

**Act 129 Fuel Switching Working Group  
Responsive Comments of the  
UGI Distribution Companies  
March 12, 2010**

I. Response to First Energy Comments

1. Programs should be Voluntary

First Energy ("FE") argues that fuel substitution programs should be voluntary because

*[a]s the Companies are responsible to implement EE&C Plans to achieve the targets mandated by Act 129 and ultimately may be subject to significant penalties if the targets are not met, the Companies must have the necessary discretion to include (or exclude) those programs and measures that they believe will balance their EE&C plans to best achieve the aggressive goals of Act 129.*

UGI believes that (a) the degree of discretion sought by First Energy is simply not supported by the provisions of Act 129 nor appropriate given the incentives created by Act 129 and existing volumetric rate designs, (b) achieving energy efficiency through cost-effective fuel substitution measures should not increase the possibility of fines and should enhance the ability of EDCs to reach their Act 129 goals in a way that promotes the public interest, and (c) the fear of fines could easily be cured by the Commission.

A. Act 129

UGI believes that enlightened public policy, as reflected in the American Recovery and Reinvestment Act of 2009 ("ARRA") and the Commission's DSM declaratory order from the early 1990s, reviewed in *Pennsylvania Industrial Energy Users v. PaPUC*, 653 A.2d 1336 (1995), *aff per curium*, 670 A.2d 1152 (1996), would seek to deliver the significant potential benefits of energy efficiency to EDC customers and Commonwealth citizens by aligning the interests of EDCs with the goal of cost-effective energy efficiency. For example, Section 401(a) of the ARRA provides:

The applicable State regulatory authority will seek to implement, in appropriate proceedings for each electric and gas utility, with respect to which the State regulatory authority has ratemaking authority, a general policy that ensures that utility financial incentives are aligned with helping their customers use energy more efficiently and that provide timely cost recovery and a timely earnings opportunity for utilities associated with cost-effective measurable and verifiable efficiency savings, in a way that sustains or enhances utility customers' incentives to use energy more efficiently. (Emphasis added.)

The Commission has solicited comments concerning Pennsylvania's compliance with Section 401(a) of the ARRA at Docket No. I-2009-2099881, and currently has a working group seeking to develop appropriate rate mechanisms.

Act 129, however, has taken a different path. It has mandated energy and peak load reductions with (a) program cost recovery only, subject to cost caps, and (b) no possibility of recovering lost revenues until future base rate cases. It has required EDCs to initially propose programs to meet the specified goals, but has provided mechanisms for extensive review and ongoing supervision. It has established the possibility of fines for non-compliance, and provides for the possibility of future more stringent energy and peak load reduction goals if the Commission finds initial programs to be cost-effective. It does not provide for the decoupling of existing EDC volumetric rates or other timely rate relief mechanisms, and thus, effective Act 129 EE&C Plans are likely to lead to decreased EDC distribution revenues and earnings.

Within this framework, EDC financial interests are not necessarily aligned with promoting the most cost-effective or most energy-effective conservation measures, and EDCs will be likely to vigorously defend less cost-effective measures that preserve at least some electric load.

Given these existing incentives, the Commission should not, as First Energy suggests, rely on the energy efficiency program proposals of EDCs alone simply because EDCs would be subject to potential fines for non-compliance with initial goals set in Act 129, and instead has a statutory obligation to consider plan improvements proposed by others and to order program improvements if the evidence indicates that alternatives are superior.

Specifically, Section 2806.1(e) of Act 129 provides:

- (1) The commission shall conduct a public hearing on each plan and allow for the submission of recommendations by the office of consumer advocate and the office of small business advocate and by members of the public as to how the electric distribution company could improve its plan or exceed the required reductions in consumption under subsections (c) and (d).

(Emphasis added.)

The Commission also recognized that third parties should be provided the opportunity to suggest improvements to EDC-proposed programs noting:

We believe that the focus of Act 129 and TRC testing is not on particular technologies but rather on bottom line energy efficiency and demand reduction. As will be discussed later in the order, TRC testing will be at the plan level. This should give any new technologies sufficient opportunity to establish whether they are able to contribute to the energy efficiency and demand reduction goals of Act 129.

\* \* \* \*

While no commenter opposed testing the TRC at the plan level, the Joint Supporters, NAESCO, and OCA suggested that EDCs should also be required to calculate and provide information on the TRC at the program level as well. We shall adopt this recommendation that EDC plans should also provide information on the TRC at the program level. This will facilitate interested parties and this Commission in reviewing the balance of programs that EDCs select for their EE&C plans.

