
	South Carolina Evaluation	40	0.392	
	Southern CA Edison	43	0.096	
	US DOE	28	0.119	0.737
	Utah Evaluation	35	0.136	
	Average	45	0.132	0.737
Limelight (nightlight)	Pennsylvania TRM	22	0.075	N/A

Source Title	Source:
Arkansas Statewide Study	Deemed Savings, Installation & Efficiency Standards, Arkansas Statewide Quickstart Programs, Frontier Associates, April 2007
California Program Evaluation	2001 SCE Schools Program Evaluation, Ridge & Associates
Connecticut TRM	Connecticut Energy Efficiency Fund, United Illuminating Company and Connecticut Light & Power Company Program Savings Documentation for 2011 Program Year
Efficiency Vermont TRM	Efficiency Vermont Technical Reference Manual (TRM) User Manual No. 2008-53, July 18, 2008
Iowa Program Evaluation	Quantec Impact Evaluation of 2005-2006 Iowa Schools Based Program.
Massachusetts TRM	Massachusetts Technical Reference Manual for Estimating Savings from Energy Efficiency Measures, October 2010
New Jersey TRM	New Jersey Board of Public Utilities, New Jersey Clean Energy Program, Protocols to Measure Resource Savings, December 2009
NY Multi-Family	New York Standard Approach for Estimating Energy Savings from Energy Efficiency Measures in Multifamily Programs, Prepared for the New York Department of Public Service by New York Evaluation Advisory Contractor Team, July 9, 2009
Pennsylvania TRM	State of Pennsylvania, Public Utilities Commission, Act 129 Energy Efficiency and Conservation Program Technical Reference Manual June 2011
South Carolina Program Evalu	Quantec Impact Evaluation of 2004-2005 South Carolina Schools Based Program.
US DOE	US Department of Energy, Energy Efficiency & Renewable Energy Office National Weatherization Training Conference July 22, 2009, Low Cost Kit Case Study, M. Blasnik & Associates. Verification study findings of savings impacts for programs implemented in Iowa, South Carolina and Indiana that provided energy efficiency kits and education.
Utah Program Evaluation	Quantec Impact Evaluation of 2001 Utah Schools Based Program.

EXHIBIT__(PKP-4)

OTD

Operations
Technology
Development

Offering - Operations Technology Development

An LDC Partnership Program

For many years, natural gas local distribution companies (LDCs), both public and investor owned, have recognized the value of supporting technology developments for their customers and their own infrastructure. Industry-supported technological advances have provided improvements in the quality of service, reduced costs, greater efficiency, enhanced safety, and considerable environmental benefits. LDCs have also recognized the importance of leveraging their investments with others who have similar interests to minimize the risks and improve the potential for success. Given this need, LDCs are pursuing funding alternatives to support critical technology developments.

One of these alternatives was to create an entity where utilities come together as partners to jointly fund potential technology development solutions to common issues. The concept is not new. Gas Technology Institute (GTI) developed and evolved a program called the Sustaining Membership Program (SMP) that allows utilities to partner and decide which projects best address their mid- to longer-term needs. The SMP has two decision-making bodies comprised of utility representatives: an executive committee that focuses on strategic issues, and a technical committee that makes decisions on which projects to fund.

With GTI's history, management capabilities, and technology development expertise, a group of LDCs approached GTI in 2002 to work with them on further developing the concept. The primary areas to focus on were Gas Operations, End Use, and Environmental Science. Gas Operations was identified as the first area to address.

Under the partnership program, Operations Technology Development (OTD) was created, similar in structure to the SMP. After several individual meetings and two group

meetings with LDCs, GTI initiated, on behalf of a select group of utilities, a not-for-profit Illinois company called Operations Technology Development, NFP, in June 2003.

The scope of the OTD program includes mid- to near-term technology developments. Each OTD member nominated an individual from their company to serve on the Board of Directors and an individual to serve on the Technical Project Committee. The participants vote with their funds by choosing which projects best address their customers' and utility operations' needs.

Background and LDC Needs

LDCs have traditionally placed great importance on the safety and reliability of the operation of the gas distribution network. Throughout the United States, LDCs provide natural gas service to over 50 million residential, commercial, and industrial customers. These end users receive safe, reliable gas service through the focused efforts of the gas company, and through the use of new technologies that enhance field operations.

The development and implementation of new technology for gas industry field operations, whether new tools, equipment, processes, or procedures, has allowed the industry to continually improve operations while reducing operating costs. Since 1995, the gas industry has reduced its annual costs for operations and maintenance from $3.2 billion to $2.8 billion. Although significant, additional development and implementation of new technology can further enhance these savings while having a positive impact on safety, operating efficiency, labor requirements, reliability, and integrity.

Today, LDCs continue to support the need to develop technology solutions for the natural gas industry and the gas consumer, but place a stronger emphasis on working collaboratively. This is especially apparent in the distribution operations area. There are numerous benefits to working collaboratively to develop technology solutions for LDCs including: the leveraging of funds (no single LDC is responsible to carry the entire financial burden); the ability to gain the interest of a commercializer based on broad industry support; and using input from numerous expert sources that result in a stronger solution. There is also a significant benefit to working collaboratively on programs or projects that can impact regulatory issues, such as pipeline integrity management.

Operations Technology Development Program Overview

Operations Technology Development (OTD) develops, tests, and implements new technology, providing solutions to a wide range of issues relating to gas operations and its infrastructure. It is designed to provide new tools, equipment, software, processes, or

procedures that will enhance safety, increase operating efficiency, reduce operating costs, and help maintain system reliability and integrity.

