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October 23, 2023

Texas Railroad Commission
Rules Coordinator, Office of General Counsel
P.O. Box 12967
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To the Rules Coordinator:

I am providing comments on Proposed New 16 TAC §7.480, relating to Energy Conservation Programs that was issued to the public on October 6.

I am a Residential ratepayer served by a gas utility in Texas. I am also an environmental writer with decades of background in energy and resource management issues, and am well acquainted with policy surrounding utility efficiency programs. In the early 1980s, I helped start the City of Austin's nationally renowned energy-efficiency programs.

I offer these comments with the hope that the Railroad Commission of Texas will ensure that conservation programs meant to lower utility costs and save natural resources are cost-effective and pragmatic.

Sincerely,

Paul Robbins
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Note to Comment Reviewers: It is the Railroad Commission's practice to post comments in PDF format on the agency Web site. This sometimes removes Web site links used for documentation. To compensate, Web site addresses used in creation of these comments are provided in footnotes so reviewers can paste them into their browsers.

Also, three of the Exhibits are in Excel spreadsheet format. The Commission will only post them in PDF format on the agency Web site. This format is more difficult to use.

Reviewers of these comments who want the Exhibits in their original Excel format can find them on this Web page: https://austin.environmentaldirectory.info/web-links-for-comments-to-texas-railroad-commission/

Contents

Part 1: Comments on Conservation Program Economics and Structure

Cost Effectiveness Introduction 1.0.

Economics of conservation programs are usually evaluated by the California Standard Practices Manual developed by the California Energy Commission. The first edition was published in 1983. The Manual analyzes the programs from five different perspectives or tests.

(*California Standard Practice Manual*, October 2001. See Web site in footnote.)[1]

1. Total Resource Cost Test

The Total Resource Cost (TRC) Test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs.

It is the most fundamental of these tests, with a Benefit/Cost ratio based on total investments in versus savings out. Almost all discussion in these comments refers to this test method.

2. Societal Cost Test

While similar to the TRC test, the Societal Test includes the effects of externalities (e.g., environmental, national security), excludes tax credit benefits, and uses a different (societal) discount rate. While externality costs are real, the specific amounts are somewhat subjective.

3. Participant Cost Test

The Participant Test is the measure of quantifiable benefits and costs to the customer receiving the conservation incentive. However, a stellar Participant Cost Test ratio does not mean the program pays for itself in a TRC Test.

For example, if the utility gave 100% of costs to a customer (which occurs with low-income weatherization programs), this customer would have a Participant Benefit/Cost ratio of over 1.0 (free conservation measures plus energy savings is more than the cost of free conservation measures alone). However, free weatherization generally saves very little energy and these programs are rarely cost effective. These programs are provided as a social service.

4. Program Administrator Cost Test

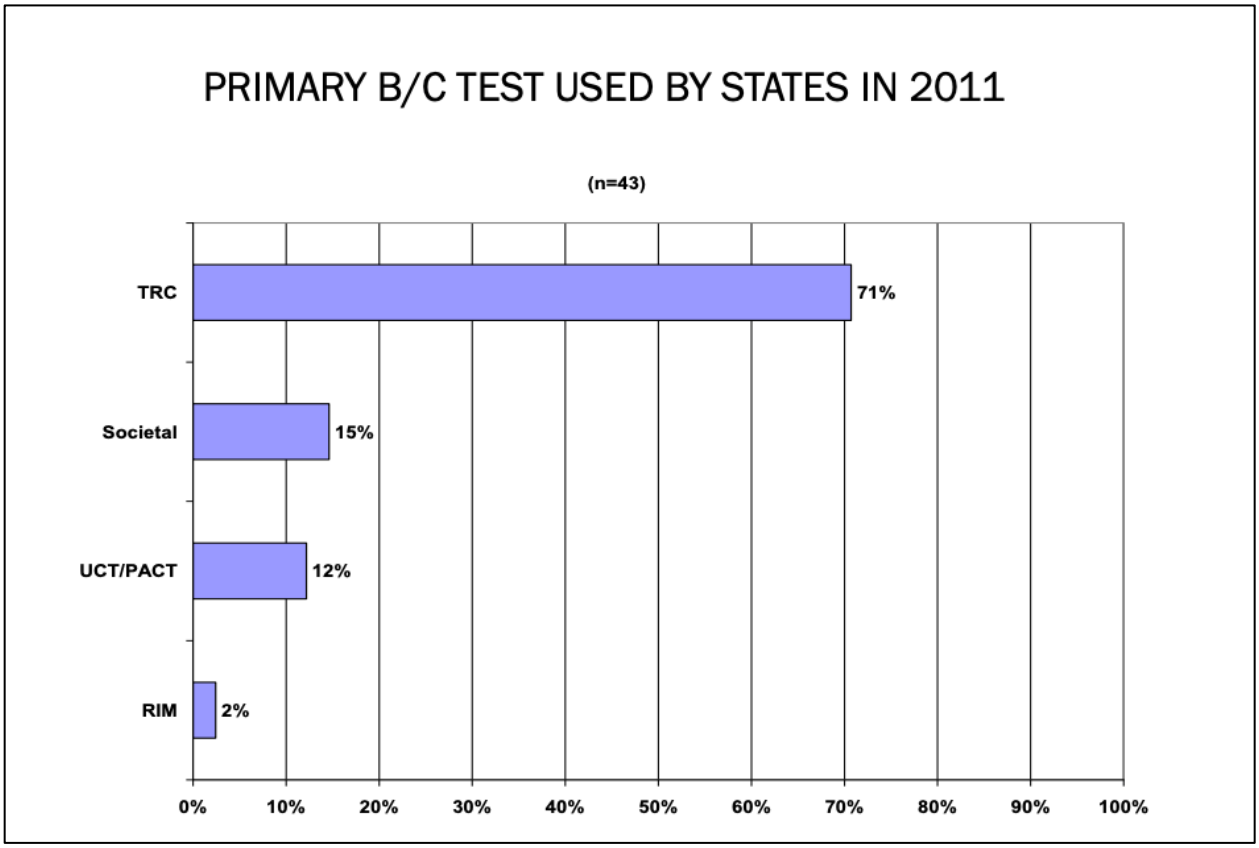
The Program Administrator Cost Test (PACT) measures the net costs of a demand-side management program as a resource option based on the costs incurred by the program administrator (including incentive costs) and excluding any net costs incurred by the participant. The benefits are similar to the TRC benefits, but costs are defined more narrowly.