*Implementation of Act 129 of 2008 – Total Resource Cost (TRC) Test*, Docket No. M-2009-2108601 (Order entered June 23, 2009)(“TRC Order”), pp. 6 and 8-9. (Emphasis added.)

This statutory and TRC Order language would be unnecessary if third parties were not to be given the opportunity to propose plan improvements, and if the Commission were not obligated to consider and weigh the evidence presented rather than relying on EDC recommendations.

UGI and other Pennsylvania NGDCs, in reliance on the clear directive from the Commission in the TRC Order, and the plain statutory language of Act 129, presented detailed proposals for plan improvements during the Act 129 hearings, and believe the Commission should review and act on this evidence to make improvements to EDC plans where appropriate, and not expect EDCs to voluntarily adopt these programs.

UGI also believes the Commission should acknowledge EDCs interests are not currently sufficiently aligned with promoting the most cost-effective or best conservation plans, and that the Commission has an important roll to play in reviewing program proposals from third parties to ensure that Act 129 goals are met in a way that best promotes the interest of EDC ratepayers and the citizens of Pennsylvania. Given the plain language of Act 129, the Commission cannot and should not rely on EDC discretion alone for program selection.

#### B. Fines

There is no reason to believe that EDCs would be subject to an increased possibility of fines if cost-effective fuel substitution programs were ordered by the Commission.

Cost-effective fuel substitution programs can supplement existing EDC EE&C programs, with end-use consumers making the decision as to which programs best suit them. To the extent customers would select a fuel substitution program, the savings would be as easy or easier to verify as other conservation programs proposed by EDCs.

To the extent the Commission would order a fuel substitution program to supplant an existing program, it presumably would do so because it is more cost-effective, thereby

increasing the probability that an EDC will meet its targets within statutory funding limits.

Finally, Section 2806.1(f)(1) of Act 129 gives the Commission the discretion to assess fines ranging from \$1 million to \$20 million for EDCs failing to meet Act 129 load and peak reduction goals. A fuel substitution program ordered by the Commission would only be a small part of an overall EDC EE&C Plan, and the Commission could take into account the failure of any program it might order to be adopted involuntarily in assessing fines, although there is no real reason to believe a fuel substitution program could fail to deliver savings. The Commission by policy statement or otherwise could also publicly express this policy to reduce EDC concerns.

## 2. Tilting the Playing Field in favor of Gas Heating

FE also asserts fuel substitution programs would:

*tilt the playing field and facilitate the gas companies' attempt to use Act 129 to leverage success in the competition for heating customers. The gas utility would unfairly be allowed to use electric customer funds to subsidize electric-to-gas fuel switching, while the electric utilities cannot do the reverse. Fuel neutrality would not be maintained, because gas would be favored over electricity.*

Quite simply, the purpose of Act 129 is not to preserve existing heating market shares for EDCs. Instead, “the focus of Act 129 and TRC testing is not on particular technologies but rather on bottom line energy efficiency and demand reduction.” TRC Order, p. 6.

If natural gas distribution companies or other alternative energy service providers benefit from increased throughput or sales from a fuel substitution program, it would be because the fuel substitution program is a cost-effective way of promoting conservation, and not because they are being unfairly favored. Stated another way, any benefits to NGDCs or other alternate energy providers would be a fall out, and not the purpose, of a fuel substitution program.

It is also not unfair for EDC customers to fund cost-effective fuel substitution programs. Under Act 129 funding mechanisms, EDC customers will be paying for EE&C Plan programs, and their interest is in obtaining energy and peak load reductions at least cost, not in how the reduction is ultimately accomplished. If a fuel substitution program can deliver the required savings at less cost, then EDC customers will benefit.

If FE is concerned that fuel substitution programs could be so effective they could lead to future increased conservation and load reduction targets, thereby reducing EDC throughput and placing upward pressure of future EDC volumetric distribution rates, the simple answer is that the General Assembly concluded in Act 129 that EDC customers will benefit more from the effects of conservation on wholesale energy prices than they

are harmed from increased upward pressure on volumetric distribution rates resulting from reduced energy usage.

