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Tucson Electric Power
88 East Broadway Blvd., P.O. Box 711
Tucson, Arizona 85702

AZ CORP COMMISSION
DOCKET CONTROL

May 26, 2015

Arizona Corporation Commission

DOCKETED

MAY 28 2015

Docket Control
Utilities Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007

DOCKETED BY	DAB
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Re: Notice of Filing – Existing Homes Savings and Cost-Effectiveness Compliance Report
SS: Tucson Electric Power Company 2014 and 2015 Energy Efficiency Implementation Plan
Decision No. 74885, Docket No. E-01933A-13-0183

Pursuant to Decision No. 74885 (December 31, 2014), page 45, lines 11 through 13, Tucson Electric Power Company “shall file a report in this docket on the savings and cost-effectiveness of the four Existing Homes lower tier duct sealing measures.” The report is based on twelve months of data from actual installations.,

If you have any questions, please do not hesitate to contact me at (520) 884-3680.

Sincerely,

Melissa Morales
Regulatory Services

cc: Compliance Section

EXISTING HOMES SAVINGS AND COST-EFFECTIVENESS COMPLIANCE REPORT

Tucson Electric Power Company 2014 and 2015 Energy Efficiency Implementation Plan

Decision No. 74885, Docket No. E-01933A-13-0183

Requirement:

As shown in the excerpt below, Tucson Electric Power Company ("TEP") is required to submit a report by May 31, 2015 showing the actual savings and cost effectiveness of four measures in the Existing Homes Program after the measures have been offered for one full year (Decision No. 74885 from December 31, 2014 page 18, lines 6-26).

"58. Four Existing measures did not pass cost-effectiveness. These consist of two measures offering duct testing and repair with a minimum 14% reduction in leakage, and two measures offering replacement of burned out heat pump or air conditioning equipment, along with quality installation, and duct testing and repair, also resulting in a minimum 14% reduction in leakage:

- *DTR- \geq 14% Reduction leakage (All electric);*
- *DTR- \geq 14% Reduction leakage (Dual fuel);*
- *HVAC-QI-DTR \geq 14% Reduction leakage (All electric); and*
- *HVAC-QI-DTR \geq 14% Reduction leakage (Dual fuel).*

(No energy savings from new equipment is counted for the latter two measures.)

Data from actual installations has been gathered from April 2014 through April 2015.

Data:

Table 1 provides detail for estimated savings at the minimum of 14% leakage reduction and detail to determine cost-effectiveness for each of the four measures from the original filing from July 3, 2013.

Table 2 provides detail for actual savings of 23.18% leakage reduction and detail to determine cost-effectiveness for each of the four measures including updated incremental cost research and resulting changes to include equipment savings when appropriate.

Raw data from TEPs IC showing duct leakage reduction is also provided in Exhibit 1 - Raw Data \geq 14% Leakage Reduction April 2014 through April 2015.

Table 1: Measure Cost-Effectiveness detail from July 3, 2013 Filing

BC Results Using 14% Minimum Leakage Reduction									
	Measure	Unit	Coincident Demand Savings	Annual Savings (kWh at meter)	Annual Savings (Gas Therms)	Effective Useful Life (Yrs)	Incremental Cost per Unit	Non-Incent Program Cost/Unit	TEP Societal Cost Test
1	DTR-≥14% Reduction leakage (All electric)	Per Unit	0.47	751	0	20	\$732	\$320	1.10
2	DTR-≥14% Reduction leakage (Dual Fuel)	Per Unit	0.38	533	5.7	20	\$732	\$227	1.08
3	HVAC-QI-DTR ≥14% Reduction leakage (All electric)	Per Unit	0.91	1,459	0	10	\$971	\$311	0.89
4	HVAC-QI-DTR ≥14% Reduction leakage (Dual Fuel)	Per Unit	0.93	1,073	5.8	10	\$971	\$229	0.93

Table 2: Measure Cost-Effectiveness detail from compliance filing for April 2014-April 2015 actual savings