[1] Web site: https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/utilities_and_industries/energy_-_electricity_and_natural_gas/cpuc-standard-practice-manual.pdf

5. Ratepayer Impact Measure Test

The Ratepayer Impact Measure (RIM) Test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by a conservation program. Rates will go down if the change in revenues from the program is greater than the change in utility costs. Conversely, rates or bills will go up if revenues collected after program implementation are less than the total costs incurred by the utility in implementing the program. This test indicates the direction and magnitude of the expected change in customer bills or rate levels.

The RIM Test is rarely used as a primary guide to determine if conservation measures should be pursued.



The RIM Test is rarely used as a primary guide for state conservation regulation.

(From American Council for an Energy Efficient Economy presentation: *Passing the Test: How Are Residential Efficiency Cost Effectiveness Tests Changing?,* April 2021.[2] See Web site in footnote.)

Discussion Relevant to Railroad Commission (RRC) Rule Making

[2] Web site: https://www.energy.gov/eere/better-buildings-residential-network/articles/passing-test-how-are-residential-efficiency-cost

Since the new rules do not specifically address cost effectiveness of energy conservation programs, the previous primer and basic explanation is meant to advise RRC staff of its importance. It is paramount that this metric be incorporated into the new rules.

The most fundamental goal of an energy-efficiency program is to save energy at the same or less cost than providing it to customers. If the total installed and maintenance costs over the estimated lifetime of a conservation measure is at or below the cost of gas, its TRC Benefit/Cost ratio exceeds 1.0 and it is assumed cost effective. This saves customers and utilities money. It is a basic "money made vs. money invested" ratio, with 1.0 being breakeven and anything above this being "profit."

At the same time, cost-effective energy conservation programs benefit the environment, and create local jobs installing conservation-related materials and equipment.

There are reasons that may override the necessity of a positive Benefit/Cost test. The test might be measuring a social program such as low-income weatherization. It might also be measuring a pilot program that is not mature. But in general, efficiency programs are meant to cost justify themselves.

The proposed rules appear to completely overlook whether conservation programs are cost effective.

1.1. Benefit/Cost Ratio Metrics

There are some basic variable inputs used to determine cost-effective conservation programs. Below are some of the most fundamental.

Fuel Cost Benchmark: The average Texas Citygate cost of natural gas between 2013 and 2022 has averaged about $5.20/MCF, rising higher in the past two years. This was due in part to domestic competition with scarcity pricing of LNG exports to Europe triggered by the war in Ukraine. Prices have trended downward in the middle months of 2023. (Energy Information Administration, Natural Gas Prices database, accessed October 13, 2023.[3] See Web site in footnote.)

Appliance Efficiency Benchmark: Almost all appliances in the U.S. have regulated minimum federal standards of energy efficiency, including water heaters, furnaces, and clothes dryers. Energy savings must use these standards as a base.

These benchmarks often change over time, as federal standards are periodically updated to account for improved technology since the standards began in 1987. It is common for cost-effective efficient technologies that were at one time given utility rebates to find their way into minimum federal standards if the technologies reach economies of scale that make them less expensive.

Conservation Measure Cost Benchmark: The marginal cost of retrofits above appliance efficiency benchmarks is considered the measure cost for Benefit/Cost purposes. This cost is

[3] Web site: https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_STX_m.htm

often taken from Technical Reference Manuals developed by various states that develop "deemed costs" for the purpose of cost-effectiveness evaluations.

Measure costs obviously differ between specific products, specific retailers, and specific contractors. Deemed costs are meant to provide an average.

It is important to emphasize, however, that deemed costs do not always mirror real-world costs and/or local-area costs, and can be subject to challenge when such proof is offered.

Estimated Lifetime Benchmark: Energy-efficiency measures are given an estimated life for purposed of Benefit/Cost evaluations.

Consumption Benchmark: Buildings and appliances in various parts of the country may have the same or similar efficiency standards and still have radically different consumption levels because of climate. This is also taken into account in Technical Reference Manuals.

Texas is, in fact, the third warmest state in the country (defined as Heating Degree Days). So the TRC Benefit/Cost ratio for measures that affect space and water heating will not be as favorable as in colder states. (See National Centers for Environmental Information, Climate at a Glance, Statewide Mapping.[4] See Web site in footnote.)

1.2. Abuse of Cost-Effectiveness Metrics By Utility Conservation Program Administrators

When RRC establishes cost-effectiveness metrics, they are likely to be abused by utility staff and consultants hired to justify conservation programs. It is unfortunately common in regulatory proceedings throughout much of the world for expert witnesses to torture numbers in pursuit of their goals. (Give me the right assumptions, and I can show you how a hamster on a treadmill will produce cost-effective power.)

RRC will need to establish in-house expertise to filter this abuse, and allow outside testimony from other parties, including cities, non-profits, and citizens, that provide alternative analysis and rebuttal to utility testimony.