Finally, the fact that the General Assembly has elected not to adopt an Act 129-like statute for NGDCs at this point is not relevant to the question of whether cost-effective fuel substitution measure should be adopted to meet the goals established in Act 129 where it makes sense to do so. The Commission's task is not to allocate market share to compensate for the impact of policies adopted by the General Assembly, but is instead to implement the policies of the General Assembly.

### 3. Variability in Gas Prices

FE also claims in its comments that:

*the customer cannot depend upon price stability, especially for natural gas. As Figure 1 shows, since the mid-1990s the residential price of natural gas has historically exhibited much greater volatility than the price of electricity.*

This argument is a completely without merit for several reasons.

Most importantly, both the projected price of electricity and gas used to perform TRC test calculations, and the actual savings customers will experience, are based upon the long-term average costs and not the percent of price volatility. Stated another way, if gas is on average less expensive than electricity over the life of an energy-saving appliance, the customer will experience savings even though commodity prices may be volatile on a short-term basis.

Second, the electric price projection methodology adopted by the Commission in the TRC Order is based in large part on natural gas futures pricing, with a conversion factor to reflect the losses associated with the conversion of natural gas into electricity. See TRC Order, p. 11.

Finally, although as noted above it is overall savings and not percentage of volatility comparisons that matter to consumers, the period of time covered in the chart used by FE reflects an historical period when, in the electric market, most large EDCs were under rate caps and served under long-term contracts with affiliates, and, in the gas market, the disruptions resulting from hurricane Katrina and Rita occurred. Going forward, in the electric market, large EDCs will no longer be under generation rate caps and, in the natural gas market, large volumes of new natural gas supplies, including market-area Marcellous shale resources, will be coming to market presumably reducing wholesale prices and price volatility.

### 4. Water Heating

FE asserts in its comments:

*Based on the data used for the water heating cost-benefit analysis, the payback from a customer's perspective to switch from electric to natural gas for water heating would be less than half a year. From the cost-benefit analysis, the equipment cost for electric water heating was taken to be \$800, with annual usage of 4,875 kWh. For gas water heating, equipment costs \$900, with annual usage of 25 Mcf. To determine the prices that a customer would pay, price data from the Energy Information Administration ("EIA") were used that show the average price of residential electricity in Pennsylvania was 11.93¢ per kWh in October 2009, while the average price of residential natural gas was \$12.81 per Mcf.*

*With these assumptions, the incremental measure cost for a customer switching from electric to gas water heating would be \$100 (= \$900 - \$800), while the annual savings would be \$262 (= 4,875 kWh \* 0.1193¢ - 25 Mcf \* \$12.81). This implies a payback time for the fuel switching of 0.38 years. Given such a short payback from a customer's perspective, a mandatory program to promote electric to natural gas fuel switching for water heating is not needed because the customer can simply make this economic decision if interested in doing so.*

UGI agrees that the efficiency gains and customer benefits for converting electric water heaters to gas are compelling. This is the very reason Act 129 dollars should be directed to encourage such conversions in lieu of being directed to subsidizing electric measures which produce less energy savings at higher EDC customer costs.

It also makes no sense for FE to argue fuel substitution measures should not be adopted because the savings are so compelling, when it is claiming Act 129 savings for specific programs that show a higher cost/benefit ratio under the TRC test. Attached as Appendix A is MetEd Table 7A from its Act 129 filing showing TRC test cost/benefit ratios as high as 4.98 for appliance turn-in programs whereas the cost/benefit ratio for the water heating example submitted by the sub-group was 2.8. If MetEd believes it should be entitled to claim energy savings for appliance turn-in programs, then it should be able to claim savings for fuel conversion programs.

FE also asserts:

*there is evidence that the market for water heating has been moving from electric to natural gas on its own without significant intervention. Using public survey data reported by the EIA from the 2005 Residential Energy Consumption Survey ("RECS"), the Companies have calculated that for households in Pennsylvania and New Jersey where water heating equipment is more than 10 years old, 33% of the households used electricity for water heating and 50% used natural gas. However, for households where water heating equipment is less than 10 years old, 23% used electricity and 69% used natural gas. This implies that a shift from electric to gas water heating has already been occurring without a forced intervention.*

While UGI cannot verify the accuracy of these numbers, these statistics suggest there are many homes, both older and newer, where electricity is being used to heat hot water where gas could be used resulting in both savings to the customer and significant energy efficiency gains. There is no reason why this low-hanging fruit should not be the focus of a portion of Act 129 programs in lieu of less cost-effective measures that would receive FE-customer funded Act 129 incentives under existing FE EE&C Plan programs. For example, Appendix A shows that MetEd plans to spend \$18,796,406 of MetEd customer dollars on an "EE HVAC" program (comprised of a collection of program measures with individual cost/benefit ratios that do not appear to be public information) with annual cost/benefit ratios ranging from 1.34 to 1.57, whereas the cost/benefit ratio of the water heating fuel conversion example is 2.8.