BC Results Using 23.18% Actual Average Leakage Reduction									
Measure	Unit	Coincident Demand Savings	Annual Savings (kWh at meter)	Annual Savings (Gas Therms)	Effective Useful Life (Yrs)	Incremental Cost per Unit	Non-Incent Program Cost/Unit	TEP Societal Cost Test	
1 DTR-≥14% Reduction leakage (All electric)	Per Unit	.75	1,200	0	20	\$505	\$475	1.88	
2 DTR-≥14% Reduction leakage (Dual Fuel)	Per Unit	.74	859	9.0	20	\$505	\$340	2.12	
3 HVAC-QJ-DTR ≥14% Reduction leakage (All electric)	Per Unit	1.77	2,837	0	18	\$914	\$1,011	2.07	
4 HVAC-QJ-DTR ≥14% Reduction leakage (Dual Fuel)	Per Unit	1.72	1,990	10.2	18	\$1,125	\$798	2.03	

Conclusion:

The actual duct leakage reduction for the $\geq 14\%$ minimum duct leakage reduction category after one full year is 23.18% using 94 actual jobs (Exhibit 1 Line 97, Column C). This actual duct leakage reduction provides significantly higher energy savings than originally estimated in the initial filing from using the minimum of 14% leakage reduction and benefit-cost results satisfy the cost-effectiveness threshold. Subsequent to the original filing on June 3, 2013, TEP also completed incremental cost studies as part of the required 3rd party Measurement, Evaluation and Research Report ("MER"). As a result of the new incremental cost research, both Duct Test Repair ("DTR") costs and equipment costs for new ENERGY STAR® equipment are lower than originally estimated.

In the initial filing, TEP did not claim savings from replacing a minimum efficiency 13 SEER unit with a new ENERGY STAR® unit because estimated equipment cost was too high to allow for a positive BC test. When new incremental cost studies provided results showing equipment cost is actually lower than initially estimated, TEP was able to include savings from equipment replacement in the HVAC-QI-DTR $\geq 14\%$ measures. With equipment and DTR now included in the measure, measure life is now 18 years. All updated saving, cost and measure life information is used in the compliance calculation to show measure cost-effectiveness.