1.2.1. Possible Motivation for Abuse of Cost-Effectiveness Metrics: Marketing

Some unscrupulous utilities seek to use customers' conservation funding to increase their market or market share. Using gas company profits to incentivize fuel switching from electric heat and water heat or pay home builders to use gas fuel is an established strategy. But some companies will also mask *customer-funded conservation funds* to build their load share. This is discussed in more detail further in these comments.

1.2.2. Possible Motivation for Abuse of Cost-Effectiveness Metrics: Greenwashing

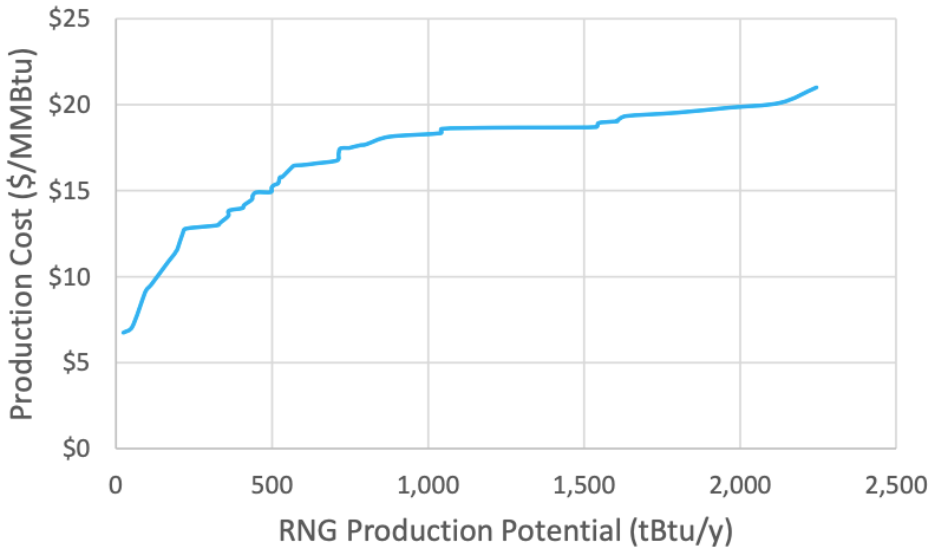
Energy utilities are under intense pressure from many members of the public, many elected officials, and environmental groups to decarbonize fuel sources. In the last two decades,

[4] Web site: https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/mapping/110/hdd/202212/12/mean

electric utilities have integrated substantial percentages of wind and solar power into their systems. In 2022, about 26% of ERCOT's power came from these sources. In addition, some ERCOT utilities such as Austin Energy and CPS Energy have made considerable investments in energy efficiency and peak load management for many years.

Natural gas utilities, however, have almost no renewable energy sources to draw from. What little biogenic fuel (such as landfill or feedlot gas) that exists is prodigiously expensive, and the volume available is small. What little supply that *is* available is usually sold as automotive fuel, which commands a considerable premium over fuel used for appliances, buildings, and industrial heating.

Figure 34. Combined RNG Supply-Cost Curve, less than $20/MMBtu in 2040



From American Gas Foundation, *RENEWABLE SOURCES OF NATURAL GAS: SUPPLY AND EMISSIONS REDUCTION ASSESSMENT*, December 2019, p. 60. Note that 2,000 tBtu is equal to 6% of *U.S. gas consumption in 2022.*[5] See Web site in footnote.)

There are a few gas utilities in the U.S. that have voluntary "green gas" tariffs. But the cost for 100% renewable gas is out of reach for most consumers.

There are also companies that are attempting to manufacture hydrogen or hydrocarbons from renewable electricity. However, electrolytically-derived hydrogen is quite expensive. Other technologies that use catalysts or extremely high solar temperatures to separate hydrogen from water might hold promise in the future to lower costs, but they are currently in research and development.

Gas utilities in warmer climates are sometimes offering furnace and water heater rebates that clearly do not pay for themselves economically. And given the additional expense of these appliances, few will be purchased, even with rebates. This does not hold great promise for

[5] Web site: https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf

reducing carbon footprints. Yet the rebates offer the *appearance* that a utility is reducing greenhouse emissions while postponing more serious actions for carbon reductions.

1.2.3. Abuse of Cost-Effectiveness Metrics Through Blurring Cost Effectiveness By Program

One technique to abuse cost-effectiveness tests is to average programs that fail Total Resource Cost Benefit/Cost tests with those that pass it. The justification is that if the overall Benefit/Cost is 1.0 or higher, then the entire portfolio is valid.

This abuse overlooks that even if the average is 1.0 or more, substantial amounts of money may be misspent. If conservation programs are established or expanded statewide, misspending could literally amount to tens of millions of dollars by using this numeric sleight of hand.

1.2.4. Abuse of Cost-Effectiveness Metrics Through Blurring Cost Effectiveness By Rate Class

Another misleading technique is to average the cost effectiveness of Commercial and Residential rate class portfolios of conservation programs together. As a general rule, Commercial conservation is more cost effective than Residential conservation because: 1) there is more energy saved because there is more energy used; 2) "cream-skimming" is a common strategy, using quick and inexpensive equipment (e.g., restaurant prerinse dish sprayers that use less hot water) rather than more expensive new appliances (e.g., restaurant cooking equipment, boilers).

If, for example, the Commercial sector has a TRC Benefit/Cost ratio of 4.0, and the Residential sector has a ratio of 0.5, if there was enough savings in the Commercial sector to balance out the failing Residential sector, the overall program is a "success."

This again fails to note that the failing programs themselves are still misspent money. It also ignores that the Commercial and Residential sectors are funded with different tariffs. The programs for each rate class must succeed on their own or they are imprudent for the rate class where the programs failed.

1.2.5. Frequency of Rebates

TRC Tests (as well as other economic tests) are based on the estimated life of the conservation measure. If the life is effectively shortened, the analyses becomes inaccurate. Utilities granting rebates to the same customer too often will make conservation programs imprudent.