### 5 Space Heating

FE argues that space heating conversions would take a longer time to provide a customer pay-back and that the potential savings would be location specific.

Without commenting on the merits of FE's calculations, UGI would note programs are to be judged by the TRC test under Act 129, and as a general matter the programs with the largest cost/benefit ratios should be selected within the confines of Act 129's requirements that programs be available to all customer groups.

UGI also does not understand the relevance of FE arguments about the variability of savings at particular locations. As with many Act 129 programs, fuel substitution could be included in the TRM where "deemed" savings could be specified and recorded.

### 6. Clothes Drying

FE questions whether customer would want to shift to gas clothes drying citing its calculated pay-back period, and on the other hand argues the data shows a shift over time to gas fired clothes drying.

Once again, programs should be judged under the TRC test under Act 129, and if the test shows they are cost-effective then they should be offered to see if customers will make shifts to more efficient gas appliances.

UGI also believes that the data cited by FE shows that there is a significant number of older and newer clothes dryers using electricity that could produce significant energy savings if converted to natural gas.

### 7. CHP

FE cites the large incentive payment (\$18,000) used for illustrative purposes in the micro CHP analysis and asserts the "primary concern is that elevated incentive levels, while beneficial to program participants, can create a considerable negative effect on customers that do not participate."

As the subgroup explained in response to the OSBA comments, it simply chose an incentive level based on incremental costs as a proxy since there is no guidance under Act 129 for determining incentive levels and the larger group had not proposed a level for use in developing the examples. Obviously, a different incentive level could be chosen.

Moreover, a micro-CHP program would obviously be an experimental technology program designed to show the viability of a new technology which, if scaled up in size, might be capable of delivering significant savings that cannot yet be delivered in a pilot program.

## II. Response to Allegheny Comments

### 1. Policy Issues

In its comments Allegheny list the following “policy considerations that must be decided by the Fuel Switching Working Group and/or by the Commission”:

1. *The Working Group should recognize that electric distribution companies (“EDCs”) are providing incentives that only target higher efficiency electric appliances as opposed to those meeting federal minimum standards and, thus, EDCs are not promoting electricity as a fuel source. The Working Group should consider whether or not it is appropriate for EDCs to promote natural gas through incentives paid by EDC customers.*
2. *Whether the natural gas distribution companies should provide the programs to customers to promote fuel switching?*
3. *Should the natural gas distribution companies provide programs that promote the more efficient use of natural gas?*
4. *Should any programs that promote the use of natural gas be required to target higher efficiency gas appliances rather than those meeting the current federal minimum standards?*

Although Allegheny states that it is not promoting electricity as a fuel source because it is encouraging the installation of high efficiency electric appliances, customers can be influenced by rebates to chose high efficiency electric appliances that are nonetheless far less efficient then natural gas appliances on a source to site basis. This result may be unintentional, but is nonetheless a possibility which the Commission has addressed by ordering most EDCs to track in their Act 129 fuel conversions.

UGI agrees with Allegheny that this group has been charged with the question of whether EDC customers should finance fuel conversion measures as part of Act 129 EE&C Plans. For the reasons discussed above UGI believes the answer is yes where fuel conversion programs are more cost-effective under the TRC test because the interests of EDC customers will be best served through the expenditure of their funds in the most cost-effective way. Once again, the purpose of Act 129 is not to preserve EDC market

share, it is to achieve energy conservation in the most cost-effective way. If the most cost-effective way is through fuel substitution that benefits NGDCs or other energy providers, then those benefits are a consequence, and not the purpose, of adopting cost-effective conservation programs.

Allegheny also suggests the working group should address whether NGDC customers should fund fuel conversion programs, presumably in lieu of EDC Act 129 funding.