PROGRAM SIZE AND SCOPE

The program seeks the long-term participation of 15 to 25 LDCs. The cost of participating in OTD is between $150,000 and $750,000 per company per year. The number of customers, at 50 cents per customer, determines the funding level for each participant. Each participating company votes with their funds when selecting projects of interest. In the case where companies fall significantly below the $150,000 range, aggregation can be an option providing it adheres to a set of guidelines approved by the OTD Board. For example, the APGA Research Foundation aggregates the financial resources of its members and participates in OTD as a single company.

The minimum amount determined to sustain a viable gas operations technology development program today is approximately $15 million/year. The goal of OTD is to secure $10 million/year from the LDCs and leverage the funds with other organizations.

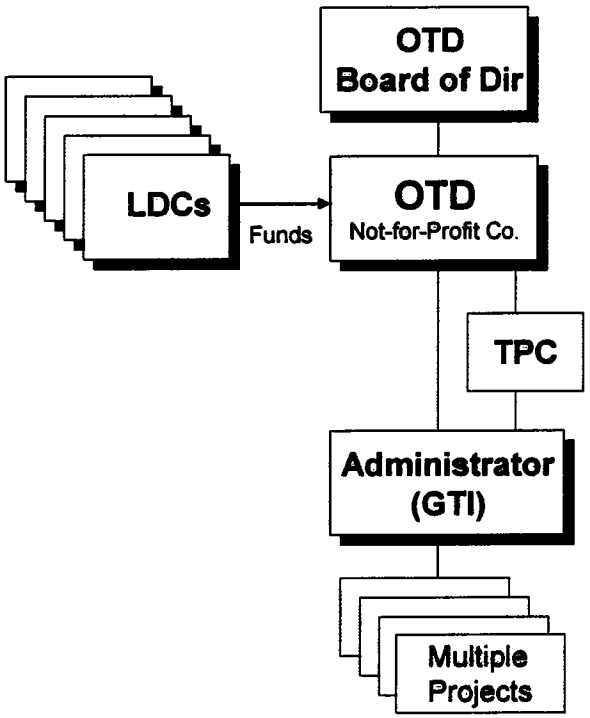
The OTD program focuses its technology development efforts on distribution and transmission activities identified by the members. The RD&D program includes a mix of short-term (less than 3 years) quick-response research, engineering, or testing activities; and mid- to longer-term research projects (3-7 years to implementation). The current OTD projects are divided into the following six project categories:

- Pipe and Leak Location
- Pipe Materials, Repair and Rehabilitation
- Excavation and Site Restoration
- Pipeline Integrity Management and Automation
- Operations Infrastructure Support
- Environmental Science and Forensic Chemistry

OTD GOVERNANCE

The overall structure of this LDC partnership program is shown in Figure 1. OTD retains the assets of the Partnership. This includes the cash assets of the technology development budget and any intellectual property.

LDC Partnership Structure for Operations



Board Establishes
- Policies & Procedures
- Program Priorities

OTD Maintains Assets
- Cash
- Intellectual Property

Technical Project Committee (TPC)
- Defines Program
- Selects Projects
- Evaluates Results

Administrator Implements as Directed
- Completes Projects
- Manages External Projects
- Commercializes IP

FIGURE 1

OTD is a not-for-profit corporation, although it does not have any employees. GTI has contracted with OTD as the Administrator to perform and complete projects; manage projects external to GTI; and work with the appropriate commercialization partner to introduce the product into the marketplace. GTI also utilizes its staff and resources to provide support in contract administration, financial accounting, and management of the new technology program.

The OTD Board of Directors consists of one member from each participating company. The Board establishes the policy and procedures that governs the operation and conduct of the partnership, provides strategic guidance on program priorities, and sets long-term goals and objectives.

A Technical Project Committee (TPC) is comprised of representatives from the participating companies who are knowledgeable in gas industry operations and the challenges and problems they face. The TPC identifies the overall operational issues to be addressed in the program, and the specific topics that will be the focus of individual research projects. GTI, working with TPC members, identifies research and technology development options with

potential for providing solutions to the problems being addressed. The TPC reviews the progress of individual projects and provides direction on project continuations, terminations, and initiations. TPC members are also the main conduit for disseminating the results and deliverables from the program into their companies. This committee meets two or three times per year, and seeks to schedule meetings in coordination with other scheduled meetings of interest to the gas industry to limit travel and related expenses.

GTI functions as a provider of research and technology development services, the OTD Program Manager, and a manager of work conducted by others to address the identified problems. GTI's role in a given development effort is determined by the project participants and by the requirements of the project.

PROJECT FUNDING

A participating LDC has the option to fund or not fund an individual project. The program operates on a "customer choice" basis, with each member investing in the projects they wish to fund. Once participating companies elect to move a project forward, and the scope of work is finalized, the project participants may elect to seek additional project cofunders outside of the Partnership. Cofunders solicited may include federal and state government agencies, and product manufacturers/developers.

FUNDING PROCEDURE

Companies participating in the OTD program can provide their funding through one of two arrangements. A company may place their full amount of funding for a year or longer in a "hold account." Alternatively, a participating company may elect to receive periodic invoices for their participation. Payments received will be deposited into their hold account. Participants will draw down funds from their hold account and apply them to selected projects.

Funds received by OTD from a member are held in trust by OTD until the member representative directs OTD to allocate a specific dollar amount to a specific OTD project. Until allocation notice is received by OTD, a company's funds remain under the full direction and control of the participating utility. Unallocated funds remain the property of the OTD utility participant until allocated, at which time they will be transferred to OTD to support new technology development as directed by the company representative.