

ORIGINAL OPEN MEETING



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MEMORANDUM
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Arizona Corporation Commission

DOCKETED

NOV 10 2010

TO: THE COMMISSION 2010 NOV 10 P 2:27

FROM: Utilities Division AZ CORP COMMISSION
DOCKET CONTROL

DATE: November 10, 2010

DOCKETED BY 

RE: TUCSON ELECTRIC POWER COMPANY - APPLICATION FOR APPROVAL OF
MODIFICATION AND EXPANSION OF ITS RESIDENTIAL HVAC RETROFIT
PROGRAM (DOCKET NO. E-01933A-07-0401)

In Decision No. 70376 (June 13, 2008), the Arizona Corporation Commission ("Commission") approved Tucson Electric Power Company's ("TEP" or the "Company") Residential HVAC Retrofit program but ordered the Company to *"review the energy savings from the program in order to determine whether a contractor qualification and incentive component, similar to that in place for the Arizona Public Service ("APS") Residential HVAC DSM program, would help to ensure cost-effective energy savings."*

As a result of such review, on April 2, 2010, TEP filed a Request for Approval of Modification and Expansion of Residential HVAC Retrofit Program, now called the "Existing Homes Program" (the "Program"). The expanded Program proposes to provide incentives for high-efficiency heating, ventilation, and air conditioning ("HVAC") equipment and for home performance services, such as sealing leaky duct work, installing insulation, air sealing, and other thermal envelope improvements in existing homes.

Upon Program approval by the Commission, TEP will issue a request for proposal ("RFP") to select an implementation contractor ("IC"). TEP anticipates it will take two months to complete the RFP process to select and hire an IC and three months for the contractor to complete final Program operational design and launch the Program.

Program Description

Goals. The expanded Program will focus on proper sizing and quality installation of high efficiency HVAC equipment, sealing leaky duct work, and installation of thermal envelope measures as well as advancing the building science skills of participating contractors leading to eventual Building Performance Institute ("BPI") certification. Total Program participation in 2011 for all measures is estimated at 1,650 units.

According to TEP, the Program is intended to be a precursor to the launch of the statewide Arizona Home Performance Program, currently being researched by a collaborative of Arizona utilities through a grant from the U.S. Department of Energy. After design is complete, the Arizona Home Performance Program will be submitted to the U.S. Environmental Protection Agency ("EPA") with a request to utilize EPA labeling as Home Performance with Energy Star.

Eligibility. Customer eligibility: Program participants must be in existing residential homes currently served by TEP. Existing residential homes include single-family detached homes, town homes and other attached residential buildings with up to four units.

Contractor eligibility: According to TEP, participating contractors will be rigorously screened for inclusion on a list of qualified contractors. Criteria for inclusion will include training requirements that result in successful BPI Building Analyst certification. BPI certification must be obtained within one year of participation in the Program, or before the statewide Arizona Home Performance with Energy Star program is launched, whichever is sooner. This phrase should be interpreted to mean that within one year of implementation of the Program, all participating contractors must be BPI certified. This gives contractors twelve months to become certified, which is meant to ease the transition. Once the twelve months has elapsed, however, all contractors, whether just joining the Program or not, will have to be BPI certified. Contractors must also be licensed, bonded and insured and maintain a good standing with the Better Business Bureau.

Measures. TEP has determined that its current residential HVAC retrofit program, which offers incentives for residential HVAC equipment, is not achieving the desired cost-effective savings. According to TEP, significant energy savings and demand savings opportunities exist to achieve residential energy savings through the proposed Program.

- HVAC Replacement on Burnout (“ROB”): Incentives are offered for the installation of HVAC equipment (Central Air Conditioners and Heat Pumps – split or packaged) that are ENERGY STAR qualified. For simplicity, TEP proposes that the efficiency eligibility criteria be based solely on HVAC equipment meeting minimum ENERGY STAR efficiency standards. Additionally, quality installation and duct-sealing are required for all HVAC measures, as described below.
 - Quality Installation: includes proper sizing and matching of system condenser and coil, correct refrigerant charge, and proper air-flow. Completion of a Manual J system sizing test, published by the Air Conditioning Contractors of America, is required and will be collected and reviewed by the Program manager.
 - HVAC Equipment Downsizing Incentive: An additional incentive is available if the participating contractor demonstrates that the new system installed is at least 0.5 tons smaller than the system being replaced, yet still within the recommended sizing guidelines per the Manual J test.
- HVAC Early Retirement: Incentives for Energy Star HVAC equipment (Central A/Cs and Heat Pumps – split or packaged) are offered for the early retirement of existing HVAC systems that are fully operational and have a SEER rating of less than or equal to 9.0. Quality installation and duct-sealing are also required for this incentive.
 - The HVAC Equipment Downsizing Incentive is also available for HVAC Early Retirement.