Exhibit 1

Raw Data $\geq 14\%$ Leakage Reduction April 2014 through April 2015

Exhibit 1 - Raw Data ≥14% Leakage Reduction April 2014 through April 2015

Initial Leakage (%)	After Repair Leakage (%)	% Improved	Test Device	Contractor	TestDate	MeterNumber	CheckMeID	PaymentType
29.5	13.3	16.2	Duct Blaster	Russett Southwest Corporation	5/2/2014	AMR3-16123	P114911	Duct Repair Tier 1
52.5	29.5	23	Duct Blaster	Russett Southwest Corporation	5/7/2014	AMRS-242584	P114996	Duct Repair Tier 1
20	5.8	14.2	Duct Blaster	Hamstra Heating & Cooling Inc.	5/9/2014	XH-95748	P114994	Duct Repair Tier 1
17.1	2.6	14.5	Duct Blaster	Hamstra Heating & Cooling Inc.	5/13/2014	SK2-980	P115031	Duct Repair Tier 1
56.3	26.1	30.2	Duct Blaster	Russett Southwest Corporation	5/16/2014	XH-25092	P115195	Duct Repair Tier 1
67.9	38.6	29.3	Duct Blaster	Russett Southwest Corporation	5/16/2014	XH-227017	P115191	Duct Repair Tier 1
28.1	13.3	14.8	Duct Blaster	Hamstra Heating & Cooling Inc.	5/20/2014	XH-533323	P115088	Duct Repair Tier 1
62.9	25.4	37.5	Duct Blaster	Russett Southwest Corporation	5/21/2014	AMRS-222981	P115284	Duct Repair Tier 1
47.4	31.2	16.2	Duct Blaster	Russett Southwest Corporation	5/27/2014	XH-308532	P115172	Duct Repair Tier 1
31.3	14.6	16.7	Duct Blaster	Russett Southwest Corporation	5/27/2014	XH-417034	P115356	Duct Repair Tier 1
24.4	9.3	15.1	Duct Blaster	Hamstra Heating & Cooling Inc.	5/30/2014	XH-155269	P114963	Duct Repair Tier 1
47	19	28	Duct Blaster	Russett Southwest Corporation	6/2/2014	AMR3-33919	P115406	Duct Repair Tier 1
38.4	23.4	15	Duct Blaster	Russett Southwest Corporation	6/4/2014	AMRS-270662	P115516	Duct Repair Tier 1
55.8	35.8	20	Duct Blaster	Russett Southwest Corporation	6/4/2014	SK2-1848	P115522	Duct Repair Tier 1
21.7	6.1	15.6	Duct Blaster	Hamstra Heating & Cooling Inc.	6/12/2014	XH-505173	P115641	Duct Repair Tier 1
37.5	9.8	27.7	Duct Blaster	Russett Southwest Corporation	6/12/2014	XH-570980	P115634	Duct Repair Tier 1
39.2	1	38.2	Aeroseal	Green Valley Cooling & Heating	6/13/2014	AMRS-281012	P115698	Duct Repair Tier 1
31.5	10.4	21.1	Duct Blaster	Hamstra Heating & Cooling Inc.	6/17/2014	AMRS-268263	P115313	Duct Repair Tier 1
106.4	41.8	64.6	Duct Blaster	Russett Southwest Corporation	6/18/2014	XH-145268	P115472	Duct Repair Tier 1
17.7	2.9	14.8	Duct Blaster	Hamstra Heating & Cooling Inc.	6/19/2014	XM-1947	P115425	Duct Repair Tier 1
35.9	2.4	33.5	Duct Blaster	Hamstra Heating & Cooling Inc.	6/19/2014	SK2-11623	P115614	Duct Repair Tier 1
31.9	10.6	21.3	Duct Blaster	Russett Southwest Corporation	6/23/2014	AMRS-153285	P115804	Duct Repair Tier 1
42	26.2	15.8	Duct Blaster	Hamstra Heating & Cooling Inc.	6/23/2014	XK2-3145	P115625	Duct Repair Tier 1
26.6	9.6	17	Duct Blaster	Hamstra Heating & Cooling Inc.	6/26/2014	XH-593436	P115771	Duct Repair Tier 1
47.3	18.1	29.2	Duct Blaster	Hamstra Heating & Cooling Inc.	6/26/2014	XH-593436	P115771	Duct Repair Tier 1
30.6	1	29.6	Aeroseal	Green Valley Cooling & Heating	6/27/2014	AMRS-135410	P115596	Duct Repair Tier 1
44.5	14.8	29.7	Duct Blaster	Hamstra Heating & Cooling Inc.	7/2/2014	XM-582	P115602	Duct Repair Tier 1
28.4	12	16.4	Duct Blaster	Hamstra Heating & Cooling Inc.	7/2/2014	XM-582	P115602	Duct Repair Tier 1
27.1	11.7	15.4	Duct Blaster	Hamstra Heating & Cooling Inc.	7/2/2014	XM-582	P115602	Duct Repair Tier 1
18.1	1	17.1	Aeroseal	Green Valley Cooling & Heating	7/3/2014	AMRS-244269	P116037	Duct Repair Tier 1
29.8	1	28.8	Aeroseal	Green Valley Cooling & Heating	7/3/2014	AMRS-279614	P116041	Duct Repair Tier 1
62.6	31.8	30.8	Duct Blaster	Hamstra Heating & Cooling Inc.	7/8/2014	AMRS-163636	P116048	Duct Repair Tier 1
88.9	32.9	56	Duct Blaster	USI dba Preston Insulation	7/14/2014	AMRS-307128	P116195	Duct Repair Tier 1
35.2	20.1	15.1	Duct Blaster	Russett Southwest Corporation	7/14/2014	XH-309253	P116204	Duct Repair Tier 1
41.8	3.9	37.9	Aeroseal	Russett Southwest Corporation	7/16/2014	OC-69703	P116220	Duct Repair Tier 1