While UGI is not necessarily opposed to having a fuel substitution program funded by NGDC customers, when it proposed such programs in the context of base rate cases for two of its natural gas distribution companies it was directed by the Commission to meet with EDC's to coordinate such programs with Act 129. For example, in resolving the most recent base rate case of UGI Penn Natural Gas, Inc., the Commission ordered:

*25. That UGI Penn Natural Gas, Inc. shall meet with interested parties in 2009 to work on Efficiency and Carbon Reduction Program design and coordination with Act 129 of 2008.*

Docket No. R-2008-2079660 (Order entered August 27, 2009). An identical order was issued by the Commission in the base rate proceeding of UGI Central Penn Gas, Inc. at Docket No. R-2008-2079675 (order entered August 27, 2009).

UGI has attempted to address the coordination of fuel substitution programs between NGDCs and EDCs by proposing in Act 129 proceedings that EDC customers should fund cost-effective fuel conversions up to the level of costs of converting customers to standard efficiency gas appliances, since funding beyond that level would not result in incremental electric load reductions. Once the load is lost EDC customers would experience no incremental benefit as a result of upgrading the gas appliances to high efficiency. Thus, it would not be appropriate to have EDC customers funding the upgrade of gas appliances from low to higher efficiency.

UGI would note, however, that the General Assembly has not adopted an Act 129-type statute for NGDCs, and probably for good reason. NGDCs, unlike EDCs, have seen falling use per customer as customers have benefited from increased gas appliance efficiency even without incentives. Moreover, wholesale gas prices have already made the transition to wholesale market pricing. In such an environment the General Assembly could have reasonably determined that they do not want to impose conservation surcharges on non-participating natural gas customers to further stimulate the pace of natural gas conservation.

## 2. Plan Budget Impacts

Allegheny also expresses concern that fuel substitution measures could crowd out spending for other Act 129 EE&C Plan measures and could limit the ability to provide programs to all customer groups.

UGI understands that fuel substitution measures would not be the only Act 129 EE&C Plan program offering, just as the programs proposed by Allegheny to subsidize high efficiency electric appliances are not the only programs offered by Allegheny. UGI believes that fuel substitution measures should supplement or replace similar electric measures that are not as cost-effective, and that customer demand should determine the mix of measures ultimately installed or implemented up to program budget limits in the same manner as existing Allegheny Act 129 program measures are similarly budget-limited.

Allegheny finally suggests that revisions to the TRM and TRC test are needed to implement fuel substitution programs.

While UGI believes it would be appropriate to modify the TRM to specifically include certain fuel conversion programs, it does not believe any specific revisions are necessary if fuel conversion programs are to be evaluated on a custom, versus a deemed savings, basis. This is a topic, however, that can be discussed by the working group and addressed in comments submitted in response to the Commission's Tentative Order at Docket No. M-00051865, and published in the February 20, 2010 edition of the Pennsylvania Bulletin..

UGI also believes that TRC test adopted by the Commission in the TRC Order already addresses fuel switching since it was based on the California Manual, and California has historically encouraged cost effective fuel substitution. This is once again a topic the working group could further discuss.

### III. Response to OSBA Comments

UGI participated in the development of the subgroup's response to the OSBA's questions set forth in their comments, and does not see the need to further elaborate on the subgroup's response which is set forth below:

*Economic Losses are irrelevant and incremental costs are the only proper test*

*We agree the Total Resource Cost Test is based on incremental costs, and it was only these costs that we considered in performing the TRC tests.*

*However, before a measure can be considered as an Act 129 measure it has to meet the threshold test of being a "Energy Efficiency and Conservation Measure" under Section 2806.1(m). The cover letter accordingly summarized the reasons why fuel substitution can fall within this definition and why calculations of energy savings were included in the supporting information. We also included supplemental information about green house gas emissions since this might be of interest to members of the broad group, even though it was not a factor considered in the TRC test calculations. Finally, we recognized that not all energy sources within Pennsylvania are powered by fossil fuels, and took that into consideration in calculating energy savings.*

*It is not clear if the tests were performed assuming the installation of standard or high efficiency gas appliances*

*The heating and hot water examples were based on the assumption that a standard gas efficiency appliance would replace a standard efficiency electric appliance. This assumption was used because the focus of Act 129 is on electric savings and not on promoting gas conservation, and electric customers should probably not be expected to help finance the move from low efficiency to high efficiency gas appliances since their electric savings will not increase as a result of that selection. It should also be noted that if Act 129 incentives were limited to the installation of high efficiency gas appliances, the TRC test would show a more favorable cost/benefit ratio for fuel substitution.*