- Duct Sealing: This measure/incentive is for customers that have not participated in the HVAC replace on burnout or early retirement programs. This incentive is based on how the effectiveness of the duct-work is reported. Contractors have two options:
 - Prescriptive Duct Sealing: The prescriptive duct sealing approach requires contractors to complete a duct-sealing check-list that identifies typical high-duct leakage locations and identify actions taken to repair/seal leaks. This approach does not require the use of diagnostic testing equipment such as a Duct Blaster. As part of quality assurance/quality control, TEP will randomly sample installations to confirm contractors are complying with the prescriptive duct sealing requirements.
 - Performance Duct Sealing: The performance duct sealing approach is similar to the prescriptive duct sealing method, requiring a contractor check-list of work completed, however, the incentive is based on performance tested pre and post duct-sealing leakage reductions as measured in CFM-25 (cubic feet per minute at 25 Pascals of pressure). This performance-based incentive option is available only for participating BPI-certified contractors.
- Air Sealing and Thermal Air Barrier: A blower door test by a trained and participating contractor shall be required with reported air leakage numbers in CFM-50 (cubic feet per minute at 50 Pascals of pressure) before air sealing and thermal air barrier measures are implemented, and CFM-50 after air sealing has been completed. A summary showing net air leakage reduction and methods used to achieve the reduction will be required to receive an incentive. Combustion safety testing is required.
- Air Sealing, Thermal Air Barrier, and Insulation: Homes are eligible for this joint air sealing and attic insulation incentive only if the existing attic insulation has an R-value (resistance to heat flow) of less than or equal to R-13 and the insulation upgrade is greater than or equal to R-38. Participating contractors will be required to use a Blower Door Test and report pre and post air-leakage reductions recorded in CFM-50. Combustion safety testing is required. A prerequisite for the insulation rebate is a blower door test by a trained and certified contractor. If the blower door test shows building air leakage is great than 0.35 ACH (air changes per hour), then air sealing and thermal air barrier repair must be completed prior to the installation of new insulation.
- Solar Shade Screens/Window Film: This measure requires that shade screens/window film is installed at a minimum on the South and West exposure of the home. Shade screens and window film must have a shading coefficient of less than or equal to 0.40 or equivalent to blocking "80% of the sun's heat." Participating contractors who only install shade screens/window film will not be required to obtain BPI certification.

All program-approved HVAC, duct sealing, air sealing, and insulation contractors must be able to perform a combustion appliance safety test with a combustion appliance and notify the customer of any deficiencies. All deficiencies must be corrected before duct system repairs or air leakage and insulation measures are performed.

Incentives. Incentives for the purchase of qualifying high-efficiency equipment and/or home performance services will be paid directly to contractors, with a requirement that the customer invoice clearly shows the utility rebate and customer discount. TEP believes this approach of paying the incentive directly to the contractor will assist with overall Program promotion and contractors agreeing to abide by the new required terms and conditions, and heightened standards of professional installation that TEP will be requiring.

Table 1: Proposed Incentive Schedule

Measure	Maximum Incentive per Measure	Units Rebated		
		2010	2011	2012
Replace On Burnout HVAC with Quality Installation and Duct Sealing, Prescriptive	\$850	150	300	400
Replace On Burnout HVAC with Quality Installation and Duct Sealing, Performance	\$1,000	50	100	200
Early Retirement HVAC with Quality Installation and Duct Sealing, Prescriptive	\$1,500	100	200	250
Early Retirement HVAC with Quality Installation and Duct Sealing, Performance	\$1,700	25	50	100
Duct Sealing (Prescriptive)	\$350	150	300	400
Duct Sealing (Performance)	\$650	100	200	400
Air Sealing	\$250	50	100	150
Air Sealing and Attic Insulation	\$800	50	100	150
Solar Shade Screens/ Window Film	\$250	150	300	500

Delivery Strategy and Administration

TEP will provide Program management oversight and marketing and an IC will manage rebate processing.

Field delivery and implementation of the Program, including responsibilities for recruitment, training, and mentorship of participating contractors will be outsourced to a competitively selected third party provider. This third party IC will also be responsible for data tracking, technical support and for participating contractors.

The actual direct delivery of efficiency services to residential customers will be by participating independent contractors.

TEP anticipates that this program will be delivered in conjunction with its proposed Residential Energy Assessment Program ("REAP").¹ As part of the energy audit within the REAP, customers will be provided information on available incentives offered through the

¹ See Docket No. E-01933A-07-0401.

Existing Homes Program. However, participation in the REAP is not a prerequisite for taking advantage of the incentives offered through this Program.

Key partnering relationships will include:

- Community interest groups;
- HVAC, insulation, and air sealing training professionals;
- HVAC, insulation, and air sealing contractors trained in Program procedures; and
- The Arizona Energy Office and local community colleges, or other industry experts and institutions to provide training, education and awareness.

Building Performance Institute Certification. The Program will initially recruit local contractors, encouraging those with existing BPI certified technicians, and Home Energy Rating System ("HERS") certifications to become participating contractors. There are currently more than 100 BPI certified contractors in the state of Arizona but only 9 these contractors are located in TEP service territory.

BPI certification will not be required for the initial launch of the Program redesign with consumer marketing and contractor training in 2010 emphasizing the importance of BPI certification. BPI certification, as a Building Analyst, will, however, be required within 1 year of Program participation or prior to the launch of the Arizona Statewide Home Performance Program, whichever is sooner. The Building Analyst certification covers major work areas covering the services associated with this program including health and safety issues, building airflow, building and insulation evaluation, combustion safety and carbon monoxide protection, envelope and duct leakage testing and repairs.

To aid in the BPI certification process, TEP will organize and deliver BPI certification classes and will reimburse a portion of training costs associated with certification (up to 50% of the cost) and ownership of program-required diagnostic equipment. BPI Building Analyst Certification is currently available through the Foundation for Senior Living ("FSL") for approximately \$1300, but FSL does not operate within TEP's service territory. Program-required diagnostic equipment includes a monometer to check pressures (with a cost of about \$500), a blower-door to determine air-tightness (with a cost of about \$1,500), and possibly a duct blaster or pressure pans for determining duct tightness (with a cost of about \$1,500). TEP estimates that it will assist approximately 10 contractors per year with BPI certification, with the possibility for each contractor to certify multiple individuals. For Training and Certification, TEP has budgeted \$97,500 for 2010, \$100,425 for 2011 and \$103,438 for 2012. Reimbursement will be paid after the contractor receives BPI certification and completes a minimum number of qualifying jobs, which may include any measure available under the Program, as specified by the Program and described in the next section.