29.3	9.5	19.8	Duct Blaster	Hamstra Heating & Cooling Inc.	7/23/2014	XH-537327	P115984	Duct Repair Tier 1
41.4	26.8	14.6	Duct Blaster	Russett Southwest Corporation	7/29/2014	XH-304380	P116427	Duct Repair Tier 1
48.8	3.5	45.3	Aeroseal	Russett Southwest Corporation	8/6/2014	AMRS-273763	P116639	Duct Repair Tier 1
23.8	1.4	22.4	Aeroseal	Green Valley Cooling & Heating	8/18/2014	AMR2-3490	P116276	Duct Repair Tier 1
33.1	2.6	30.5	Aeroseal	Russett Southwest Corporation	8/18/2014	XH-546447	P116013	Duct Repair Tier 1
47	1	46	Aeroseal	Green Valley Cooling & Heating	8/19/2014	AMRS-220223	P115966	Duct Repair Tier 1
49.2	21.9	27.3	Duct Blaster	Hamstra Heating & Cooling Inc.	9/9/2014	AMRS-263789	P117428	Duct Repair Tier 1
43.1	24	19.1	Duct Blaster	Hamstra Heating & Cooling Inc.	9/12/2014	SK2-2585	P117451	Duct Repair Tier 1
24.4	7.1	17.3	Duct Blaster	Green Valley Cooling & Heating	9/22/2014	AMRS-217951	P117585	Duct Repair Tier 1
28.6	8	20.6	Duct Blaster	Hamstra Heating & Cooling Inc.	9/30/2014	XH-536338	P117742	Duct Repair Tier 1
24.6	9.7	14.9	Duct Blaster	Hamstra Heating & Cooling Inc.	10/2/2014	XH-594991	P117727	Duct Repair Tier 1
28.8	5.6	23.2	Aeroseal	Arrow Seal LLC	10/8/2014	XH-531599	P118029	Duct Repair Tier 1
44.3	17.5	26.8	Duct Blaster	Hamstra Heating & Cooling Inc.	10/10/2014	XM-1876	P118048	Duct Repair Tier 1
89.2	49.8	39.4	Aeroseal	Hamstra Heating & Cooling Inc.	10/22/2014	AMRS-154708	P118131	Duct Repair Tier 1
23	7.7	15.3	Duct Blaster	Hamstra Heating & Cooling Inc.	10/31/2014	XH-2320	P118371	Duct Repair Tier 1
37.5	11.6	25.9	Duct Blaster	Hamstra Heating & Cooling Inc.	11/3/2014	XH-504401	P118418	Duct Repair Tier 1
24.3	2.3	22	Aeroseal	Arrow Seal LLC	11/5/2014	XH-328107	P118548	Duct Repair Tier 1
26.7	1	25.7	Aeroseal	Arrow Seal LLC	11/7/2014	XH-312611	P118607	Duct Repair Tier 1
19.4	2.7	16.7	Duct Blaster	Green Valley Cooling & Heating	11/17/2014	AMRS-134944	P117327	Duct Repair Tier 1
26.6	3.1	23.5	Aeroseal	Arrow Seal LLC	11/24/2014	XH-518853	P118756	Duct Repair Tier 1
32.3	10.8	21.5	Duct Blaster	Green Valley Cooling & Heating	11/26/2014	AMRS-259725	P117794	Duct Repair Tier 1
24.5	9.2	15.3	Duct Blaster	Hamstra Heating & Cooling Inc.	11/26/2014	XH-525407	P118141	Duct Repair Tier 1
30.3	15.8	14.5	Duct Blaster	Russett Southwest Corporation	11/26/2014	SK2-10440	P118785	Duct Repair Tier 1
22.7	4.1	18.6	Aeroseal	Arrow Seal LLC	12/15/2014	AMRS-274683	P119087	Duct Repair Tier 1
25.8	6	19.8	Aeroseal	Arrow Seal LLC	12/15/2014	AMRS-307751	P119090	Duct Repair Tier 1
37.6	8.5	29.1	Duct Blaster	Hamstra Heating & Cooling Inc.	12/16/2014	AMRS-434881	P119003	Duct Repair Tier 1
42	8.5	33.5	Aeroseal	Russett Southwest Corporation	12/18/2014	XH-547703	P119136	Duct Repair Tier 1
25.2	6.3	18.9	Duct Blaster	Hamstra Heating & Cooling Inc.	12/23/2014	AMRS-285644	P118708	Duct Repair Tier 1
21.9	3.4	18.5	Aeroseal	Arrow Seal LLC	1/7/2015	AMRS-320095	P119314	Duct Repair Tier 1
33.1	7.6	25.5	Aeroseal	Arrow Seal LLC	1/7/2015	AMRS-167952	P119307	Duct Repair Tier 1
27.4	3.3	24.1	Aeroseal	Arrow Seal LLC	1/8/2015	XH-7735	P119328	Duct Repair Tier 1
34.2	8.4	25.8	Duct Blaster	Hamstra Heating & Cooling Inc.	1/16/2015	XH-615706	P119410	Duct Repair Tier 1
20.4	1.8	18.6	Aeroseal	Arrow Seal LLC	1/21/2015	SK2-2423	P119570	Duct Repair Tier 1
31.1	13.9	17.2	Duct Blaster	Hamstra Heating & Cooling Inc.	1/21/2015	AMRS-348296	P119244	Duct Repair Tier 1
16.6	1.4	15.2	Aeroseal	Arrow Seal LLC	1/22/2015	XH-99871	P119616	Duct Repair Tier 1
26.2	2.4	23.8	Aeroseal	Arrow Seal LLC	1/26/2015	XH-22963	P119678	Duct Repair Tier 1
17.1	1.2	15.9	Aeroseal	Arrow Seal LLC	2/4/2015	AMRS-335028	P119892	Duct Repair Tier 1
18.7	2.4	16.3	Aeroseal	Arrow Seal LLC	2/9/2015	AMRS-151580	P119995	Duct Repair Tier 1
16.8	2.3	14.5	Aeroseal	Arrow Seal LLC	2/17/2015	AMRS-165484	P120177	Duct Repair Tier 1
28.4	12	16.4	Duct Blaster	Hamstra Heating & Cooling Inc.	2/24/2015	AMRS-451656	P120088	Duct Repair Tier 1
27.7	10.6	17.1	Duct Blaster	Green Valley Cooling & Heating	3/10/2015	XH-546176	P120249	Duct Repair Tier 1