1.3. Incentive Levels

A rebate/incentive in utility programs can vary from 100% of measure costs in the case of assistance to the poor to a tiny percentage of the measure. While the incentive level will not have any effect on the TRC Benefit/Cost ratio, *it will have a pronounced effect on how much gas utility ratepayers are charged to fund the rebate program.*

Some programs can be overly generous because utilities pay for them with ratepayer money instead of their own profits.

1.4. Regressive Rate Structure of Conservation Charge

For reasons of rate fairness and equity, and to encourage energy conservation, the monthly customer charge levied for conservation should be collected on the volume of energy sold per month and not as a flat fee.

It is a fundamental concept in utilities that consumption tracks income levels. In general, the more wealth a customer has, the more discretionary income for consumption, the larger the home, the more heat required for this larger home, the more energy-consuming appliances and electronics purchased, etc.

Below is a chart from 2020 data collected by the Energy Information Administration for the Southern U.S. reflecting this.

Data release date: March 2023
Revised data release date: June 2023

Table CE1.4 Summary annual household site consumption and expenditures in the South—totals and intensities, 2020

	Number of housing units (million)	Site energy consumption[a]				Energy expenditures[a]			
	Total South[b]	Total (trillion Btu)	Per household (million Btu)	Per household member (million Btu)	Per square foot (thousand Btu)	Total (billion dollars)	Per household (dollars)	Per household member (dollars)	Per square foot (dollars)
All homes	46.84	3,116	66.50	27.20	36.80	86.14	1,839	753	1.02
2020 annual household income									
Less than $5,000	1.91	95	49.80	18.80	44.50	2.80	1,467	554	1.31
$5,000 to $9,999	1.68	78	46.40	21.00	42.00	2.34	1,391	632	1.26
$10,000 to $19,999	4.15	218	52.60	25.80	41.40	6.35	1,532	752	1.21
$20,000 to $39,999	10.18	588	57.70	25.70	40.70	16.60	1,630	727	1.15
$40,000 to $59,999	7.97	486	61.00	26.00	36.30	13.70	1,719	734	1.02
$60,000 to $99,999	9.96	670	67.30	26.60	35.70	18.61	1,869	739	0.99
$100,000 to $149,999	5.48	428	78.00	28.90	33.80	11.57	2,110	781	0.91
$150,000 or more	5.51	553	100.40	35.30	34.40	14.17	2,573	905	0.88

From Energy Information Administration*, 2020 Residential Energy Consumption Survey*.[6] See Web site in footnote.)

The financial situation of typical rebate recipients should also be considered. With the exception of low-income weatherization, the conservation rebates are more likely to be awarded to middle- and upper-income customers than low- and moderate-income customers.

At least one gas company in Texas has argued that with so much of its revenue subject to heating loads that vary from year to year, a fixed fee is required for conservation funding predictability. This problem can easily be compensated with a Weather Normalization Adjustment charge, which is standard practice for gas utilities.

Collecting conservation funding from variable usage would be a fairer and more accurate way to fund this rider.

[6] Web site: https://www.eia.gov/consumption/residential/data/2020/c&e/xls/ce1.4.xlsx

1.5. Tariff Length

Some tariffs last for several years. However, this can allow for overcollection in some years. Instead of a year-to-year true up common in utility industries, leaving a carry-over balance can sometimes lead to lost spending power of conservation funds caused by inflation.

1.6. Delegated Administration of Gas Utility Programs

There is the possibility that local governments and/or non-profit organizations will arrange to operate gas conservation programs through an agreement with a gas utility. RRC would still have to approve the conservation programs and rate, but the participant and not the utility would be the responsible entity.

RRC needs to craft its rules to allow for this possibility.

Part 2: Example of Conservation Program Abuse – Texas Gas Service

2.0. Introduction

There is saying that: "No one is completely worthless. They can always serve as a bad example." A bad example of what has been discussed in Part 1 in the Austin branch of Texas Gas Service (TGS).

Part 2 will describe a real-world display of poorly-designed conservation programs.

2.1. Origins of Texas Gas Service Conservation Program

The roots of the TGS-funded conservation programs go back to 1985. During negotiations surrounding franchise renewal with TGS' previous owner, Southern Union Gas, requirements for a conservation program were created. Despite the company's resistance to implementing energy efficiency, the City of Austin ultimately required a 3% surcharge to be placed on the bill to cover expenses for an aggressive effort.

During the first year of program operation, 1986, it became apparent that some of these funds were being diverted to marketing gas, or providing incentives for gas appliances that were not cost effective. Critics included members of the Austin City Council, staff from the City of Austin's conservation program, and environmental activists.

Continued criticism and bad publicity persuaded Southern Union to contract management of these programs to the City. The amount collected was changed from a fixed percentage to an annually adjusted fee.

For many years, this conservation effort was the only thing of its kind in Texas, and one of the only natural gas utilities nationally to fund such an effort.

In 1997, management of conservation programs for electricity were transferred from an independent department to direct management by Austin Energy. The gas company considered AE a competitor for various energy end uses, and perceived a conflict of interest that required discarding the previous arrangement. Southern Union reclaimed administration of these programs.

Since 2003, TGS has directly managed, and often mismanaged, some of the programs that it funds.

The largest difference in the management styles is the tolerance for programs that do not save as much money as they cost. As a point of comparison, Austin Energy's 2021 Customer Energy Solutions report evaluated 18 energy efficiency and demand-side management programs. Of the 18 programs measured, only one, the social program for low-income weatherization, did not break even or make money in the Total Resource Cost Test.

(From *Fiscal Year 2021 Customer Energy Solutions Program Progress Report*, PDF page 26.[7] See Web site in footnote.)

However, TGS has several expensive conservation programs that cost more money than the energy that they save. The original problem that was identified in 1986 is occurring again.