Contractor Training and Certification. TEP's implementation contractor will provide an orientation of the Program, outlining Program requirements, contractor responsibilities, reporting, and data collection procedures. Contractors interested in participating in the Program

must attend the orientation as well as meet all Program requirements for training, technician certification, and Program mentoring.

The quality assurance process begins with TEP's implementation contractor who is responsible for providing training and mentoring to all participating contractor(s). TEP's Program manager and/or the implementation contractor will review documents, and may mail the homeowner surveys or perform random sampling and field inspections of work completed. TEP's program manager will also document contractor deficiencies, track homeowner complaints, issue corrective action, and provide constructive feedback to ensure Program quality.

After successful completion of the general TEP Program participation class, contractors wishing to join the Program will be enrolled in a "mentor" phase. An RFP has been issued by TEP, and the Company is in the process of choosing an experienced energy efficiency organization that will provide mentoring services, likely producing local staff hired specifically to work as mentors with the Program. During the "mentor" phase, the contractor will receive a ride-a-long for their first three jobs. At that time, the mentor will complete a contractor assessment to determine if the work the contractor is conducting complies with minimum Program standards. If so, the contractor will exit the mentoring phase, but the next five jobs completed will be inspected. After the completion of the first three jobs, the contractor will be reimbursed for training and equipment as described above, with those first three jobs counting as qualifying jobs. If the mentor determines that the contractor is not yet ready to start delivering services in compliance with Program guidelines, the mentor will recommend up to three more ride-a-longs, extending the number of qualifying jobs that need to be completed prior to the contractor receiving reimbursement for training and equipment. If the contractor is still not ready to deliver services in compliance with Program guidelines after these additional ride-a-longs, the contractor will be placed on hold for six months before they can reapply for participation in the Program.

This mentorship review process will be used for both BPI certified and non-BPI certified contractors, with a heightened level of expectation for BPI contractors. Non-BPI certified contractors are eligible to install shade screens and window film and, for the first year of the program only, all non-performance based measures.

Participating contractors must employ properly trained staff, and must allow inspection of work performed by the Program manager or the IC to ensure that all measures are properly installed and safety precautions are observed. Only contractor firms with BPI certified technicians on staff may take advantage of any "performance based" incentive options, which are currently restricted to the duct sealing component of the Program.

A list of qualifying contractors will be posted on TEP's website providing a source of qualified contractor referrals for TEP customers.

Rebate Processing. Rebate processing will be provided by an outsourced Program IC. Rebate application forms will be available online at tep.com. Applications must be submitted by the contractor, by mail, along with supporting documentation and proof of paid invoices for all work conducted. All applications received will go through a quality control review for completeness, accuracy and consistency of data. In cases where questions are identified,

processing staff will call the customer or installation contractor for verification. Random inspections will be conducted to verify proper installation of all rebated measures.

Marketing

TEP will provide Program marketing and customer awareness-building through a range of strategies including:

- Providing information on incentives as part of the REAP energy audit;
- Promotions on the TEP website about the benefits of purchasing high efficiency equipment;
- Promotion through community interest groups;
- Advertising in major newspapers and other selected print media in TEP service territory to raise awareness of the availability of the Program;
- Providing information through TEP's customer care center;
- Developing marketing pieces including brochures and other collateral pieces to promote the benefits of qualifying equipment, air sealing and duct sealing;
- Assistance with responding to customer inquiries about the Program and how to purchase qualifying equipment; and
- Training and seminars for participating trade allies.

The advertising campaign will communicate that high-efficiency systems and home performance services will help reduce customer energy bills, provide equal or better comfort conditions, and are beneficial for the environment.

Program Budget

Due to the expanded list of Program measures, the Program budget is expected to increase as detailed below. The first-year expanded Program budget has been reduced to account for only a partial year ramp-up. The budget projection for 2011 also anticipates a partial year ramp-up as TEP concentrates on more contractor recruitment and training necessary to support full program offerings.

Impacts from this program on the DSM Adjustor Clause would be reflected with the true up of the adjustor rate at the annual reset, as estimated in Table 2. Staff estimates that at full implementation, an average residential bill would increase by \$2.42 per year, assuming consumption of 800 kWh per month. Additionally, the expanded program budget follows the framework of the originally proposed program budget. (See Table 3.)

Table 2. Proposed Incremental Increase in Program Budget

	2010	2011	2012
Original Program Budget	\$530,450	\$546,364	\$562,754
Expanded Program Budget	\$1,122,520	\$2,096,167	\$2,903,952
Incremental Increase in Program Budget	\$592,070	\$1,549,803	\$2,341,198
Incremental Increase in Expanded Program Adjustor Mechanism	\$0.000064/kWh	\$0.000167/kWh	\$0.000252/kWh

Table 3. Total Proposed Program Budget 2010 – 2012

	Budget		
	2010	2011	2012
Financial Incentives	\$577,500	\$1,155,000	\$1,767,500
Program Delivery	\$318,000	\$560,925	\$628,776
Program Marketing	\$134,325	\$257,389	\$359,441
Utility Program Administration	\$60,000	\$61,800	\$63,654
Measurement, Evaluation, and Research	\$32,695	\$61,053	\$84,581
Total Incentive	\$577,500	\$1,155,000	\$1,767,500
Total Non-Incentive	\$545,020	\$941,167	\$1,136,452
TOTAL	\$1,122,520	\$2,096,167	\$2,903,952

Program Participation

Total annual expected participation for each measure within the Program is shown above in Table 1.