Exhibit 1 - Raw Data ≥14% Leakage Reduction April 2014 through April 2015

Initial Leakage (%)	After Repair Leakage (%)	% Improved	Test Device	Contractor	TestDate	MeterNumber	CheckMeID	PaymentType
39.5	1	38.5	Aeroseal	Hamstra Heating & Cooling Inc.	3/16/2015	AMRS-436578	P120860	Duct Repair Tier 1
18.3	1.5	16.8	Aeroseal	Arrow Seal LLC	3/16/2015	XH-200058	P120871	Duct Repair Tier 1
24	1.6	22.4	Aeroseal	Arrow Seal LLC	3/16/2015	AMRS-218332	P120887	Duct Repair Tier 1
31.8	4.1	27.7	Aeroseal	Arrow Seal LLC	3/17/2015	AMRS-76716	P120928	Duct Repair Tier 1
22.3	6.8	15.5	Duct Blaster	Green Valley Cooling & Heating	3/23/2015	AMRS-320481	P120366	Duct Repair Tier 1
18.1	1.6	16.5	Aeroseal	Arrow Seal LLC	3/23/2015	AMRS-262887	P121116	Duct Repair Tier 1
37.8	13.1	24.7	Duct Blaster	Hamstra Heating & Cooling Inc.	3/26/2015	XH-61536	P121267	Duct Repair Tier 1
20.7	1.3	19.4	Aeroseal	Arrow Seal LLC	4/13/2015	XH-522848	P121926	Duct Repair Tier 1
41.6	17.3	24.3	Duct Blaster	Hamstra Heating & Cooling Inc.	4/14/2015	XK2-1688	P120393	Duct Repair Tier 1
22.2	6	16.2	Duct Blaster	Hamstra Heating & Cooling Inc.	4/14/2015	AMRS-274039	P121905	Duct Repair Tier 1
23.8	1.3	22.5	Aeroseal	Arrow Seal LLC	4/15/2015	AMRS-489084	P122036	Duct Repair Tier 1
21.8	1.4	20.4	Aeroseal	Arrow Seal LLC	4/20/2015	XH-72796	P122198	Duct Repair Tier 1
28.8	11.6	17.2	Duct Blaster	Green Valley Cooling & Heating	4/21/2015	AMRS-248480	P120706	Duct Repair Tier 1
44.5	19	25.5	Duct Blaster	Green Valley Cooling & Heating	4/21/2015	AMRS-248480	P120706	Duct Repair Tier 1
28.8	9.1	19.7	Aeroseal	Hamstra Heating & Cooling Inc.	4/22/2015	SK2-7512	P122317	Duct Repair Tier 1
32.6	1.8	30.8	Aeroseal	Arrow Seal LLC	4/23/2015	AMRS-100765	P122362	Duct Repair Tier 1
16.6	1.3	15.3	Aeroseal	Arrow Seal LLC	4/30/2015	AMRS-248209	P122654	Duct Repair Tier 1
29.7	7	22.7	Duct Blaster	Green Valley Cooling & Heating	4/30/2015	AMRS-242939	P122638	Duct Repair Tier 1
34.04%	10.86%	23.18%						