*The incentives proposed are too high*

*The cover letter explained that there is no formula in Act 129 for determining incentive levels, nor were there any directions from the larger group as to what incentive levels to use. Thus, we chose to use the replacement cost as the incentive level for discussion purposes. This does not mean that this is the only or most appropriate level to be used, although we assumed the higher you make the incentive the more likely it is the incentive will encourage potential participants to take actions they might not otherwise take, thereby reducing free ridership, and the more accessible the programs become to lower-income participants (since they have to come up with less or no capital for the measure).*

*Avoided cost calculations are not explained*

*As the larger group decided, the Commission's Bureau of CEEP provided avoided costs for the working group to use, and used a composite of EDC avoided cost calculations used in the Act 129 filing (which EDCs considered confidential) in providing avoided electric cost values for the examples.*

*There is no comparison with the cost/benefit of EDC Act 129 programs*

*The working group was not tasked with making such a comparison, although this would presumably be a logical next step if the examples are accepted in concept.*

*In this regard, we believe some or all of these analyses were presented through discovery and may be subject to confidentiality agreements, and the publicly available cost benefit analyses lump several programs together making comparisons difficult without cooperation from the EDCs in making specific program analyses available.*

*Also, the examples submitted are strawmen developed for discussion purposes, and which use composite electric avoided cost data. Actual comparisons would more*

*appropriately be performed using EDC specific data if the programs are to be adopted/mandated.*

#### IV. Response to Keystone Energy Efficiency Alliance Comments

KEEA's comments were, in UGI's view, the only ones to suggest that cost-effective fuel substitution programs could increase gas usage and therefore be contrary to national and regional energy efficiency goals.

Quite simply, UGI believes that KEEA is wrong. On a total fuel cycle basis the direct end use of natural gas for heating purposes would result in more NGDC system throughput, but will lead to overall reduced electric and gas usage because less gas will be used (and wasted) to generate electricity for heating purposes, even recognizing that not all electric generating unit are powered by gas.

Attached as Appendix B is a diagram showing energy use on a national scale and the portion that is wasted through fuel conversion and distribution over electric transmission and distribution systems. A similar Pennsylvania-specific analysis was utilized in preparing the fuel conversion examples developed by the subgroup and is the basis for the calculation of the energy saved by the proposed measures. These analyses show that the equation of increased NGDC system throughput with reduced energy efficiency is simply wrong.

#### V. Response to Citizens Power, PULP and CLS Comments

Citizens Power ("Citizens") raises concern that the analyses do not consider the costs or value of the appliance being replaced.

UGI believes that a customer is fully capable of assessing the value of the appliance being replaced in deciding whether to replace it, and that it is unnecessary to consider this in performing TRC evaluations. Moreover, such appliance replacement value were not used by EDCs in the evaluation of their programs.

Citizens, the Public Utility Law Project and Community Legal Services also support programs to replace inoperable gas furnaces in low-income homes or the substitution of gas furnaces for baseboard electric heat or supplemental electric heating systems.

UGI believes that existing weatherization programs already assist low-income customers with repairing or improving existing gas heating systems. However, in most instances it is not cost effective to try to install gas furnaces in dwellings with baseboard electric resistance heat because there is usually not ductwork available to distribute heat, and such ductwork is difficult and expensive to retro-fit in existing structures. In this regard, UGI would note that PPL limited its fuel substitution program to a class of heating customers in structures without ductwork, thereby virtually ensuring that gas

retro-fits could not be cost-effective. UGI would also note that sub-group's space heating fuel substitution example assumed conversions or substitutions for buildings heated by heat pumps, and not electric baseboard heat, since the ductwork installed for heat pump systems would be necessary to make the conversion effective.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mark C. Morrow", written in a cursive style.