Estimated Energy Savings and Environmental Benefits

TEP anticipates that after the 2010 ramp-up of the expanded Program, energy savings will significantly surpass energy savings from the original Program design.

Table 4. Projected Energy Savings 2010 – 2012

Energy Savings	2010	2011	2012	Total
Expanded Annual Demand Savings (kW)	859	1,718	2,629	5,207
Expanded Annual Energy Savings (MWh)	1,026	2,053	3,131	6,210
Expanded Lifetime Energy Savings (MWh)	18,560	37,119	56,221	111,899
Expanded Annual Energy Savings (Therms)	1,425	2,850	4,275	8,550
Expanded Lifetime Energy Savings (Therms)	28,500	57,000	85,500	171,000

Table 5. Projected CO2 Reductions 2010 – 2012

CO2 Reductions	2010	2011	2012	Total
Annual (Metric Tons)	624	1,249	1,904	3,777
Lifetime (Metric Tons)	11,304	22,608	34,237	68,149

Cost-Effectiveness

The Commission’s 1991 Resource Planning Decision established the Societal Cost Test (“SCT”) as the methodology to be used for determining the cost-effectiveness of a DSM program. Under the SCT, in order to be cost-effective, the ratio of benefits to costs must be greater than one. The societal costs for a DSM program include the cost of the measure and the cost of implementing the program, excluding rebates. The societal benefits of a DSM program include the avoided demand and energy costs as well as avoided environmental impacts, which are quantified, but do not have to be monetized.

Due to the whole-house effect of the measures included in the Existing Homes program, certain measures will result in both electric and natural gas savings in homes that utilize both energy sources. To capture the total economic benefits of these measures, Staff has included the cost savings associated with estimated natural gas savings (therms) for relevant measures in the benefit-cost analysis. Relevant measures are those that include duct test and repair, air sealing and attic insulation. If all natural gas cost savings were excluded, the program would have an SCT benefit-cost ratio of 0.97. If estimated natural gas savings are included, TEP’s Existing Homes Program would have an SCT benefit-cost ratio of 1.06, with about half of the measures being cost-effective and the remaining measures having a benefit-to-cost ratio close to 1.0, as shown in Table 6.

In its application, TEP included potential costs of complying with carbon dioxide (CO₂) regulation in its benefit-cost calculations. TEP has estimated low, medium, and high carbon values of approximately \$14, \$25, and \$43 per ton, respectively. Staff understands that the Commission has yet to make a determination as to the potential value of CO₂ or its inclusion in the calculation of cost-effectiveness under the SCT. Staff conducted its benefit-cost analysis including and excluding the CO₂ values provided by TEP. With the inclusion of a low CO₂ value and estimated natural gas savings, the Existing Homes Program would be cost-effective with an SCT benefit-cost ratio of 1.39.

Table 6. Measure and Program Cost-Effectiveness

Measure	Benefit to Cost Ratio	
	Not Including CO ₂	Including Low CO ₂ Value
Replace On Burnout HVAC with Quality Installation and Duct Sealing, Prescriptive	1.07	1.39
Replace On Burnout HVAC with Quality Installation and Duct Sealing, Performance	1.07	1.39

Early Retirement HVAC with Quality Installation and Duct Sealing, Prescriptive	1.27	1.55
Early Retirement HVAC with Quality Installation and Duct Sealing, Performance	1.27	1.55
Duct Sealing, Prescriptive	0.95	1.28
Duct Sealing, Performance	0.95	1.28
Air Sealing	0.99	1.25
Air Sealing & Attic Insulation	1.09	1.44
Shade Screens/Window Film	0.89	1.35
Program Total	1.06	1.39

Implementation Contractor(s)

Rebate Administration. TEP will use a third party IC for assistance with rebate processing. Field delivery and implementation of the Program, including responsibilities for recruitment, training, and mentorship of participating contractors will be outsourced to a competitively selected third party provider. This same provider will also be responsible for data tracking, technical support and for participating contractors. Direct delivery of services to residential customers will be by participating ICs.

Program training and mentoring. TEP will work closely with the IC to recruit, train and manage trade allies to ensure optimum effectiveness in Program delivery. TEP's IC will provide an orientation of the Program outlining Program requirements and contractors' responsibilities as well as discuss reporting and data collection procedures. The IC is also responsible for providing training and mentoring to all participating contractor(s) as part of the quality assurance process. The IC may also review documents, and may mail the homeowner a survey or perform random sampling and field inspections of work completed. The IC may also perform inspection of work performed to ensure that all measures are properly installed and safety precautions are observed.

Monitoring and Evaluation

TEP will adopt a strategy that calls for integrated data collection designed to provide a quality data resource for Program tracking, management and evaluation. This approach will entail the following primary activities:

- Database management: TEP will collect the necessary data elements to populate the tracking database and provide periodic reporting;
- Integrated implementation data collection: TEP will establish systems to collect the data needed to support effective Program management and evaluation through the implementation and application processes. The database tracking system will be integrated with implementation data collection processes;

- Field verification: TEP will conduct field verification of the installation of a sample of measures throughout the implementation of the Program; and
- Tracking of savings using deemed savings values: TEP will develop deemed savings values for each measure and technology promoted by the Program, periodically review and revise the savings values to be consistent with Program participation, and accurately estimate the savings being achieved by the Program.