2.2. Failing Conservation Programs in Proposed TGS 2022 Budget

TGS offers a menu of programs. In the Commercial rate class, this includes restaurant cooking equipment, water heaters, and clothes dryers for laundry businesses. Also offered is direct installation for inexpensive equipment such as prerinse spray valves for commercial kitchens and low-flow showerheads.

In the Residential class, programs include building retrofits such as weatherization, insulation, and duct sealing. There are also rebates for appliances including tankless water heaters, efficient furnaces, and clothes dryers.

Some of the programs in the TGS portfolio are highly cost effective. However, the Residential appliances are problematic, and they represented 63% of the total estimated incentives budget (for both classes) in 2022. These problem programs will be discussed in detail.

Tankless Water Heaters

TGS gives rebates of $650 for existing homes and $275 for new homes for tankless, also known as instantaneous, water heaters. These units employ increased combustion efficiency to save energy. Also, since there is no storage tank, there are no storage losses caused by heat dissipating through the tank walls over time.

Given the extensive work-related costs that are necessary (particularly in retrofits), the relatively small amount of energy used for water heating in a residence, and the periodic scale cleaning required to maintain the increased energy efficiency of tankless units, most will not pay for themselves in a Residential setting.

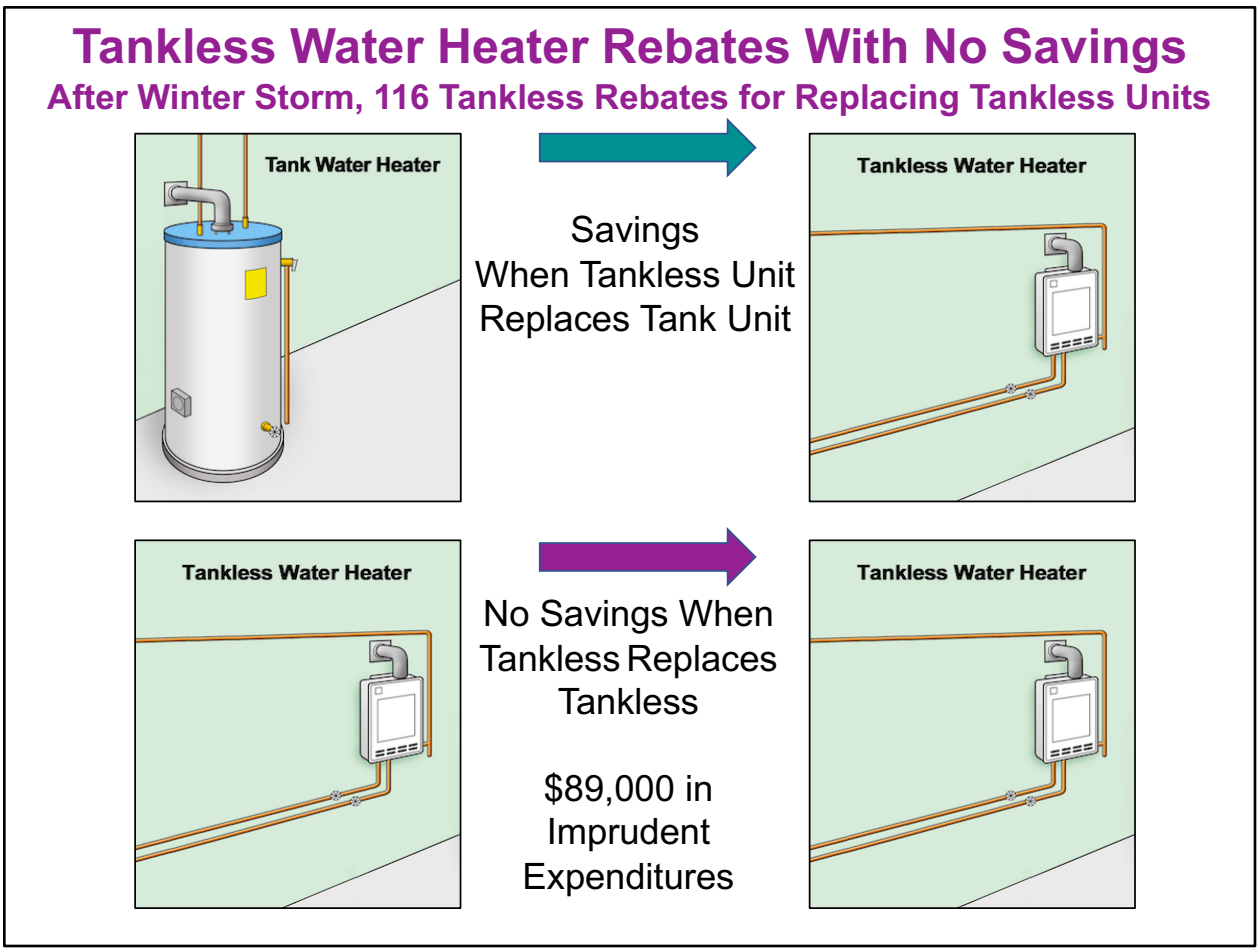
[7] Web site: https://austinenergy.com/-/media/project/websites/austinenergy/about/fy21-ces-progress-report.pdf?sc_lang=en&hash=630BAC89477444D0005C4A34757C3113

Loose scale inside the elbow of the tankless water heater using unsoftened water

According to receipts provided by the gas company in 2021, the average cost of a new installation is about $3,400 more than a conventional water heater. (See Exhibit 1A and 1B.)

The incremental savings, about $490 in fuel over the life of a tankless unit, will never pay back the increased costs. Even these meager monetary savings may be lost if scale cleaning costs are high.