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Mark C. Morrow

Counsel for the UGI Distribution  
Companies

APPENDIX A

PUC Table 7A: TRC Benefits Table – Residential

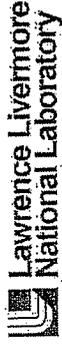
Residential Program	Program Year	TRC Co-Inst. (\$/kW)	Program Co-Inst. (\$/kW)	Program Benefits (\$/kW)	Capacity Annual (kW)	Capacity Annual (kW)	Energy Annual (kWh)		Energy Annual (kWh)		Energy Annual (kWh)		MAVLS Saved Annual	Lifetime
							Annual	Per kW	Annual	Per kW	Annual	Per kW		
Demand Reduction	2010	1.03	3,106,248	3,202,683	3,018,385	184,298	762,104	3,464	17,194	30,368	3,464	169	16,829	
	2011	1.10	12,116,433	13,378,484	12,616,380	770,320	3,036	30,368	30,368	1,455	16,829	824	16,829	
	2012	1.16	11,677,385	13,596,002	12,825,682	1,504,993	322	5,086	3,498	5,086	5,086	41,148	477,488	
	2013	0.00	-	-	-	8,162,886	3,498	5,086	5,086	5,086	59,803	477,488		
Home Energy Audits	2010	3.45	489,736	1,691,352	186,359	1,575,500	620	9,926	620	9,926	4,418	502,229		
	2011	3.82	2,289,869	8,751,424	984,641	7,766,783	3,722	9,926	3,722	9,926	26,506	502,229		
	2012	4.03	2,289,869	9,224,639	1,061,752	8,162,886	6,824	9,926	6,824	9,926	48,595	502,229		
	2013	4.23	2,289,869	9,685,473	1,108,133	8,577,340	9,926	9,926	9,926	9,926	70,683	502,229		
Appliance Turn-In	2010	4.73	469,338	1,936,155	362,655	1,575,500	967,178	836	13,374	836	13,374	1,163	181,817	
	2011	4.48	2,294,715	10,283,824	1,943,247	8,340,577	5,148,349	5,015	13,374	5,015	13,374	6,980	181,817	
	2012	4.73	2,294,715	10,863,202	2,094,272	8,768,929	5,384,200	9,195	13,374	9,195	13,374	12,797	181,817	
	2013	4.98	2,294,715	11,424,177	2,185,456	9,238,721	5,603,635	13,374	13,374	13,374	18,614	181,817		
EE HVAC	2010	1.34	1,179,047	1,578,632	611,454	967,178	1,851,003	723	11,033	723	11,033	4,820	553,255	
	2011	1.43	5,872,453	8,391,432	3,243,083	5,148,349	9,725,704	4,159	11,033	4,159	11,033	28,848	553,255	
	2012	1.51	5,872,453	8,841,266	3,457,066	5,384,200	10,206,610	7,596	11,033	7,596	11,033	52,877	553,255	
	2013	1.57	5,872,453	9,190,984	3,587,350	5,603,635	10,679,016	11,033	11,033	11,033	76,905	553,255		
EE Products	2010	2.16	1,099,851	2,379,541	528,537	428,835	2,502,989	3,370	6,221	3,370	6,221	4,472	110,220	
	2011	2.27	5,471,502	12,405,176	2,679,472	9,725,704	2,637,045	6,221	6,221	6,221	8,256	110,220		
	2012	2.39	5,471,502	13,063,050	2,856,440	10,206,610	2,637,045	6,221	6,221	6,221	8,256	110,220		
	2013	2.49	5,471,502	13,644,260	2,965,243	10,679,016	2,637,045	6,221	6,221	6,221	8,256	110,220		
New Construction	2010	2.00	464,667	928,337	499,502	428,835	2,502,989	111	526	111	526	440	22,973	
	2011	2.16	2,498,442	5,388,672	2,885,684	2,502,989	366,902	249	526	249	526	989	22,973	
	2012	2.27	2,498,442	5,679,682	3,042,637	2,637,045	386,800	387	526	387	526	1,538	22,973	
	2013	0.00	525	-	-	-	406,334	526	526	526	2,088	22,973		
Whole Building	2010	0.88	425,839	373,575	97,795	275,780	366,902	111	526	111	526	440	22,973	
	2011	0.95	519,468	495,672	128,770	366,902	386,800	249	526	249	526	989	22,973	
	2012	1.01	519,468	523,023	136,223	386,800	406,334	387	526	387	526	1,538	22,973	
	2013	1.05	519,468	547,231	140,897	406,334	406,334	526	526	526	2,088	22,973		
Multiple Family	2010	2.13	14,277	30,447	3,624	26,823	142,601	7	111	7	111	85	8,461	
	2011	3.48	46,634	162,132	19,531	142,601	149,246	42	111	42	111	509	8,461	
	2012	3.65	46,634	170,427	21,181	149,246	155,986	76	111	76	111	934	8,461	
	2013	3.82	46,634	178,129	22,144	155,986	155,986	111	111	111	1,358	8,461		
<b>Total</b>		<b>2.08</b>	<b>85,574,151</b>	<b>178,009,081</b>	<b>65,313,595</b>	<b>112,695,485</b>	<b>76,644</b>	<b>76,644</b>	<b>76,644</b>	<b>239,162</b>	<b>1,873,273</b>			

1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs. These costs are then NPV back to the year the measure unit was installed. The combined avoided capacity costs can not be identified by component therefore the total avoided capacity costs for Generation, Transmission and Distribution are displayed here.