Reporting Requirements

Staff recommends that the TEP DSM reports include, at a minimum, (i) the number of incentives provided per measure; (ii) copies of marketing materials; (iii) estimated cost savings to participants; (iv) gas and electric savings as determined by the monitoring and evaluation process; (v) estimated environmental savings; (vi) the total amount of the program budget spent during the previous six months, the previous year, and since inception of the program; (vii) any significant impacts on program cost-effectiveness; (viii) the number of contractors that were BPI-certified using program funds; (ix) the total number of BPI contractors in TEP Electric service territory; and (x) descriptions of any problems and proposed solutions including movements of funding from one program to another.

Recommendations

Staff recommends that the TEP Existing Homes Program be approved.



Steven M. Olea
Director
Utilities Division

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ORIGINATOR: Laura A. Furrey

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BEFORE THE ARIZONA CORPORATION COMMISSION

- KRISTIN K. MAYES
Chairman
- GARY PIERCE
Commissioner
- PAUL NEWMAN
Commissioner
- SANDRA D. KENNEDY
Commissioner
- BOB STUMP
Commissioner

IN THE MATTER OF TUCSON ELECTRIC
POWER COMPANY'S APPLICATION FOR
APPROVAL OF MODIFICATION AND
EXPANSION OF ITS RESIDENTIAL HVAC
RETROFIT PROGRAM

DOCKET NO. E-01933A-07-0401
DECISION NO. _____
ORDER

Open Meeting
November 22 & 23, 2010
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

1. Tucson Electric Power Company ("TEP" or "the Company") is certificated to provide electric service as a public service corporation in the State of Arizona.

BACKGROUND

2. In Decision No. 70376 (June 13, 2008), the Arizona Corporation Commission ("Commission") approved TEP's Residential HVAC Retrofit program but ordered the Company to "review the energy savings from the program in order to determine whether a contractor qualification and incentive component, similar to that in place for the Arizona Public Service ("APS") Residential HVAC DSM program, would help to ensure cost-effective energy savings."

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1 performance services, such as sealing leaky duct work, installing insulation, air sealing, and other
2 thermal envelope improvements in existing homes.

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4 (“RFP”) to select an implementation contractor (“IC”). TEP anticipates it will take two months to
5 complete the RFP process to select and hire an IC and three months for the contractor to complete
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7 **PROGRAM DESCRIPTION**

8 5. Goals. The expanded Program will focus on proper sizing and quality installation of
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15 Arizona utilities through a grant from the U.S. Department of Energy. After design is complete,
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28 certified, which is meant to ease the transition. Once the twelve months has elapsed, however, all

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than 0.35 ACH (air changes per hour), then air sealing and thermal air barrier
repair must be completed prior to the installation of new insulation.

19 • Solar Shade Screens/Window Film: This measure requires that shade
20 screens/window film is installed at a minimum on the South and West exposure
21 of the home. Shade screens and window film must have a shading coefficient
22 of less than or equal to 0.40 or equivalent to blocking "80% of the sun's heat."
Participating contractors who only install shade screens/window film will not
be required to obtain BPI certification.

23 10. All program-approved HVAC, duct sealing, air sealing, and insulation contractors
24 must be able to perform a combustion appliance safety test with a combustion appliance and notify
25 the customer of any deficiencies. All deficiencies must be corrected before duct system repairs or
26 air leakage and insulation measures are performed.

27 11. Incentives. Incentives for the purchase of qualifying high-efficiency equipment
28 and/or home performance services will be paid directly to contractors, with a requirement that the

1 customer invoice clearly shows the utility rebate and customer discount. TEP believes this
 2 approach of paying the incentive directly to the contractor will assist with overall Program
 3 promotion and contractors agreeing to abide by the new required terms and conditions, and
 4 heightened standards of professional installation that TEP will be requiring.

5 **Table 1: Proposed Incentive Schedule**

Measure	Maximum Incentive per Measure	Units Rebated		
		2010	2011	2012
Replace On Burnout HVAC with Quality Installation and Duct Sealing, Prescriptive	\$850	150	300	400
Replace On Burnout HVAC with Quality Installation and Duct Sealing, Performance	\$1,000	50	100	200
Early Retirement HVAC with Quality Installation and Duct Sealing, Prescriptive	\$1,500	100	200	250
Early Retirement HVAC with Quality Installation and Duct Sealing, Performance	\$1,700	25	50	100
Duct Sealing (Prescriptive)	\$350	150	300	400
Duct Sealing (Performance)	\$650	100	200	400
Air Sealing	\$250	50	100	150
Air Sealing and Attic Insulation	\$800	50	100	150
Solar Shade Screens/ Window Film	\$250	150	300	500

17
 18 **DELIVERY STRATEGY AND ADMINISTRATION**

19 12. TEP will provide Program management oversight and marketing and an IC will
 20 manage rebate processing.

21 13. Field delivery and implementation of the Program, including responsibilities for
 22 recruitment, training, and mentorship of participating contractors will be outsourced to a
 23 competitively selected third party provider. This third party IC will also be responsible for data
 24 tracking, technical support and for participating contractors.

25 14. The actual direct delivery of efficiency services to residential customers will be by
 26 participating independent contractors.

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1 15. TEP anticipates that this program will be delivered in conjunction with its proposed
2 Residential Energy Assessment Program (“REAP”).¹ As part of the energy audit within the
3 REAP, customers will be provided information on available incentives offered through the
4 Existing Homes Program. However, participation in the REAP is not a prerequisite for taking
5 advantage of the incentives offered through this Program.