Advocates of tankless units suggest that one of their positive attributes is longer life. They claim units last 20 years, instead of 11 to 13 years typical of gas tank units. However, the 2021 review of TGS receipts found over half of the rebates were for unit *replacement* after the major Texas freeze in February of 2021. TGS ratepayers paid $89,000 in rebates and program administrative costs so the customers could replace tankless the water heaters that were already installed.



While tankless water heaters may be a valuable energy-saving appliance in a laundromat or all-night restaurant, most tankless units will never pay for themselves in a Residential setting. They are more of a luxury item for wealthier customers who want "continuous" hot water that may otherwise be interrupted when using tank units that heat water in batches.

In 2022, this program wasted about $848,000 a year; it wasted $1,002,000 if administrative costs are added.

Efficient Furnaces

TGS provides incentives of $675 for Residential customers who install central furnaces with an AFUE higher than the national standard of 80% AFUE. These range from 92% to 99% AFUE, with a cost premium of at least $802 for the lower-rated units and as high as $1,862 for the higher-rated ones. (*Illinois Technical Reference Manual*, 2022.[8] See Web site in footnote.)

This kind of equipment will not pay for itself in fuel savings over the life of the equipment in the relatively mild winter climates of Gulf-Coast states. It is more appropriate for states along the Canadian border…and Canada.

[8] Web site: https://www.ilsag.info/wp-content/uploads/IL-TRM-Version-11.0-Volumes-1-4-Compiled-Final.pdf, p. 296.

In 2022, this program wasted about $280,000 a year; it wasted $331,000 if administrative costs are added.

Clothes Dryers – Existing Customers

TGS gives rebates of between $225 and $325 per unit (plus administrative costs for the rebate program), for (allegedly) installing efficient gas clothes dryers with a moisture sensor. Yet these sensors are quite inexpensive. One can find aftermarket parts sold online for as little as $3.50.

TGS estimates the increased cost of a gas unit over an electric unit is less than $100, yet it gives a rebate for over 2 to 3 times this amount. The company justifies the rebate by stating that when gas clothes dryers replace electric clothes dryers, electric conversions generally save energy and money for the customer. This is largely because using natural gas directly is less expensive and more efficient than fuels used to generate electricity.

However, in the company's own budget, TGS estimates that only 5% of existing homes that receive rebates convert from electric to gas. (There is also an additional $300 rebate offered to incentivize a new gas supply connection or "stub.") The rest are "gas-to-gas" replacements or purchases.

Clothes dryer moisture sensors can cost as little as $3.50 online.

The TGS incentives are in addition to bill savings of at least $800 over the life of a gas clothes dryer compared to an electric unit.

The moisture sensor will save about $1.46 a year in fuel. So these rebates have a payback of between 154 and 223 years for an appliance expected to last only 11 to 13 years. (With program administrative costs added, the payback is as long as 263 years.)

Moreover, since a customer can participate in clothes dryer rebates as often as every 3 years, and there are no limitations to prevent a customer with an existing clothes dryer with a moisture sensor from participating, it is plausible that even this miniscule savings potential will be missed by some customers receiving rebates.

Clothes Dryers – New Homes

The company claims most/all new homes for which it provides clothes-dryer rebates and dryer-stub rebates would otherwise use an electric dryer. This claim has never been substantiated. It is questionable that a new home builder will go to the expense of hooking up to the gas utility system for furnaces, water heaters, ranges, and pool heaters, but then install a gas clothes dryer only because of the rebate.

This gas utility conservation program actually encourages the sale of more fuel for the utility. In the 2022 budget, this clothes-dryer rebate program wasted between $186,000 and $428,000 per year depending on how rebates for new homes are evaluated. If administrative costs are considered, it wasted between $220,000 and $506,000.

TEXAS GAS SERVICE REBATE MISSPENDING 2022		
	Rebate Cost	**Cost With Administration**
Tankless Water Heaters New	$330,000	$390,057
Tankless Water Heaters Existing	$517,500	$611,681
Central Furnaces New	$236,250	$279,246
Central Furnace Existing	$43,875	$51,860
Dryers – New Homes	$241,875	$285,894
Dryers – Existing	$198,750	$234,921
TOTAL	$1,568,250	$1,853,660

Total misspent money in Central Texas amounted to about $1.8 million in 2022, and the mistakes repeat themselves on an annual basis.

2.3. Abuse of Cost-Effectiveness Metrics By Utility Conservation Program Administrators

TGS annually hires a consultant to conduct cost-effectiveness evaluations. It is instructive to view how he arrived at his conclusions. Below are metrics taken from a TGS conservation consultant, followed by more critical analyses.

Tankless Water Heaters
TGS Total Resource Benefit/Cost Test: 1.17
TGS Assumed Incremental Cost: $407
TGS Assumed Lifetime: 20 years as opposed to 11 years for a conventional water heater

In the survey previously referenced, Exhibits 1A and 1B show an incremental cost of $3,400 for a tankless unit that replaces a conventional water heater, and a $1,500 incremental cost for replacing an existing tankless unit with a new one. And due to the 2021 winter storm, about half of the sample was given a rebate for replacement due to freeze damage. Hence, there was little or no savings in these cases because there was no upgrade from a conventional tank water heater. Further, cost to remove scale (about every 3 years with Austin's water hardness level) was not factored in.

Adjusting for these ($1,500 incremental cost for replacement to $3,400 incremental cost for new installation, 11- to 20-year life, $150 cleaning costs every 3 years) yields a Benefit/Cost range of only 0.20 to 0.08.

Furnaces
TGS Total Resource Benefit/Cost Test: 0.74
TGS Assumed Incremental Cost: $429
TGS Assumed Lifetime: 20 years

Furnace costs are generally taken from various state Technical Resource Manuals usually found online, and they vary in their estimates of "deemed" costs. There is no way to determine local costs because Texas Gas Service will not collect such data. (The utility could make such disclosure mandatory as a condition for participation in its rebate program.)