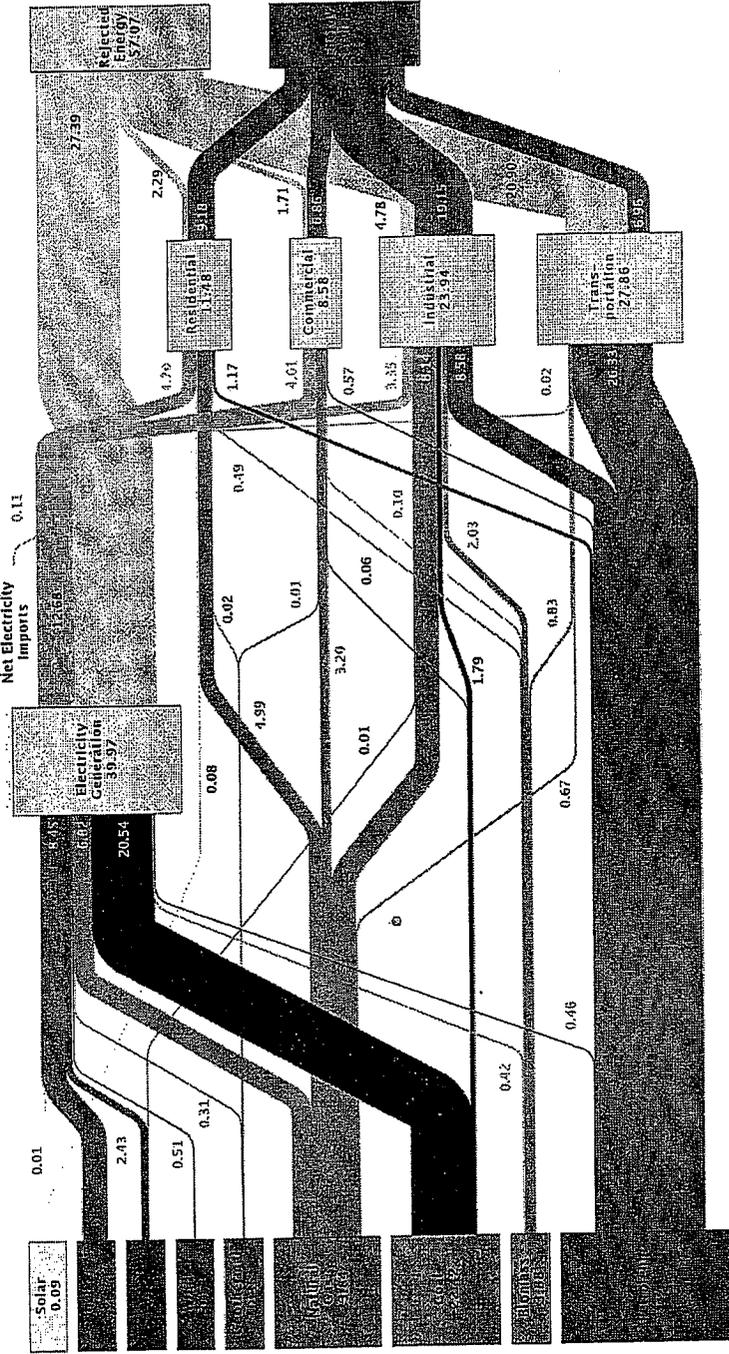
2: The on and off peak energy costs are combined in a sum of avoided energy costs. These costs are then NPV back to the year the measure unit was installed. The combined avoided energy costs can not be identified by component therefore the total avoided energy costs for on and off peak energy costs are displayed here.

APPENDIX B

# U.S. Energy Use Profile 2008



Estimated U.S. Energy Use in 2008: ~99.2 Quads



Source: LLNL 2009. Data is based on DOE/EIA-0384(2008), June 2009. If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents a typical fossil fuel plant "heat rate." The efficiency of electricity production is reported flows for non-thermal resources (i.e., hydro, wind, solar, etc.) are not included in this primary energy input into electricity generation. End use efficiency is estimated as 80% for the residential, commercial and industrial sectors, and as 25% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-M-410527