6 16. Key partnering relationships will include:

- 7 • Community interest groups;
- 8 • HVAC, insulation, and air sealing training professionals;
- 9 • HVAC, insulation, and air sealing contractors trained in Program procedures;
10 and
- 11 • The Arizona Energy Office and local community colleges, or other industry
12 experts and institutions to provide training, education and awareness.

13 17. Building Performance Institute Certification. The Program will initially recruit local
14 contractors, encouraging those with existing BPI certified technicians, and Home Energy Rating
15 System (“HERS”) certifications to become participating contractors. There are currently more
16 than 100 BPI certified contractors in the state of Arizona but only 9 these contractors are located in
17 TEP service territory.

18 18. BPI certification will not be required for the initial launch of the Program redesign
19 with consumer marketing and contractor training in 2010 emphasizing the importance of BPI
20 certification. BPI certification, as a Building Analyst, will, however, be required within 1 year of
21 Program participation or prior to the launch of the Arizona Statewide Home Performance Program,
22 whichever is sooner. The Building Analyst certification covers major work areas covering the
23 services associated with this program including health and safety issues, building airflow, building
24 and insulation evaluation, combustion safety and carbon monoxide protection, envelope and duct
25 leakage testing and repairs.

26 19. To aid in the BPI certification process, TEP will organize and deliver BPI
27 certification classes and will reimburse a portion of training costs associated with certification (up

28 ¹ See Docket No. E-01933A-07-0401.

1 to 50% of the cost) and ownership of program-required diagnostic equipment. BPI Building
2 Analyst Certification is currently available through the Foundation for Senior Living ("FSL") for
3 approximately \$1300, but FSL does not operate within TEP's service territory. Program-required
4 diagnostic equipment includes a monometer to check pressures (with a cost of about \$500), a
5 blower-door to determine air-tightness (with a cost of about \$1,500), and possibly a duct blaster or
6 pressure pans for determining duct tightness (with a cost of about \$1,500). TEP estimates that it
7 will assist approximately 10 contractors per year with BPI certification, with the possibility for
8 each contractor to certify multiple individuals. For Training and Certification, TEP has budgeted
9 \$97,500 for 2010, \$100,425 for 2011 and \$103,438 for 2012. Reimbursement will be paid after
10 the contractor receives BPI certification and completes a minimum number of qualifying jobs,
11 which may include any measure available under the Program, as specified by the Program and
12 described in the next section.

13 20. Contractor Training and Certification. TEP's implementation contractor will
14 provide an orientation of the Program, outlining Program requirements, contractor responsibilities,
15 reporting, and data collection procedures. Contractors interested in participating in the Program
16 must attend the orientation as well as meet all Program requirements for training, technician
17 certification, and Program mentoring.

18 21. The quality assurance process begins with TEP's implementation contractor who is
19 responsible for providing training and mentoring to all participating contractor(s). TEP's Program
20 manager and/or the implementation contractor will review documents, and may mail the
21 homeowner surveys or perform random sampling and field inspections of work completed. TEP's
22 program manager will also document contractor deficiencies, track homeowner complaints, issue
23 corrective action, and provide constructive feedback to ensure Program quality.

24 22. After successful completion of the general TEP Program participation class,
25 contractors wishing to join the Program will be enrolled in a "mentor" phase. An RFP has been
26 issued by TEP, and the Company is in the process of choosing an experienced energy efficiency
27 organization that will provide mentoring services, likely producing local staff hired specifically to
28 work as mentors with the Program. During the "mentor" phase, the contractor will receive a ride-

1 a-long for their first three jobs. At that time, the mentor will complete a contractor assessment to
2 determine if the work the contractor is conducting complies with minimum Program standards. If
3 so, the contractor will exit the mentoring phase, but the next five jobs completed will be inspected.
4 After the completion of the first three jobs, the contractor will be reimbursed for training and
5 equipment as described above, with those first three jobs counting as qualifying jobs. If the
6 mentor determines that the contractor is not yet ready to start delivering services in compliance
7 with Program guidelines, the mentor will recommend up to three more ride-a-longs, extending the
8 number of qualifying jobs that need to be completed prior to the contractor receiving
9 reimbursement for training and equipment. If the contractor is still not ready to deliver services in
10 compliance with Program guidelines after these additional ride-a-longs, the contractor will be
11 placed on hold for six months before they can reapply for participation in the Program.

12 23. This mentorship review process will be used for both BPI certified and non-BPI
13 certified contractors, with a heightened level of expectation for BPI contractors. Non-BPI certified
14 contractors are eligible to install shade screens and window film and, for the first year of the
15 program only, all non-performance based measures.

16 24. Participating contractors must employ properly trained staff, and must allow
17 inspection of work performed by the Program manager or the IC to ensure that all measures are
18 properly installed and safety precautions are observed. Only contractor firms with BPI certified
19 technicians on staff may take advantage of any "performance based" incentive options, which are
20 currently restricted to the duct sealing component of the Program.

21 25. A list of qualifying contractors will be posted on TEP's website providing a source
22 of qualified contractor referrals for TEP customers.

23 26. Rebate Processing. Rebate processing will be provided by an outsourced Program
24 IC. Rebate application forms will be available online at tep.com. Applications must be submitted
25 by the contractor, by mail, along with supporting documentation and proof of paid invoices for all
26 work conducted. All applications received will go through a quality control review for
27 completeness, accuracy and consistency of data. In cases where questions are identified,

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1 processing staff will call the customer or installation contractor for verification. Random
2 inspections will be conducted to verify proper installation of all rebated measures.