However, data from the *Illinois Technical Reference Manual* for 2022 contains estimates for incremental cost 2 to 4 times what the TGS consultant assumes.[9] (See Web site in footnote.)

AFUE	Installed Cost	Incremental Installed Cost
80%	$2011	n/a
90%	$2641	$630
91%	$2727	$716
92%	$2813	$802
93%	$3025	$1014
94%	$3237	$1226
95%	$3449	$1438
96%	$3661	$1650
97%	$3873	$1862

Using parameters between 92% and 97% AFUE, with between $802 and $1,862 in incremental costs, shows a Benefit/Cost ratio of only 0.61 to 0.42. It is highly likely that efficient furnace costs are less expensive in Illinois than Texas because the state is three times colder than Texas and more units are probably sold there.

2.3.1. Possible Motivation for Abuse of Cost-Effectiveness Metrics: Marketing

In the case of the gas clothes dryer rebate, TGS is using ratepayer money to guarantee and increase its market share.

2.3.2. Possible Motivation for Abuse of Cost-Effectiveness Metrics: Greenwashing

As late as October 2023, TGS has stated publicly that it was under pressure due to its regional commitment to reduce greenhouse gases. This was meant as justification for giving rebates for programs that it operates whether or not they are cost effective. Quantity versus quality.

I personally see the urgency for drastic reductions of carbon emissions. I am not, however, desperate enough to support rebates which have such tenuous economic justification. The funds can be invested in other measures that are more effective at reducing global warming.

[9] Web site: https://www.ilsag.info/wp-content/uploads/IL-TRM-Version-11.0-Volumes-1-4-Compiled-Final.pdf, p. 296.

2.3.3. Abuse of Cost-Effectiveness Metrics Through Blurring Cost Effectiveness By Program

The Residential portfolio for all TGS program in 2022 had a TRC Benefit/Cost ratio of 1.37. (See Exhibit 2. These worksheets were created by the TGS conservation consultant.)[10]

To gauge the effect of more realistic assumptions, the dynamic "Measures" tab in the consultant worksheet was changed to reflect:

1. increased tankless water heaters and furnace costs reflected in Part 2.3;

2. Decreased lifetime of tankless water heaters reflected in Part 2.3;

3. Scale cleaning costs for tankless water heaters reflected in Part 2.3.

Also, the monetary savings was derated for Residential clothes dryers in existing homes in the Program Summary tab to account for only a 5% conversion rate from electric dryers to gas dryers. (This was per the gas company's proposed budget.)

This lowers the TRC for the portfolio of Residential programs from 1.37 to as low as 0.25.

2.3.4. Abuse of Cost-Effectiveness Metrics Through Blurring Cost Effectiveness By Rate Class

According to the gas company's consultant, the total portfolio for all TGS program in 2022 scored a TRC Benefit/Cost ratio of 1.51. This was because the higher ratio of Commercial program portfolio (2.06) buoyed up the lower ratio (1.37) of the Residential portfolio. (See Exhibit 2.) Again, however, the TGS programs are paid for by separate rate-class conservation fees. If the Commercial class is getting cost-effective conservation savings and the Residential class is not, the problems must be repaired within each rate class. Combining classes obscures this.

[10] Exhibit 2 was provided to me by Texas Gas Service. The consultant hired by TGS was Paul Raab & Associates.

While this is a large multi-tab file, it is relatively simple to adjust variables for tankless water heaters and furnaces in the "Measures" tab. New results will show up on the next tab labeled "Program Summary." Bill savings for existing gas clothes dryers should be derated to 5% in the Program Summary tab. Readers of these comments should look for the adjusted results under Total Resource Cost Test.

This method was used for comparative purposes because it was the best "apples-to-apples" approach.

Texas Gas Service Total Resource Cost Ratios Utility Assumptions Vs. Conservative Assumptions		
TGS Program	TGS Consultant	Conservative Inputs
Residential Space Heating Program	0.74	0.42
Residential Water Heating Program	1.17	0.08
Residential Dryer Program	1.48	0.07
Total Residential Portfolio	1.37	0.24
Total Commercial Portfolio	2.06	2.06
Average of Residential and Commercial Programs	1.51	0.37

Adjusting the combined portfolio for the more accurate assumptions for Residential inputs previously mentioned, the Commercial TRC buoys the overall program to a TRC of only 0.37.

2.3.5. Frequency of Rebates

TGS offers clothes dryer rebates to the same customer as often as every 3 years, even though the TRC Test is based on a 13-year life.

There is no limitation on the number of years between rebates for furnaces and water heaters, even though the TRC Test is based on an estimated 20-year life.

Shortened life will make the appliances' already failing Benefit/Cost ratios even lower.

In contrast, Austin Energy's rebates for HVAC equipment and solar cells are not granted any more often than once every 10 years per customer installation.

2.4. Incentive Levels

Not only are several TGS rebate programs not cost effective, but the rebate *amounts* are way beyond the national average. In a benchmark survey of national utilities comparing about 83% of the U.S. customer base to TGS, the company's rebates for tankless water heaters were twice the national average, and its rebates for clothes dryers and furnaces were 3 times the national average. No other utilities in the country besides the ones affiliated with TGS' parent company OneGas use customer-funded rebates for dryer connections. (This benchmark study was weighted and adjusted for temperature and number of customers in each utility. Most utilities in the U.S. have colder temperatures than Texas, so furnaces and tankless water heaters are more economic in these locations.)

Gas Utility Rebate Survey		
	Texas Gas Service	National Adjusted Average
Tankless Water Heaters	$463	$234
Furnaces	$675	$230
Clothes Dryers	$275	$93
Clothes Dryer Connections	$300	$0

This benchmark survey is attached to these comments as Exhibit 3.