3 MARKETING

4 27. TEP will provide Program marketing and customer awareness-building through a
5 range of strategies including:

- 6 • Providing information on incentives as part of the REAP energy audit;
- 7 • Promotions on the TEP website about the benefits of purchasing high efficiency
8 equipment;
- 9 • Promotion through community interest groups;
- 10 • Advertising in major newspapers and other selected print media in TEP service
11 territory to raise awareness of the availability of the Program;
- 12 • Providing information through TEP's customer care center;
- 13 • Developing marketing pieces including brochures and other collateral pieces to
14 promote the benefits of qualifying equipment, air sealing and duct sealing;
- 15 • Assistance with responding to customer inquiries about the Program and how to
16 purchase qualifying equipment; and
- 17 • Training and seminars for participating trade allies.

18 28. The advertising campaign will communicate that high-efficiency systems and home
19 performance services will help reduce customer energy bills, provide equal or better comfort
20 conditions, and are beneficial for the environment.

21 PROGRAM BUDGET

22 29. Due to the expanded list of Program measures, the Program budget is expected to
23 increase as detailed below. The first-year expanded Program budget has been reduced to account
24 for only a partial year ramp-up. The budget projection for 2011 also anticipates a partial year
25 ramp-up as TEP concentrates on more contractor recruitment and training necessary to support full
26 program offerings.

27 30. Impacts from this program on the DSM Adjustor Clause would be reflected with
28 the true up of the adjustor rate at the annual reset, as estimated in Table 2. Staff estimates that at

1 full implementation, an average residential bill would increase by \$2.42 per year, assuming
 2 consumption of 800 kWh per month. Additionally, the expanded program budget follows the
 3 framework of the originally proposed program budget. (See Table 3.)

4 **Table 2. Proposed Incremental Increase in Program Budget**

	2010	2011	2012
5 Original Program Budget	\$530,450	\$546,364	\$562,754
6 Expanded Program Budget	\$1,122,520	\$2,096,167	\$2,903,952
7 Incremental Increase in Program Budget	\$592,070	\$1,549,803	\$2,341,198
8 Incremental Increase in Expanded Program Adjustor Mechanism	\$0.000064/kWh	\$0.000167/kWh	\$0.000252/kWh

11 **Table 3. Total Proposed Program Budget 2010 – 2012**

	Budget		
	2010	2011	2012
12 Financial Incentives	\$577,500	\$1,155,000	\$1,767,500
13 Program Delivery	\$318,000	\$560,925	\$628,776
14 Program Marketing	\$134,325	\$257,389	\$359,441
15 Utility Program Administration	\$60,000	\$61,800	\$63,654
16 Measurement, Evaluation, and Research	\$32,695	\$61,053	\$84,581
17 Total Incentive	\$577,500	\$1,155,000	\$1,767,500
18 Total Non-Incentive	\$545,020	\$941,167	\$1,136,452
19 TOTAL	\$1,122,520	\$2,096,167	\$2,903,952

20 **PROGRAM PARTICIPATION**

21 31. Total annual expected participation for each measure within the Program is shown
 22 above in Table 1.
 23

24 **ESTIMATED ENERGY SAVINGS AND ENVIRONMENTAL BENEFITS**

25 32. TEP anticipates that after the 2010 ramp-up of the expanded Program, energy
 26 savings will significantly surpass energy savings from the original Program design.
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Table 4. Projected Energy Savings 2010 – 2012

Energy Savings	2010	2011	2012	Total
Expanded Annual Demand Savings (kW)	859	1,718	2,629	5,207
Expanded Annual Energy Savings (MWh)	1,026	2,053	3,131	6,210
Expanded Lifetime Energy Savings (MWh)	18,560	37,119	56,221	111,899
Expanded Annual Energy Savings (Therms)	1,425	2,850	4,275	8,550
Expanded Lifetime Energy Savings (Therms)	28,500	57,000	85,500	171,000

Table 5. Projected CO2 Reductions 2010 – 2012

CO2 Reductions	2010	2011	2012	Total
Annual (Metric Tons)	624	1,249	1,904	3,777
Lifetime (Metric Tons)	11,304	22,608	34,237	68,149

COST-EFFECTIVENESS

33. The Commission's 1991 Resource Planning Decision established the Societal Cost Test ("SCT") as the methodology to be used for determining the cost-effectiveness of a DSM program. Under the SCT, in order to be cost-effective, the ratio of benefits to costs must be greater than one. The societal costs for a DSM program include the cost of the measure and the cost of implementing the program, excluding rebates. The societal benefits of a DSM program include the avoided demand and energy costs as well as avoided environmental impacts, which are quantified, but do not have to be monetized.

34. Due to the whole-house effect of the measures included in the Existing Homes program, certain measures will result in both electric and natural gas savings in homes that utilize both energy sources. To capture the total economic benefits of these measures, Staff has included the cost savings associated with estimated natural gas savings (therms) for relevant measures in the benefit-cost analysis. Relevant measures are those that include duct test and repair, air sealing and attic insulation. If all natural gas cost savings were excluded, the program would have an SCT benefit-cost ratio of 0.97. If estimated natural gas savings are included, TEP's Existing Homes Program would have an SCT benefit-cost ratio of 1.06, with about half of the measures being cost-

1 effective and the remaining measures having a benefit-to-cost ratio close to 1.0, as shown in
2 Table 6.

3 35. In its application, TEP included potential costs of complying with carbon dioxide
4 (CO₂) regulation in its benefit-cost calculations. TEP has estimated low, medium, and high carbon
5 values of approximately \$14, \$25, and \$43 per ton, respectively. Staff understands that the
6 Commission has yet to make a determination as to the potential value of CO₂ or its inclusion in the
7 calculation of cost-effectiveness under the SCT. Staff conducted its benefit-cost analysis including
8 and excluding the CO₂ values provided by TEP. With the inclusion of a low CO₂ value and
9 estimated natural gas savings, the Existing Homes Program would be cost-effective with an SCT
10 benefit-cost ratio of 1.39.

11 **Table 6. Measure and Program Cost-Effectiveness**

Measure	Benefit to Cost Ratio	
	Not Including CO ₂	Including Low CO ₂ Value
14 Replace On Burnout HVAC with 15 Quality Installation and Duct Sealing, Prescriptive	1.07	1.39
16 Replace On Burnout HVAC with 17 Quality Installation and Duct Sealing, Performance	1.07	1.39
18 Early Retirement HVAC with Quality 19 Installation and Duct Sealing, Prescriptive	1.27	1.55
20 Early Retirement HVAC with Quality Installation and Duct Sealing, Performance	1.27	1.55
21 Duct Sealing, Prescriptive	0.95	1.28
22 Duct Sealing, Performance	0.95	1.28
Air Sealing	0.99	1.25
23 Air Sealing & Attic Insulation	1.09	1.44
24 Shade Screens/Window Film	0.89	1.35
25 Program Total	1.06	1.39

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IMPLEMENTATION CONTRACTOR(S)

36. Rebate Administration. TEP will use a third party IC for assistance with rebate processing. Field delivery and implementation of the Program; including responsibilities for recruitment, training, and mentorship of participating contractors will be outsourced to a competitively selected third party provider. This same provider will also be responsible for data tracking, technical support and for participating contractors. Direct delivery of services to residential customers will be by participating ICs.

37. Program training and mentoring. TEP will work closely with the IC to recruit, train and manage trade allies to ensure optimum effectiveness in Program delivery. TEP's IC will provide an orientation of the Program outlining Program requirements and contractors' responsibilities as well as discuss reporting and data collection procedures. The IC is also responsible for providing training and mentoring to all participating contractor(s) as part of the quality assurance process. The IC may also review documents, and may mail the homeowner a survey or perform random sampling and field inspections of work completed. The IC may also perform inspection of work performed to ensure that all measures are properly installed and safety precautions are observed.

MONITORING AND EVALUATION

38. TEP will adopt a strategy that calls for integrated data collection designed to provide a quality data resource for Program tracking, management and evaluation. This approach will entail the following primary activities:

- Database management: TEP will collect the necessary data elements to populate the tracking database and provide periodic reporting;
- Integrated implementation data collection: TEP will establish systems to collect the data needed to support effective Program management and evaluation through the implementation and application processes. The database tracking system will be integrated with implementation data collection processes;
- Field verification: TEP will conduct field verification of the installation of a sample of measures throughout the implementation of the Program; and

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- Tracking of savings using deemed savings values: TEP will develop deemed savings values for each measure and technology promoted by the Program, periodically review and revise the savings values to be consistent with Program participation, and accurately estimate the savings being achieved by the Program.

REPORTING REQUIREMENTS

39. Staff has recommended that the TEP DSM reports include, at a minimum, (i) the number of incentives provided per measure; (ii) copies of marketing materials; (iii) estimated cost savings to participants; (iv) gas and electric savings as determined by the monitoring and evaluation process; (v) estimated environmental savings; (vi) the total amount of the program budget spent during the previous six months, the previous year, and since inception of the program; (vii) any significant impacts on program cost-effectiveness; (viii) the number of contractors that were BPI-certified using program funds; (ix) the total number of BPI contractors in TEP service territory; and (x) descriptions of any problems and proposed solutions including movements of funding from one program to another.

RECOMMENDATIONS

40. Staff has recommended that the TEP Existing Homes Program be approved. We find Staff's recommendations to be reasonable and should be adopted.

CONCLUSIONS OF LAW

1. Tucson Electric Power Company is an Arizona public service corporation within the meaning of Article XV, Section 2, of the Arizona Constitution.

2. The Commission has jurisdiction over TEP and over the subject matter of the Application.

3. The Commission, having reviewed the application and Staff's Memorandum dated November 10, 2010, concludes that it is in the public interest to approve the TEP Existing Homes Program, as discussed herein.

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ORDER

IT IS THEREFORE ORDERED that the Tucson Electric Power Company Existing Homes Program be and hereby is approved, as discussed herein.

IT IS THEREFORE ORDERED that the Tucson Electric Power Company DSM reports shall include, at a minimum:

- the number of incentives provided per measure;
- copies of marketing materials;
- estimated cost savings to participants;
- gas and electric savings as determined by the monitoring and evaluation process;
- estimated environmental savings;
- the total amount of the program budget spent during the previous six months, the previous year, and since inception of the program;
- any significant impacts on program cost-effectiveness;

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- the number of contractors that were BPI-certified using program funds;
- the total number of BPI contractors in TEP service territory; and
- descriptions of any problems and proposed solutions including movements of funding from one program to another

IT IS FURTHER ORDERED that this Order shall become effective immediately.

BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION

CHAIRMAN

COMMISSIONER

COMMISSIONER

COMMISSIONER

COMMISSIONER

IN WITNESS WHEREOF, I, ERNEST G. JOHNSON,
Executive Director of the Arizona Corporation Commission,
have hereunto, set my hand and caused the official seal of
this Commission to be affixed at the Capitol, in the City of
Phoenix, this _____ day of _____, 2010.

ERNEST G. JOHNSON
EXECUTIVE DIRECTOR

DISSENT: _____

DISSENT: _____

SMO:LAF:lh\RM

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