If TGS rebates were set to the national average, about 58% of its budget for these appliances, amounting to $1 million including administrative costs, would be saved a year for Central Texas customers.[11]

2.5. Regressive Rate Structure of Conservation Charge

Between about 1987 and 2018, TGS collected conservation rates volumetrically. In 2018, the collection method was changed to a flat fee. As previously discussed, flat fees are regressive in nature, discouraging conservation while increasing the burden on the poor. While the flat conservation fee itself was minimal, it was layered on to a much larger regressive rate for general Residential service. In 2022, 65% of the TGS' basic Residential rate revenue was based on the monthly fee.

2.6. Tariff Length

Between about 1987 and 2018, TGS collected rates based on an annual tariff. This was changed in 2018 to a three-year tariff. An overcollection of funds accrued, and this overcollection resulted in lost spending power due to the rampant inflation during and after the pandemic.

[11] Based on average of budgets for 2022 and 2023.

Part 3: Qualification for Intervention

The ability of the ratepayers, non-profits, and non-municipal local governments to offer comments during rate proceedings is generally constrained by the Gas utility Regulatory Act.

Sec. 103.052. APPEAL BY RESIDENTS. The residents of a municipality may appeal to the railroad commission the decision of the municipality's governing body in a rate proceeding by filing with the railroad commission a petition for review signed by a number of qualified voters of the municipality equal to at least the lesser of 20,000 or 10 percent of the qualified voters of the municipality.

These constraints not only disadvantage possible intervenors, but they also limit the expertise in cases before the Railroad Commission, which is new to this issue and has not acquired all the experience and expertise necessary to review these new rates.

Rules that allow ratepayers, non-profits, and non-municipal local governments to participate on record as parties and submit amicus briefs need to be devised.

Part 4: Comments of Commission Draft Rules

Below are comments on the what is currently written in the draft rules.

4.1. Numbered Page 4: Economic Impact

The Commission has determined that the proposed rulemaking will not affect a local economy; therefore, pursuant to Texas Government Code, §2001.022, the Commission is not required to prepare a local employment impact statement for the proposed rules.

For the record, conservation programs will create local employment, just as drilling for gas creates employment. In fact, there have been numerous economic studies proving that more jobs are created per million dollars of spending on conservation than capital-intensive fossil-fuel production.

Whether conservation-related jobs create *net* employment – create more jobs than they eliminate – is a function of whether the programs have a positive or negative Benefit/Cost metric.

4.2. Numbered Page 4: Need for Additional Budget

During the first five years that the rule and amendments would be in effect, the proposed new rule and amendments would not: create or eliminate any employee positions; require an increase or decrease in future legislative appropriations; increase fees paid to the agency; create a new regulation; increase or decrease the number of individuals subject to the rule's applicability; expand, limit, or repeal an existing regulation; or affect the state's economy.

To create cost-effective and well-run conservation programs will likely require additional Railroad Commission staff and possibly consultants. This in turn will require increased legislative appropriations unless the regulation can be funded by fees paid from utilities.

4.3. Numbered Page 4: Length of Comment Period

The Commission finds that this comment period is reasonable because the proposal and an online comment form will be available on the Commission's web site more than two weeks prior to Texas Register publication of the proposal, giving interested persons additional time to review, analyze, draft, and submit comments. The Commission encourages all interested persons to submit comments no later than the deadline.

While I have met the deadline, I would have appreciated more time than it allowed. I attempted to find the rule in advance of when the Commissioners approved its release but it was not posted. The Commission is embarking in an entirely new direction, and this requires careful consideration that not all potential commenters can schedule in the time allotted.

I encourage a two-week extension for the comment period.

4.4. Numbered Page 6: Reasonableness and Prudence

If the Commission approves the LDC's application or approves the application with modifications, the LDC may recover costs prudently incurred to implement the ECP portfolio, including costs incurred to design, market, implement, administer, and deliver the ECP portfolio. Any costs included in an ECP portfolio approved by the Commission shall be fully subject to review by the Commission for reasonableness and prudence. ECP costs that are imprudent or recovered from customers without approval of the Commission are subject to refund as determined by the Commission.

As stated throughout these comments, reasonableness and prudence needs to be established by saving energy at the same or less cost than purchasing it.

In addition, it would also be optimal if a third-party auditor chosen by the Commission and paid by the gas company scrutinized the conservation programs at the end of the rate period to document that expenditures were appropriate.

4.5. Numbered Pages 6 and 7

(1) Initial ECP portfolio application. An initial application for approval of an ECP portfolio shall include:

(F) the proposed proportion of ECP portfolio costs to be funded by shareholders;

I am not generally aware of utility conservation programs paid or partially paid by shareholders.

4.6. Numbered Page 7: Shareholder Funding of Conservation Programs

(2) Subsequent ECP portfolio application.

(H) the proposed proportion of ECP portfolio costs to be funded by shareholders;

Again, I am not generally aware of utility programs paid or partially paid by shareholders.

4.7. Numbered Pages 8 and 9: Public Comments to Commission on Conservation Programs

(e) Notice and promotional materials.

(F) a statement that any affected person may file written comments or a protest concerning a proposed ECP portfolio with Gas Services by email to MOS@rrc.texas.gov and to an email address for the LDC company included in its notice.

This does not substitute for official standing in a conservation rate proceeding. (Addressed in Part 3 above.)

Appendix: Web Sites for Exhibits

Three of the Exhibits are in Excel spreadsheet format. RRC will only post them in PDF format on the agency Web site. This format is more difficult to use.

Reviewers of these comments who want the Exhibits in their original Excel format can find them on this Web page.

https://austin.environmentaldirectory.info/web-links-for-comments-to-texas-railroad-commission/